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2005
Southwest Oklahoma Entomology Report

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Entomology Activities

Insect monitoring is a key component in a successful IPM program. Trapping activities in 2005 covered cotton growing regions of Southwest and Northern Oklahoma. Trapping activities centered on the beet armyworm and the bollworm complex. Population trends, insect updates, and control tips were published in the Cotton Sentry and distributed to the state's cotton producers and consultants to help formulate management strategies to enhance profitability.

Like 2004, Bollgard™ technology was the focus of this year's research. Monetary support received throughout the year permitted this applied research to continue. Besides 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 and the Southwest Research and Extension Center personnel for their assistance.

Special thanks to Jerry Goodson and Karen Coggeshall for their help throughout the year. Without their assistance and support much of this report and the Cotton Sentry would be impossible to accomplish.

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Oklahoma Cotton Insect Report 2005

A total of 242,982 acres (Oklahoma Boll Weevil Eradication Organization figures) were planted and harvested in 2005. Growing conditions favored cotton development throughout the state which is reflected by the state's production average projected at 800 lbs. of lint per acre.

Despite widespread use of at-planting insecticides, thrips infestations built to damaging levels across the state requiring treatment. Cotton fleahopper infestations reached damaging levels in late-June. Many fields received two insecticide applications to prevent significant yield loss. Bollworm pressure was spotty emphasizing the importance of scouting. Conventional cotton received 1 or 2 insecticide applications to prevent worm damage. Populations spilled over into Bt cotton requiring over-sprays in approximately 22% of the Bt acreage estimated at 92,000 acres.

Ongoing Research Projects

Several Bt cotton trials were conducted in 2005 to further evaluate the value of this technology under Oklahoma conditions. Eighty percent of the Bt varieties grown under irrigation produced significantly more cotton than their parental varieties to compensate for their technology rental compared to 69% for Bt varieties under dryland production.

This was the ninth year that Heliothine infestations failed to reach levels in economic threshold trials to activate insecticide applications. Heliothine pressure remained below 5 larvae (> 3/8 inch long) per 100 terminals in all varieties. Insecticide protection was planned in Bt varieties if infestations approached 10 larvae (> 3/8 inch long) per 100 terminals. Biweekly tagging of eggs and newly hatched larvae revealed no Heliothine survival on Bt tagged plants. All newly hatched larvae died before any of the larvae reached ½ inch long.

A cotton thrips insecticide trial revealed no significant differences in yields between treatments. However, the untreated check 1398 lbs lint /acre out produced the Cruiser plus Orthene treatment 1339 lbs lint/acre.

A cotton fleahopper insecticide test was conducted on both Bt and conventional cotton varieties. Cotton fleahopper densities were significantly less for all the insecticide treatments from the untreated check for both Bt and conventional cotton 3 DAT and 7 DAT. There were no significant differences in treatment yields. The top yielding treatment was the same for both varieties - Intruder .026 lbs A/A plus Crop Oil produced 1,382 lbs (Bt) and 887 lbs lint/acre compared to the untreated check which yielded 1,145 lbs (Bt) and 735 lbs lint/acre.

Bollworm / Tobacco Budworm and Beet Armyworm Monitoring

Bollworms/tobacco budworms are targets 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 these farming communities – 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 September 1, 2005.

Moth Pheromone Trap Catch Totals for Selected Regions of Oklahoma, Summer 2005.

Bollworm

Altus	Hollis	Manchester	Tipton
785	1,171	23	710

Tobacco Budworm

Altus	Hollis	Manchester	Tipton
45	53	27	209

Beet Armyworm

Altus	Hollis	Manchester	Tipton
129	70	79	176

Although both species do coexist and are considered the same, 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 3,023 moths were captured between the week of June 1 and September 1. Bollworms comprised 88.9% of the total catch in 2005 (Figure 1). Only at the Manchester location did the species ratio favor tobacco budworms; despite this change no control difficulties were reported.

Figure 1. Species composition of moths trapped across Oklahoma, Summer 2005.

