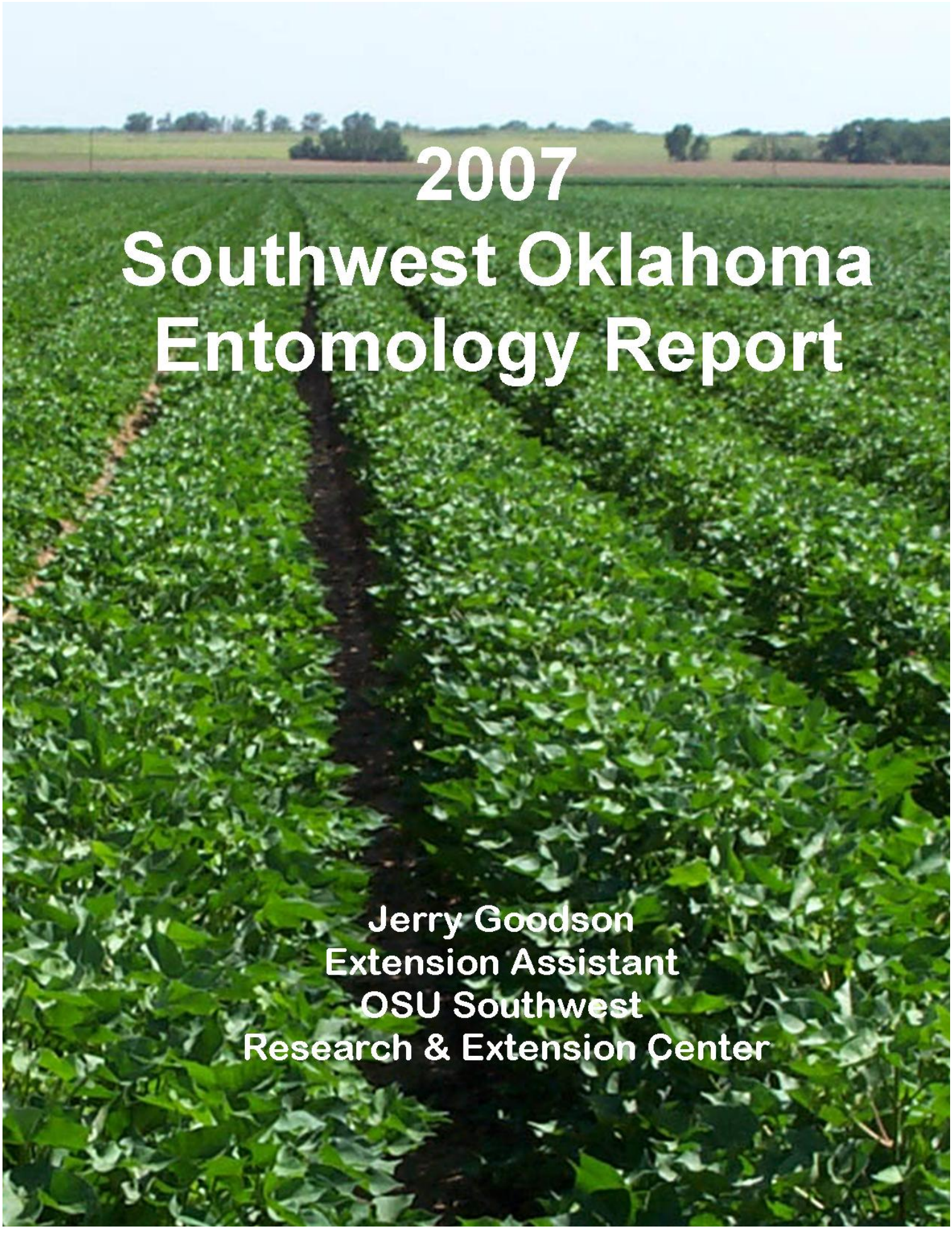

2007 Southwest Oklahoma Entomology Report

Jerry Goodson
Extension Assistant
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Acknowledgements

At this time I want to thank the following persons without whose help this year's entomology projects could not have been accomplished.

J.C. Banks, Extension Cotton Specialist
Shane Osborne, Associate Extension Specialist
Karen Coggeshall, Extension Secretary

I also want to thank the OSU Southwest Research & Extension Staff for their continued support.

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Rocky Thacker, Experiment Station Superintendent
Toby Kelley, Assistant Experiment Station Superintendent
Connie Bookout, Experiment Station Secretary
Lynn Halford, Field Assistant
Alton Young, Field Assistant
Greg Chavez, Field Assistant
Kyle Sebree, Field Assistant

Also Scott Price, Grant County CED, for establishing and monitoring the Bollworm, Tobacco Budworm and Beet Armyworm moth traps in Manchester, Oklahoma.

Jerry Goodson
Extension Assistant

Entomology Activities

Insect monitoring is a key component in a successful IPM program. Trapping activities in 2007 covered cotton growing regions of Southwest and Northern Oklahoma. Trapping activities were centered on the beet armyworm and the bollworm complex. Population trends, insect updates, and control tips are published in the Cotton Outlook and distributed to the state's cotton producers and consultants to help formulate management strategies to enhance profitability.

Like 2006, Bollgard™ technology was the focus of this year's research. Monetary support received throughout the year permitted this applied research to continue. In addition to State IPM funds, I want to thank all the chemical companies for their contract research support. Special thanks go to the cotton producers for their support as cooperators and support through the Cotton Incorporated State Support Funds

Oklahoma Cotton Insect Report 2007

A total of 164,481 acres (Oklahoma Boll Weevil Eradication Organization figures) were planted and harvested in 2007. The state's production average is projected at 750 lbs. of lint per acre. Abundant rain early in the growing season and in some parts of the state throughout the season has allowed this year crop to be exceptionally good. Insect pressure was light in most areas. Aphids caused a problem in some areas but beneficial insects quickly took care of them where insecticides were not used.

Ongoing Research Projects

Several Bt cotton trials were conducted in 2007 to further evaluate the value of this technology under Oklahoma conditions. Early season pests were was also the target of several trials in the state.