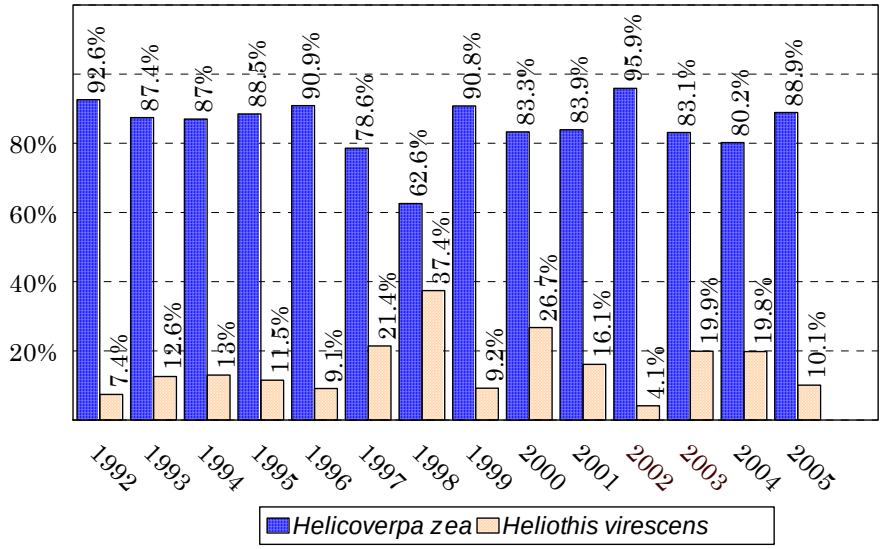
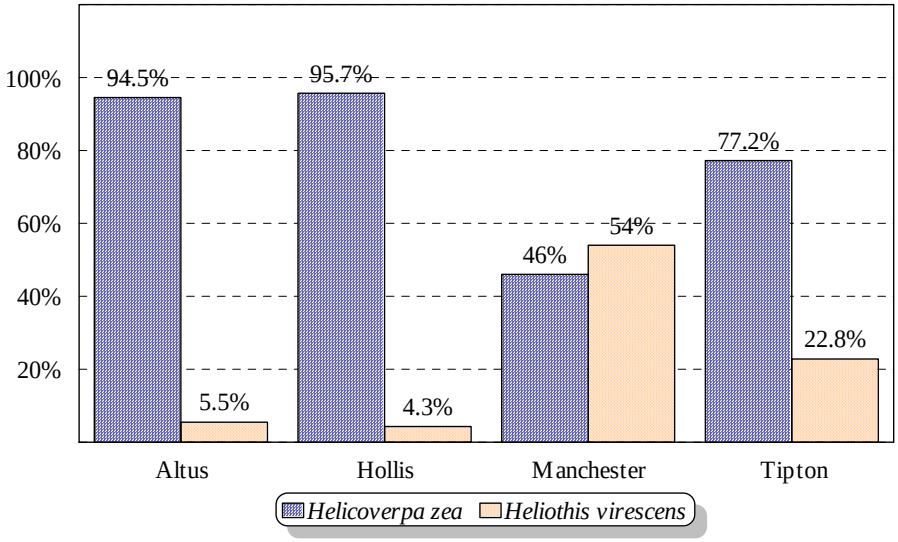


Figure 2. Species composition of trapped moths by production region, 2005.

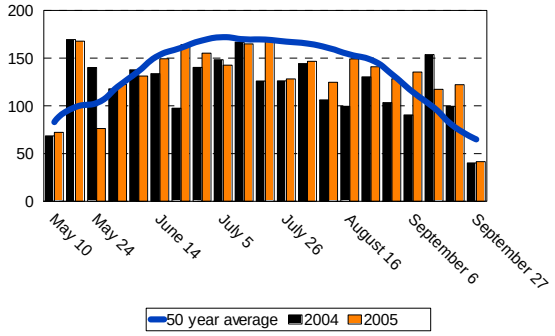


Growing Degree Days Accumulation For Select Locations Across Oklahoma, Summer 2005.

ALTUS

Growing Degree Days (GDD)

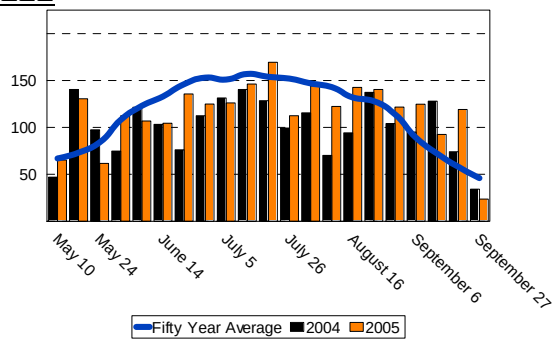
	50 year	2004	2005
May	397.0	537.7	358.4
June	570.5	505.3	621.3
July	846.7	568.4	662.1
August	628.2	591.5	626.8
September	423.6	385.9	499.7
Total	**2,866.0**	**2,588.8**	**2,768.3**



BLACKWELL

Growing Degree Days (GDD)

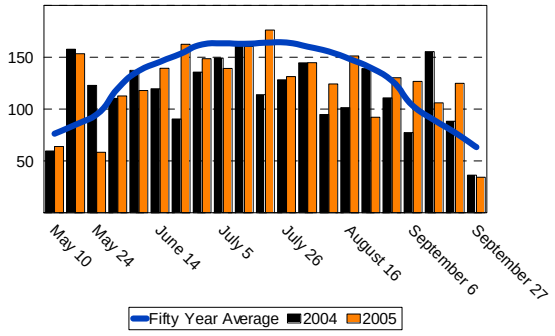
	50 year	2004	2005
May	312.0	403.7	295.7
June	510.0	406.0	513.6
July	767.0	478.5	589.3
August	550.0	529.9	614.7
September	333.0	314.7	416.1
Total	**2,472.0**	**2,132.8**	**2,429.4**



HOBART

Growing Degree Days (GDD)

	50 year	2004	2005
May	351.9	480.2	310.4
June	559.0	478.6	587.5
July	812.3	567.6	651.4
August	596.4	607.6	628.8
September	437.5	361.1	483.7
Total	**2,757.1**	**2,495.1**	**2,661.8**



Bollgard™ Variety Demonstration 2005

Cooperator: Terry White

Location: Harmon County

Planting Date: May 10, 2005

Heat Units Accumulated: 2,684

Seeding Rate: 13.5 lbs/acre

Five Irrigations: 6/28, 7/13, 7/23, 8/3, 8/22

Pesticide Usage:

Roundup WeatherMax (20 oz / acre) over-the-top application +
Orthene .28 lbs ai/acre + PGR IV 4 oz/acre June 7
Vydate .185 lbs ai/acre + Pentia 2 oz/acre June 22
Orthene .45 lbs ai/acre + Pentia 8 oz/acre July 13

Harvest Aid applied:

Prep (8 oz / acre) + Finish (8 oz / acre) + Ginstar (2 oz / acre) October 8
Prep (32 oz / acre) + Crop Oil October 14

Table 1. Stand Densities, Retention Rates, and Lint Production White's Farm - Summer 2005.

Variety	Past Rankings[1]		Stand density plants/acre		% Retention		Lint Yield
	2003	2004	May 23	May 30	Aug 1	Aug 18	October 25
ST 4646 BG II/RR	-	13	21,000	21,000	92.4	86.3	2,026.2
DP 424 BG II/RR	-	6	31,000	33,000	91.1	83.8	1,916.3
ST 4575 BG/RR	-	-	28,000	28,000	90.7	86.7	1,822.5
DP 488 BG/RR	-	8	24,000	30,000	87.1	87.8	1,819.6
FM 960 BR	-	15	35,000	28,000	82.8	80.2	1,758.4
DP 445 BG/RR	-	-	24,000	27,000	85.2	86.4	1,753.5
Phytogen 470 WR	-	-	36,000	33,000	91.0	84.9	1,733.5
DP 434 RR	***-***	***-***	***27,000***	***31,000***	***91.9***	***82.5***	***1,628.4***
ST 4892 BR	7	9	29,000	24,000	93.6	92.2	1,615.2
FM 960 B2 R	-	12	28,000	27,000	86.7	81.5	1,613.1
DP 444 BG/RR	-	2	24,000	28,000	91.9	86.5	1,583.1
DP 543 BG II/RR	-	-	27,000	32,000	86.3	87.8	1,533.7
ST 5242 BR	-	3	17,000	27,000	94.0	89.0	1,449.6
FM 960 RR	***-***	***20***	***29,000***	***29,000***	***81.7***	***80.2***	***1,417.4***
ST 6636 BR	-	-	22,000	21,000	87.8	86.1	1,408.0
ST 5599 BR	10	4	23,000	25,000	84.5	84.0	1,381.5
DP 455 BG/RR	-	-	29,000	32,000	91.7	85.7	1,322.3
DP 555 BG/RR	1	7	27,000	34,000	81.0	86.7	1,302.5
Phytogen 480 WR	-	-	36,000	36,000	91.3	86.1	1,169.4
ST 5303 RR	***-***	***-***	***28,000***	***26,000***	***82.7***	***87.6***	***1,164.8***
ST 4892 BR with Dynasty + Crusier	-	-	27,000	29,000	91.7	89.4	2,105.5
ST 4892 BG/RR with Cruiser	2	1	33,000	29,000	91.6	91.7	1,951.4

[1] (-) indicates varieties not included in 2003 or 2004 variety demonstrations.