Table of Contents

Bollworm / Tobacco Budworm and Beet Armyworm Monitoring

The bollworm/tobacco budworm complex is the target of many of the insecticide applications applied annually to cotton in Oklahoma. Monitoring moth activities helps determine species ratio and peak ovipositional activity for these insects. Traps were located near the communities of Altus, Hollis, Manchester, and Tipton. In addition to Heliothine activity, beet armyworm movements were also monitored at each location. Traps were maintained between June 1 and October 1, 2007.

Moth Pheromone Trap Catch Totals for Selected Regions of Oklahoma, Summer 2007.

Bollworm

Altus	Hollis	Manchester	Tipton
742	567	56	1,241

Tobacco Budworm

Altus	Hollis	Manchester	Tipton
66	35	0	183

Beet Armyworm

Altus	Hollis	Manchester	Tipton
68	52	8	101

Although both species do coexist and are considered the same by growers, this species ratio is important since tobacco budworms exhibit a higher level of resistance to insecticides than bollworms. It is extremely important to detect fluctuations in species ratio of each ovipositional period and adjust insecticide recommendations accordingly. A total of 2,890 moths were captured between the weeks of June 1 and October 1. Bollworms comprised 90.1% of the total catch in 2007 (Figure 1).

Figure 1. Species composition of moths trapped across Oklahoma, Summer 2007.

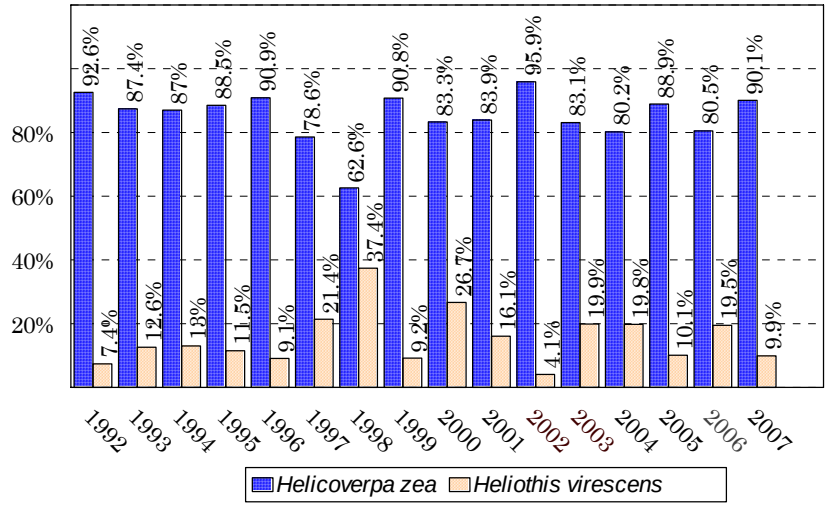
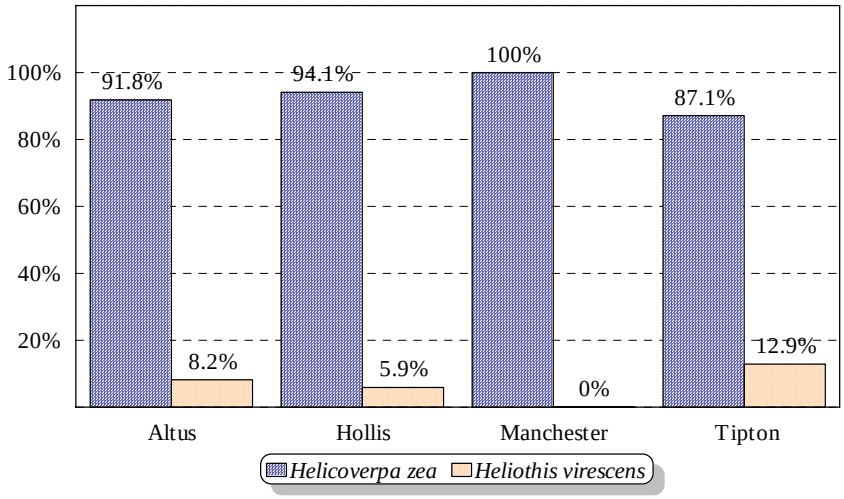


Figure 2. Species composition of trapped moths by production region, 2007.



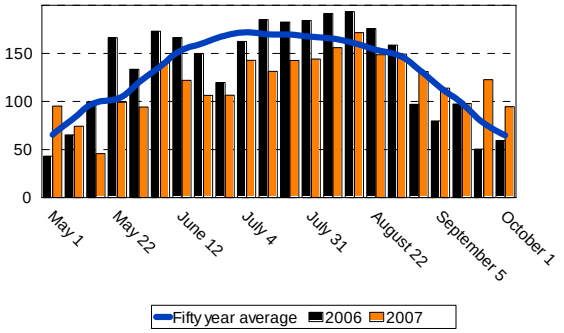
Helicoverpa zea - Corn Earworm moth (Bollworm)
Heliothis virescens - Tobacco Budworm moth

Growing Degree Days Accumulation For Select Locations Across Oklahoma, Summer 2007.

ALTUS

Growing Degree Days (GDD)

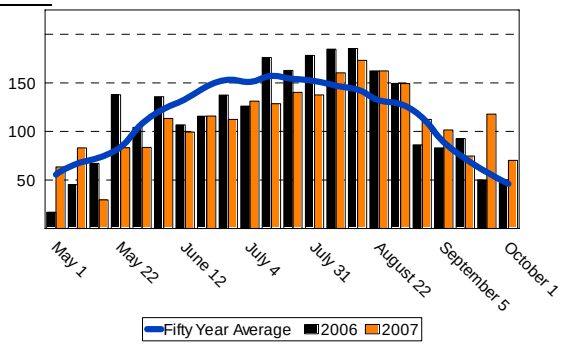
	50 year	2006	2007
May	469.9	507.8	408.7
June	616.9	608.9	486.3
July	678.3	714.2	560.8
August	761.1	816.2	756.4
September	354.7	286.9	428.9
Total	**2,880.9**	**2,934.0**	**2,641.1**



BLACKWELL

Growing Degree Days (GDD)

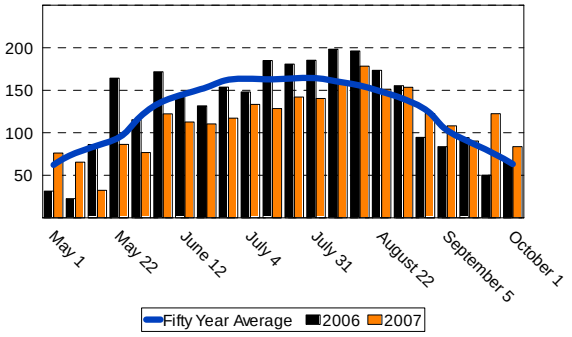
	50 year	2006	2007
May	389.7	371.0	343.0
June	556.8	495.4	441.0
July	615.2	643.2	537.4
August	665.8	767.8	757.5
September	266.5	258.5	364.2
Total	**2,494.0**	**2,535.9**	**2,443.1**



HOBART

Growing Degree Days (GDD)

	50 year	2006	2007
May	437.9	419.5	337.0
June	598.8	599.9	462.6
July	654.7	699.2	544.3
August	731.1	818.0	766.0
September	332.7	293.4	404.5
Total	**2,755.2**	**2,830.0**	**2,514.4**



Bollgard II™ and Widestrike Variety Demonstration 2007

Cooperator: Terry White
Location: Harmon County
Planting Date: May 17, 2007
Heat units accumulated: 2,714
Seeding Rate: 13.5 lbs/acre
Four Irrigations

Pesticide Usage:

Roundup WeatherMax (20 oz / acre) over-the-top application +
Vydate 0.18 lbs ai/acre + Pix 4 oz / acre July 2
Orthene .45 lbs ai/acre + Pentiai 8 oz/acre July 17

Harvest Aid applied:

Ethephon (32 oz / acre) + Ginstar (5 oz / acre) September 25
Ethephon (16 oz / acre) October 3

Table 1. Stand Densities, Retention Rates, and Lint Production White's Farm - Summer 2006

Variety	Stand density plants/acre		% Retention		Lint Yield
	May 31	June 13	8/1	8/24	10/9
PHY 485 WRF	48,000	46,000	89.5	85.5	1,761
ST 5327 B2RF	45,000	42,000	87.6	82.6	1,647
ST 4357 B2RF	47,000	51,000	91.2	83.2	1,593
DP 164 B2RF	48,000	46,000	90.2	83.4	1,572
DP 143 B2RF	46,000	44,000	88.7	81.2	1,566
FM 9180 B2F	40,000	42,000	86.5	80.5	1,498
FM 9063 B2F	41,000	41,000	92.2	82.5	1,493
ST 4427 B2RF	46,000	48,000	85.5	82.3	1,438
NG 3273 B2RF	46,000	47,000	89.9	81.6	1,431
AFD 5065 B2F	41,000	41,000	84.3	81.5	1,378
ST 4554 B2RF	46,000	44,000	89.1	84.5	1,371
FM 1880 B2F	41,000	43,000	84.6	82.5	1,335
ST 4664 RF	45,000	46,000	88.2	81.1	1,182

Trial Comments: Bt varieties average 1,507 Roundup Ready 1,182.

Comparison of Sister Lines of Transgenic Cotton

	Stand count-June 1 Plants/acre	Stand count June 6 Plants/acre	Seasonal Average Bollworm Egg Count 25/plants	Seasonal Average Bollworm Larvae Count 50/blooms	Seasonal Average Bollworm Square Damage 50/squares	Lint Yield Lbs lint /acre 5/Nov/2007
Treatment						
Stoneville 4554 B2/R	44,000 a	42,500 a	0 a	0 a	0 a	1159 a
Stoneville 5327 B2/R	45,250 a	43,250 a	0 a	0 a	0 a	1177 a
Stoneville 4664 RF	43,000 a	43,000 a	0 a	0 a	0 a	1097 a
Stoneville 5283 RF	44,250 a	44,250 a	0 a	0 a	0 a	1145 a
LSD (P=.05)	3586.5	3616.1	0.2	0.0	0.0	111.1
Standard Deviation	2242.3	2260.8	0.2	0.0	0.0	69.4
CV	5.08	5.23	203.67	0.0	0.0	6.07

Means followed by same letter do not significantly differ (P=.05, Student-Newman-Keuls)

Comparison of Bollgard™ II Flex, Bollgard™ Roundup Ready and Widestrike™ Cotton Varieties under Irrigation

	Stand Count June 1 Plants/acre	Stand Count June 6 Plants/acre	Seasonal Average Bollworm Egg Count 25/plants	Seasonal Average Bollworm Larvae Count 50/blooms	Seasonal Average Bollworm Square Damage 50/squares	Lint Yield Lbs lint /acre 5/Nov/2007
Treatment						
Stoneville 4554 B2RF	38,000 a	38,250 a	0 a	0 a	0 a	1,452 a
Phytogen 485 WRF	36,500 a	38,000 a	0 a	0 a	0 a	1,380 a
Delta Pineland 164 B2RF	38,250 a	38,000 a	0 a	0 a	0 a	1,344 a
Stoneville 4357 B2RF	35,000 a	35,000 a	0 a	0 a	0 a	1,318 a
Stoneville 5327 B2RF	34,750 a	34,750 a	0 a	0 a	0 a	1,311 a
AFD 5065 B2F	36,000 a	36,000 a	0 a	0 a	0 a	1,305 a
NexGen 3273 B2RF	34,250 a	35,000 a	0 a	0 a	0 a	1,295 a
Delta Pineland 143 B2RF	36,750 a	36,750 a	0 a	0 a	0 a	1,261 a
FibermaxM 9063 B2F	36,750 a	36,250 a	0 a	0 a	0 a	1,229 a
Fibermax 1880 B2R	41,000 a	40,500 a	0 a	0 a	0 a	1,202 a
FibermaxM 9180 B2F	35,500 a	27,975 a	0 a	0 a	0 a	1,192 a
Stoneville 4427 B2RF	37,750 a	37,250 a	0 a	0 a	0 a	1,164 a
LSD (P=.05)	5269.9	8123.1	0.3	0.0	0.5	147.5
Standard Deviation	3649.8	5625.7	0.2	0.0	0.3	102.1
CV	9.94	15.56	303.74	0.0	313.57	7.93

Means followed by same letter do not significantly differ (P=.05, Student-Newman-Keuls)

Beltwide Study of At-Planting Insecticides/Nematicide Products
J.C Banks Study Director

Treatment	Rate	Stand Count Plants /acre June 1 13 DA-A	Stand Count Plants /acre June 6 18 DA-A	Stand Count Plants /acre June 19 23 DA-A	Thrips Adult /5 Plant June 1 13 DA-A	Thrips Larvae /5 Plant June 1 13 DA-A	Thrips Total /5 Plant June1 13 DA-A
Avicta Complete		49,238 a	48,588 ab	47,450 a	0 a	0 a	0 a
Avicta Complete Orthene	4 oz/a	44,200 a	47,450 ab	46,475 a	0 a	0 a	0 a
Aeris		41,763 a	40,625 ab	44,850 a	0 a	0 a	0 a
Aeries Orthene	4 oz/a	37,375 a	39,000 ab	42,088 a	0 a	0 a	0 a
Temik	5 lb/a	46,313 a	46,963 ab	46,800 a	0 a	0 a	0 a
Temik Orthene	5 lb/a 4 oz/a	47,288 a	47,613 ab	41,438 a	0 a	0 a	0 a
Systemic Cruiser+Dynasty		39,975 a	42,738 ab	49,238 a	0 a	0 a	0 a
Systemic Cruiser+Dynasty Orthene	4 oz/a	34,450 a	32,988 b	34,613 a	0 a	0 a	0 a
Untreated ATB		41,763 a	39,163 ab	48,588 a	0 a	0 a	0 a
Untreated ATB Orthene	4 oz/a	47,775 a	51,838 a	49,400 a	0 a	0 a	0 a
LSD (P=.05)		10848.1	11057.6	10101.5	0.0	0.0	0.0
Standard Deviation		7476.4	7620.8	6961.8	0.0	0.0	0.0
CV		17.38	17.44	15.44	0.0	0.0	0.0

Means followed by same letter do not significantly differ (P=.05, Student-Newman-Keuls)

Treatment	Rate	Thrips Adult /5 Plant June 6 18 DA-A	Thrips Larvae /5 Plant June 6 18 DA-A	Thrips Total /5 Plant June6 18 DA-A	Thrips Adult /5 Plant June 11 23 DA-A	Thrips Larvae /5 Plant June 11 23 DA-A	Thrips Total /5 Plant June 11 23 DA-A
Avicta Complete		0 a	0 a	0 a	0 a	0 a	0 a
Avicta Complete Orthene	4 oz/a	0 a	0 a	0 a	0 a	0 a	0 a
Aeris		0 a	0 a	0 a	0 a	0 a	0 a
Aeries Orthene	4 oz/a	0 a	0 a	0 a	0 a	0 a	0 a
Temik	5 lb/a	0 a	0 a	0 a	0 a	0 a	0 a
Temik Orthene	5 lb/a 4 oz/a	0 a	0 a	0 a	0 a	1 a	0 a
Systemic Cruiser+Dynasty		0 a	0 a	0 a	0 a	0 a	0 a
Systemic Cruiser+Dynasty Orthene	4 oz/a	0 a	0 a	0 a	0 a	0 a	0 a
Untreated ATB		0 a	0 a	0 a	0 a	0 a	0 a
Untreated ATB Orthene	4 oz/a	0 a	0 a	0 a	0 a	0 a	0 a
LSD (P=.05)		0.0	0.0	0.0	0.0	0.4	0.0
Standard Deviation		0.0	0.0	0.0	0.0	0.3	1.0
CV		0.0	0.0	0.0	0.0	304.29	0.0

Means followed by same letter do not significantly differ (P=.05, Student-Newman-Keuls)

Treatment	Rate	Thrips Adult /5 Plant June 18 30 DA-A 6 DA-B	Thrips Larvae /5 Plant June 18 30 DA-A 6 DA-B	Thrips Total /5 Plant June18 30 DA-A 6 DA-B	Thrips Adult /5 Plant July 5 47 DA-A 23 DA-B	Thrips Larvae /5 Plant July 5 47 DA-A 23 DA-B	Thrips Total /5 Plant July 5 47 DA-A 23 DA-B
Avicta Complete		0 a	0 a	0 a	0 a	0 a	0 a
Avicta Complete Orthene	4 oz/a	0 a	0 a	0 a	0 a	0 a	0 a
Aeris		0 a	0 a	0 a	0 a	0 a	0 a
Aeries Orthene	4 oz/a	0 a	0 a	0 a	0 a	0 a	0 a
Temik	5 lb/a	0 a	0 a	0 a	0 a	0 a	0 a
Temik Orthene	5 lb/a 4 oz/a	0 a	0 a	0 a	0 a	0 a	0 a
Systemic Cruiser+Dynasty		0 a	0 a	0 a	0 a	0 a	0 a
Systemic Cruiser+Dynasty Orthene	4 oz/a	0 a	0 a	0 a	0 a	0 a	0 a
Untreated ATB		0 a	0 a	0 a	0 a	0 a	0 a
Untreated ATB Orthene	4 oz/a	0 a	0 a	0 a	0 a	0 a	0 a
LSD (P=.05)		0.0	0.0	0.0	0.0	0.0	0.0
Standard Deviation		0.0	0.0	0.0	0.0	0.0	0.0
CV		0.0	0.0	0.0	0.0	0.0	0.0

Means followed by same letter do not significantly differ (P=.05, Student-Newman-Keuls)

Treatment	Rate	Seedling Vigor 1-10 June 6 18 DA-A	Thrips Ranking 1-10 July 9 51 DA-A 37 DA-B	Yield Lint lbs/acre November 5
Avicta Complete		6 a	0 a	1,330 a
Avicta Complete Orthene	4 oz/a	6 a	0 a	1,357 a
Aeris		6 a	0 a	1,393 a
Aeries Orthene	4 oz/a	6 a	0 a	1,369 a
Temik	5 lb/a	6 a	0 a	1,261 a
Temik Orthene	5 lb/a 4 oz/a	6 a	0 a	1,354 a
Systemic Cruiser+Dynasty		7 a	0 a	1,371 a
Systemic Cruiser+Dynasty Orthene	4 oz/a	6 a	0 a	1,315 a
Untreated ATB		6 a	0 a	1,357 a
Untreated ATB Orthene	4 oz/a	7 a	0 a	1,380 a
LSD (P=.05)		0.7	0.0	0.0
Standard Deviation		0.5	0.0	0.0
CV		7.92	0.0	0.0

Means followed by same letter do not significantly differ (P=.05, Student-Newman-Keuls)

Orthene spray applied June 12 in 10 gallons/acre finished spray.

Thrip Efficacy Trial on Cotton

Treatment	Rate	Rate Unit	Stand Count Plants/acre June 1 13 DAP	Thrips Total /5 plant June 1 13 DAP	Thrips Damage Rating 0-10 June 1 13 DAP	Thrips Adult /5 Plant June 11 23 DA-A	Thrips Larvae /5 Plant June 11 23 DA-A	Thrips Adult /5 Plant June 11 23 DA-A
INTRUDER (70 WP)	0.026	lb ai/a	43250 a	0 a	0 a	0 a	1 a	2 a
COC (SL 99PC)	1.00	pt/a						
INTRUDER (70 WP)	0.026	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
INTRUDER (70 WP)	0.035	lb ai/a	43500 a	0 a	0 a	0 a	1 a	1 a
COC (SL 99PC)	1.00	pt/a						
INTRUDER (70 WP)	0.035	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
ACETAMIPRID (SL 92.	0.035	lb ai/a	44250 a	0 a	0 a	1 a	1 a	2 a
COC (SL 99PC)	1.00	pt/a						
ACETAMIPRID (SL 92.	0.035	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
INTRUDER (70 WP)	0.05	lb ai/a	43500 a	0 a	0 a	1 a	0 a	1 a
COC (SL 99PC)	1.00	pt/a						
INTRUDER (70 WP)	0.05	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
VYDATE C-LV (3.77SL)	17.00	fl oz/a	43250 a	0 a	0 a	1 a	1 a	1 a
INTRUDER (70 WP)	0.035	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
ORTHENE (SP 90.00 P)	0.18	lb ai/a	42500 a	0 a	0 a	0 a	1 a	1 a
COC (SL 99PC)	1.00	pt/a						
ORTHENE (SP 90.00 P)	0.18	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
BIDRIN 8 (EC)	0.125	lb ai/a	44500 a	0 a	0 a	0 a	2 a	2 a
COC (SL 99PC)	1.00	pt/a						
BIDRIN 8 (EC)	0.125	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
CENTRIC (40 WG)	0.05	lb ai/a	40750 a	0 a	0 a	1 a	1 a	1 a
COC (SL 99PC)	1.00	pt/a						
CENTRIC (40 WG)	0.05	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
VYDATE C-LV (3.77SL)	0.33	lb ai/a	43500 a	0 a	0 a	1 a	1 a	2 a
COC (SL 99PC)	1.00	pt/a						
VYDATE C-LV (3.77SL)	0.33	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
CARBINE (WG 50 PC)	0.044	lb ai/a	42500 a	0 a	0 a	1 a	2 a	3 a
COC (SL 99PC)	1.00	pt/a						
CARBINE (WG 50 PC)	0.044	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
UNTREATED CHECK			45500 a	0 a	0 a	1 a	1 a	2 a
LSD (P=.05)			4600.5	0.0	0.0	1.0	1.0	1.2
Standard Deviation			3186.1	0.0	0.0	0.7	0.7	0.8
CV			7.35	0.0	0.0	127.25	77.03	56.64

Treatment	Rate	Rate Unit	Thrips Damage Rating 0-10 June 11 13 DAP	Thrips Adult /5 Plant June 15 3 DA-A	Thrips Larvae /5 Plant June 15 3 DA-A	Thrips Total /5 Plant June 15 3 DA-A	Thrips Damage Rating 0-10 June 15 3 DA-A	Thrips Adult /5 Plant June 19 7 DA-A
INTRUDER (70 WP)	0.026	lb ai/a	1 a	0 a	0 a	0 a	1 a	0 a
COC (SL 99PC)	1.00	pt/a						
INTRUDER (70 WP)	0.026	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
INTRUDER (70 WP)	0.035	lb ai/a	1 a	0 a	0 a	0 a	2 a	0 a
COC (SL 99PC)	1.00	pt/a						
INTRUDER (70 WP)	0.035	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
ACETAMIPRID (SL 92.	0.035	lb ai/a	1 a	0 a	0 a	0 a	1 a	0 a
COC (SL 99PC)	1.00	pt/a						
ACETAMIPRID (SL 92.	0.035	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
INTRUDER (70 WP)	0.05	lb ai/a	1 a	1 a	1 a	2 a	3 a	1 a
COC (SL 99PC)	1.00	pt/a						
INTRUDER (70 WP)	0.05	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
VYDATE C-LV (3.77SL)	17.00	fl oz/a	1 a	0 a	0 a	0 a	2 a	0 a
INTRUDER (70 WP)	0.035	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
ORTHENE (SP 90.00 P)	0.18	lb ai/a	1 a	0 a	0 a	0 a	1 a	0 a
COC (SL 99PC)	1.00	pt/a						
ORTHENE (SP 90.00 P)	0.18	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
BIDRIN 8 (EC)	0.125	lb ai/a	1 a	0 a	0 a	0 a	2 a	0 a
COC (SL 99PC)	1.00	pt/a						
BIDRIN 8 (EC)	0.125	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
CENTRIC (40 WG)	0.05	lb ai/a	1 a	0 a	0 a	0 a	1 a	0 a
COC (SL 99PC)	1.00	pt/a						
CENTRIC (40 WG)	0.05	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
VYDATE C-LV (3.77SL)	0.33	lb ai/a	1 a	0 a	0 a	0 a	1 a	0 a
COC (SL 99PC)	1.00	pt/a						
VYDATE C-LV (3.77SL)	0.33	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
CARBINE (WG 50 PC)	0.044	lb ai/a	2 a	0 a	0 a	0 a	2 a	0 a
COC (SL 99PC)	1.00	pt/a						
CARBINE (WG 50 PC)	0.044	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
UNTREATED CHECK			1 a	2 a	1 a	4 a	4 a	2 a
LSD (P=.05)			0.7	1.4	1.1	2.4	2.1	1.3
Standard Deviation			0.5	0.9	0.8	1.7	1.5	0.9
CV			44.9	342.84	378.21	351.07	85.46	354.71

Means followed by same letter do not significantly differ (P=.05, Student-Newman-Keuls)

Treatment	Rate	Rate Unit	Thrips Larvae /5 Plant June 19 7 DA-A	Thrips Total /5 Plant June 19 7 DA-A	Thrips Damage Rating 0-10 June 19 7 DA-A	Thrips Adult /5 Plant July 5 23 DA-A	Thrips Larvrae /5 Plant July 5 23 DA-A	Thrips Total /5 Plant July 5 23 DA-A
INTRUDER (70 WP)	0.026	lb ai/a	0 a	0 a	0 a	0 a	0 a	0 a
COC (SL 99PC)	1.00	pt/a						
INTRUDER (70 WP)	0.026	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
INTRUDER (70 WP)	0.035	lb ai/a	0 a	0 a	0 a	1 a	0 a	1 a
COC (SL 99PC)	1.00	pt/a						
INTRUDER (70 WP)	0.035	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
ACETAMIPRID (SL 92.	0.035	lb ai/a	0 a	0 a	0 a	0 a	0 a	0 a
COC (SL 99PC)	1.00	pt/a						
ACETAMIPRID (SL 92.	0.035	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
INTRUDER (70 WP)	0.05	lb ai/a	1 a	2 a	2 a	0 a	0 a	0 a
COC (SL 99PC)	1.00	pt/a						
INTRUDER (70 WP)	0.05	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
VYDATE C-LV (3.77SL)	17.00	fl oz/a	0 a	0 a	0 a	0 a	0 a	0 a
INTRUDER (70 WP)	0.035	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
ORTHENE (SP 90.00 P)	0.18	lb ai/a	0 a	0 a	0 a	0 a	0 a	0 a
COC (SL 99PC)	1.00	pt/a						
ORTHENE (SP 90.00 P)	0.18	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
BIDRIN 8 (EC)	0.125	lb ai/a	0 a	0 a	0 a	0 a	0 a	0 a
COC (SL 99PC)	1.00	pt/a						
BIDRIN 8 (EC)	0.125	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
CENTRIC (40 WG)	0.05	lb ai/a	0 a	0 a	0 a	0 a	0 a	0 a
COC (SL 99PC)	1.00	pt/a						
CENTRIC (40 WG)	0.05	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
VYDATE C-LV (3.77SL)	0.33	lb ai/a	0 a	0 a	0 a	0 a	0 a	0 a
COC (SL 99PC)	1.00	pt/a						
VYDATE C-LV (3.77SL)	0.33	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
CARBINE (WG 50 PC)	0.044	lb ai/a	0 a	0 a	0 a	0 a	0 a	0 a
COC (SL 99PC)	1.00	pt/a						
CARBINE (WG 50 PC)	0.044	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
UNTREATED CHECK			2 a	4 a	4 a	1 a	0 a	1 a
LSD (P=.05)			1.7	2.7	2.4	0.7	0.2	0.9
Standard Deviation			1.2	1.9	1.7	0.5	0.2	0.6
CV			440.37	356.11	318.2	320.88	663.33	339.85

Means followed by same letter do not significantly differ (P=.05, Student-Newman-Keuls)

			Thrips Damage Rating 0-10 July 5 23 DA-A	Fleahopperı /10sweep July 9 Precount	Spiders /10sweep July 9 Precount	Fleahopper /10sweep July 13 4 DA-B	Spiders /10sweep July 13 4 DA-B	Ladybugs /10sweep July 13 4 DA-B
Treatment	Rate	Rate Unit						
INTRUDER (70 WP)	0.026	lb ai/a	0 a	5 a	1 a	0 a	1 a	0 a
COC (SL 99PC)	1.00	pt/a						
INTRUDER (70 WP)	0.026	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
INTRUDER (70 WP)	0.035	lb ai/a	0 a	7 a	1 a	0 a	0 a	1 a
COC (SL 99PC)	1.00	pt/a						
INTRUDER (70 WP)	0.035	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
ACETAMIPRID (SL 92.	0.035	lb ai/a	0 a	5 a	0 a	1 a	1 a	0 a
COC (SL 99PC)	1.00	pt/a						
ACETAMIPRID (SL 92.	0.035	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
INTRUDER (70 WP)	0.05	lb ai/a	1 a	7 a	0 a	0 a	1 a	1 a
COC (SL 99PC)	1.00	pt/a						
INTRUDER (70 WP)	0.05	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
VYDATE C-LV (3.77SL)	17.00	fl oz/a	0 a	7 a	0 a	0 a	0 a	0 a
INTRUDER (70 WP)	0.035	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
ORTHENE (SP 90.00 P)	0.18	lb ai/a	0 a	5 a	1 a	0 a	0 a	1 a
COC (SL 99PC)	1.00	pt/a						
ORTHENE (SP 90.00 P)	0.18	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
BIDRIN 8 (EC)	0.125	lb ai/a	0 a	6 a	0 a	0 a	1 a	1 a
COC (SL 99PC)	1.00	pt/a						
BIDRIN 8 (EC)	0.125	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
CENTRIC (40 WG)	0.05	lb ai/a	0 a	7 a	0 a	0 a	0 a	0 a
COC (SL 99PC)	1.00	pt/a						
CENTRIC (40 WG)	0.05	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
VYDATE C-LV (3.77SL)	0.33	lb ai/a	0 a	7 a	0 a	0 a	1 a	0 a
COC (SL 99PC)	1.00	pt/a						
VYDATE C-LV (3.77SL)	0.33	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
CARBINE (WG 50 PC)	0.044	lb ai/a	0 a	9 a	1 a	1 a	1 a	0 a
COC (SL 99PC)	1.00	pt/a						
CARBINE (WG 50 PC)	0.044	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
UNTREATED CHECK			1 a	6 a	1 a	0 a	0 a	1 a
LSD (P=.05)			0.9	3.3	1.0	0.7	0.8	1.1
Standard Deviation			0.7	2.3	0.7	0.5	0.6	0.7
CV			361.42	36.05	175.66	251.5	125.86	233.4
Grand Mean			0.18	6.32	0.39	0.18	0.45	0.32
Bartlett's X2			0.0	18.911	5.654	2.768	3.455	7.743
P(Bartlett's X2)			1.00	0.041*	0.774	0.736	0.903	0.356
Replicate F			0.421	0.345	1.760	1.159	2.222	0.275
Replicate Prob(F)			0.7392	0.7932	0.1761	0.3415	0.1060	0.8431
Treatment F			1.632	0.859	0.474	0.739	1.500	0.462
Treatment Prob(F)			0.1453	0.5794	0.8938	0.6828	0.1879	0.9015

Means followed by same letter do not significantly differ (P=.05, Student-Newman-Keuls)

Treatment Name	Rate	Rate Unit	Lacewing /10sweep July 13 4 DA-B	Fleahopper /10sweep July 16 7 DA-B	Spiders /10sweep July 16 7 DA-B	Ladybugs /10sweep July 16 7 DA-B	Lacewing /10sweep July 16 7 DA-B	Fleahopper /10sweep July 23 14 DA-B
INTRUDER (70 WP)	0.026	lb ai/a	1 a	0 a	1 a	1 a	0 a	0 a
COC (SL 99PC)	1.00	pt/a						
INTRUDER (70 WP)	0.026	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
INTRUDER (70 WP)	0.035	lb ai/a	1 a	1 a	1 a	2 a	1 a	1 a
COC (SL 99PC)	1.00	pt/a						
INTRUDER (70 WP)	0.035	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
ACETAMIPRID (SL 92.	0.035	lb ai/a	0 a	1 a	0 a	1 a	1 a	0 a
COC (SL 99PC)	1.00	pt/a						
ACETAMIPRID (SL 92.	0.035	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
INTRUDER (70 WP)	0.05	lb ai/a	0 a	0 a	1 a	1 a	1 a	1 a
COC (SL 99PC)	1.00	pt/a						
INTRUDER (70 WP)	0.05	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
VYDATE C-LV (3.77SL)	17.00	fl oz/a	0 a	0 a	1 a	1 a	0 a	2 a
INTRUDER (70 WP)	0.035	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
ORTHENE (SP 90.00 P)	0.18	lb ai/a	0 a	1 a	0 a	1 a	1 a	0 a
COC (SL 99PC)	1.00	pt/a						
ORTHENE (SP 90.00 P)	0.18	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
BIDRIN 8 (EC)	0.125	lb ai/a	0 a	1 a	0 a	2 a	1 a	0 a
COC (SL 99PC)	1.00	pt/a						
BIDRIN 8 (EC)	0.125	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
CENTRIC (40 WG)	0.05	lb ai/a	0 a	0 a	1 a	1 a	1 a	1 a
COC (SL 99PC)	1.00	pt/a						
CENTRIC (40 WG)	0.05	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
VYDATE C-LV (3.77SL)	0.33	lb ai/a	0 a	0 a	0 a	1 a	0 a	0 a
COC (SL 99PC)	1.00	pt/a						
VYDATE C-LV (3.77SL)	0.33	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
CARBINE (WG 50 PC)	0.044	lb ai/a	0 a	1 a	0 a	1 a	0 a	0 a
COC (SL 99PC)	1.00	pt/a						
CARBINE (WG 50 PC)	0.044	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
UNTREATED CHECK			1 a	1 a	1 a	1 a	0 a	1 a
LSD (P=.05)			0.8	0.9	0.9	1.8	0.8	1.3
Standard Deviation			0.6	0.6	0.6	1.2	0.6	0.9
CV			197.18	156.4	116.83	109.75	134.91	159.73

Means followed by same letter do not significantly differ (P=.05, Student-Newman-Keuls)

Treatment	Rate	Rate Unit	Spiders /10sweep July 23 14 DA-B	Ladybugs /10sweep July 23 14 DA-B	Lacewing /10sweep July 23 14 DA-B	Fleahopper /10sweep July 31 21 DA-B	Spiders /10sweep July 31 21 DA-B	Ladybugs /10sweep July 31 21 DA-B
INTRUDER (70 WP)	0.026	lb ai/a	1 a	1 a	1 a	1 a	1 a	2 a
COC (SL 99PC)	1.00	pt/a						
INTRUDER (70 WP)	0.026	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
INTRUDER (70 WP)	0.035	lb ai/a	0 a	2 a	1 a	2 a	1 a	4 a
COC (SL 99PC)	1.00	pt/a						
INTRUDER (70 WP)	0.035	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
ACETAMIPRID (SL 92.	0.035	lb ai/a	0 a	1 a	1 a	1 a	1 a	4 a
COC (SL 99PC)	1.00	pt/a						
ACETAMIPRID (SL 92.	0.035	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
INTRUDER (70 WP)	0.05	lb ai/a	1 a	1 a	1 a	1 a	2 a	6 a
COC (SL 99PC)	1.00	pt/a						
INTRUDER (70 WP)	0.05	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
VYDATE C-LV (3.77SL)	17.00	fl oz/a	0 a	1 a	1 a	1 a	1 a	6 a
INTRUDER (70 WP)	0.035	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
ORTHENE (SP 90.00 P)	0.18	lb ai/a	0 a	1 a	1 a	2 a	1 a	4 a
COC (SL 99PC)	1.00	pt/a						
ORTHENE (SP 90.00 P)	0.18	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
BIDRIN 8 (EC)	0.125	lb ai/a	1 a	1 a	2 a	1 a	1 a	5 a
COC (SL 99PC)	1.00	pt/a						
BIDRIN 8 (EC)	0.125	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
CENTRIC (40 WG)	0.05	lb ai/a	0 a	1 a	1 a	1 a	1 a	4 a
COC (SL 99PC)	1.00	pt/a						
CENTRIC (40 WG)	0.05	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
VYDATE C-LV (3.77SL)	0.33	lb ai/a	0 a	1 a	1 a	1 a	2 a	4 a
COC (SL 99PC)	1.00	pt/a						
VYDATE C-LV (3.77SL)	0.33	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
CARBINE (WG 50 PC)	0.044	lb ai/a	0 a	1 a	1 a	1 a	1 a	5 a
COC (SL 99PC)	1.00	pt/a						
CARBINE (WG 50 PC)	0.044	lb ai/a						
COC (SL 99PC)	1.00	pt/a						
UNTREATED CHECK			0 a	1 a	1 a	1 a	1 a	5 a
LSD (P=.05)			0.7	1.0	1.8	1.1	1.0	3.2
Standard Deviation			0.5	0.7	1.3	0.7	0.7	2.2
CV			182.24	76.49	118.7	69.95	66.63	50.25

Means followed by same letter do not significantly differ (P=.05, Student-Newman-Keuls)

Treatment Name	Rate	Rate Unit	Lacewing /10sweep July 31 21 DA-B	Yield Lint lbs/acre November 5
INTRUDER (70 WP)	0.026	lb ai/a	2 a	1,182 a
COC (SL 99PC)	1.00	pt/a		
INTRUDER (70 WP)	0.026	lb ai/a		
COC (SL 99PC)	1.00	pt/a		
INTRUDER (70 WP)	0.035	lb ai/a	1 a	1,156 a
COC (SL 99PC)	1.00	pt/a		
INTRUDER (70 WP)	0.035	lb ai/a		
COC (SL 99PC)	1.00	pt/a		
ACETAMIPRID (SL 92.	0.035	lb ai/a	2 a	1,156 a
COC (SL 99PC)	1.00	pt/a		
ACETAMIPRID (SL 92.	0.035	lb ai/a		
COC (SL 99PC)	1.00	pt/a		
INTRUDER (70 WP)	0.05	lb ai/a	1 a	1,087 a
COC (SL 99PC)	1.00	pt/a		
INTRUDER (70 WP)	0.05	lb ai/a		
COC (SL 99PC)	1.00	pt/a		
VYDATE C-LV (3.77SL)	17.00	fl oz/a	1 a	1,006 a
INTRUDER (70 WP)	0.035	lb ai/a		
COC (SL 99PC)	1.00	pt/a		
ORTHENE (SP 90.00 P)	0.18	lb ai/a	2 a	1,079 a
COC (SL 99PC)	1.00	pt/a		
ORTHENE (SP 90.00 P)	0.18	lb ai/a		
COC (SL 99PC)	1.00	pt/a		
BIDRIN 8 (EC)	0.125	lb ai/a	1 a	1,248 a
COC (SL 99PC)	1.00	pt/a		
BIDRIN 8 (EC)	0.125	lb ai/a		
COC (SL 99PC)	1.00	pt/a		
CENTRIC (40 WG)	0.05	lb ai/a	2 a	1,115 a
COC (SL 99PC)	1.00	pt/a		
CENTRIC (40 WG)	0.05	lb ai/a		
COC (SL 99PC)	1.00	pt/a		
VYDATE C-LV (3.77SL)	0.33	lb ai/a	1 a	1,067 a
COC (SL 99PC)	1.00	pt/a		
VYDATE C-LV (3.77SL)	0.33	lb ai/a		
COC (SL 99PC)	1.00	pt/a		
CARBINE (WG 50 PC)	0.044	lb ai/a	1 a	1,149 a
COC (SL 99PC)	1.00	pt/a		
CARBINE (WG 50 PC)	0.044	lb ai/a		
COC (SL 99PC)	1.00	pt/a		
UNTREATED CHECK			2 a	1,093 a
LSD (P=.05)			1.0	145.4
Standard Deviation			0.7	100.7
CV			52.71	8.98

Means followed by same letter do not significantly differ (P=.05, Student-Newman-Keuls)

DA-A Applied June 12
DA-B Applied July 10. Both applications were applied in 10 gallons of finished spray.

Comparison of Bollgard™, Bollgard™ II, Bollgard™ Roundup and Widestrike™ Cotton Varieties under Dryland Conditions

	Stand Count May 31 Plants/acre	Stand Count June 6 Plants/acre	Seasonal Average Bollworm Egg Count 25/plants	Seasonal Average Bollworm Larvae Count 50/blooms	Seasonal Average Bollworm Square Damage 50/squares	Lint Yield Lbs lint /acre September 24
Treatment						
Fibermax 9180 B2F	31,750 a	31,750 a	0 a	0 a	0 a	416 a
Fibermax 9063 B2F	30,750 a	30,750 a	0 a	0 a	0 a	403 ab
Stoneville 4357 B2RF	32,250 a	32,250 a	0 a	0 a	0 a	392 ab
AFD 5065 B2F	32,250 a	32,250 a	0 a	0 a	0 a	382 ab
Stoneville 4554 B2RF	31,250 a	31,250 a	0 a	0 a	0 a	367 ab
Stoneville 4427 B2RF	32,250 a	32,250 a	0 a	0 a	0 a	359 ab
Nexgen 3273 B2RF	32,750 a	32,750 a	0 a	0 a	0 a	354 ab
Delta Pinelnad 164 B2RF	32,500 a	32,500 a	0 a	0 a	0 a	354 ab
Stoneville 5327 B2RF	32,750 a	32,750 a	0 a	0 a	1 a	348 ab
Delta Pineland 143 B2RF	31,750 a	31,750 a	0 a	0 a	0 a	329 ab
Fibermax 1880 B2R	32,750 a	32,750 a	0 a	0 a	0 a	326 ab
Phytogen 485 WRF	31,500 a	31,500 a	0 a	0 a	0 a	297 b
LSD (P=.05)	2017.4	2017.4	0.0	0.0	0.6	147.5
Standard Deviation	1397.1	1397.1	0.0	0.0	0.4	102.1
CV	4.36	4.36	0.0	0.0	248.23	7.93

Means followed by same letter do not significantly differ (P=.05, Student-Newman-Keuls)

Production Practices for Entomology Trials Summer, 2007

Planted Date:	May 19
Planting method:	Cone type planter
Seeding rate:	52,000 seeds per acre
Irrigations:	July 22, August 2, August 14, August 22 and August 28.