Trial Comments: ST 4646 BII/RR was top yielder producing 2,026 lbs lint /acre followed by DP 424 BGII/RR 1,916 lbs, ST 4575 BG/RR 1,822 lbs, and DP 488 BG/RR 1,819 lbs. Phytogen 470 and 480 varieties featuring Widestrike had mixed reviews. Both these varieties are advertised as early to mid-maturity; however 470 WR produced 1,733 lbs ranking 7th while 780 WR only produced 1169 lbs ranking 19th. Most years, Roundup Ready varieties' yields lag between Bt varieties finishing near or at the bottom. However in 2005, two RR varieties DP 434 RR and FM 960 RR finished 8th and 12th respectfully compared to ST 5305 RR which finished last.

Performance of Bollgard™ and Parental Varieties

Insect Code	Stand Count	Bollworm Eggs	Bollworm Larvae	Bollworm Damage Squares	Plant Height	1st Fruiting Site
Rating Unit	Plants/acre	/10 plants	/10 plants	/10 plants	/5 plants	/5 plants
Rating Date	June 15	August 1	August 1	August 11	August 11	August 11
Treatment						
ST 4575 BG/R	29,000	0	0	0	32	9
PARENT ST 4686 RR	**27,333**	**0**	**0**	**1**	**30**	**9**
ST 5242 BG/R	28,000	0	0	0	32	9
PARENT ST 5303 RR	**28,333**	**0**	**0**	**0**	**31**	**9**
ST 6636 BG/R	28,667	1	0	0	32	9
PARENT ST 6848 RR	**30,000**	**0**	**0**	**0**	**31**	**9**
FM 960 BG2RR	29,000	0	0	1	32	9
PARENT FM 960 RR	**29,000**	**0**	**0**	**2**	**32**	**9**
FM 960 BGRR	29,000	0	0	2	32	9
PARENT FM 960 RR	**30,000**	**0**	**0**	**0**	**30**	**9**
LSD (P=.05)	1927.9	1.0	0.0	1.1	4.5	0.4
Standard Deviation	1123.8	0.6	0.0	0.7	2.6	0.2
CV	3.9	189.22	0.0	99.58	8.35	2.25

Insect Code	% Retention	NAWF	Plant Height	1st Fruiting Site	% Retention	Yield Lint
Rating Unit	/5 plants	/5 plants	/5 plants	/5 plants	/5 plants	lbs/acre
Rating Date	August 11	August 11	August 29	August 29	August 29	October 19
Treatment						
ST 4575 BG/R	91	4	36	9	77	1,579 a
PARENT ST 4686 RR	**90**	**4**	**37**	**9**	**76**	**1,181 bc**
ST 5242 BG/R	92	4	36	10	78	1,280 abc
PARENT ST 5303 RR	**90**	**4**	**34**	**9**	**77**	**1,034 c**
ST 6636 BG/R	89	4	35	10	79	1,256 abc
PARENT ST 6848 RR	**90**	**4**	**35**	**9**	**77**	**1,172 bc**
FM 960 BG2RR	88	4	36	10	79	1,470 ab
PARENT FM 960 RR	**89**	**4**	**36**	**10**	**78**	**1,331 abc**
FM 960 BGRR	89	4	34	9	77	1,429 ab
PARENT FM 960 RR	**88**	**4**	**35**	**9**	**79**	**1,306 abc**
LSD (P=.05)	4.3	0.9	1.5	0.3	2.9	225.9
Standard Deviation	2.5	0.5	0.9	0.2	1.7	131.7
CV	2.77	12.32	2.43	1.83	2.2	10.1

Means followed by same letter do not significantly differ (P=.05, Student-Newman-Keuls)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Trial Comments: All Bollgard I and II varieties out produced their parental variety to compensate for their rental fee. ST 4575 B/RR was the top yielder producing 1,579 lbs lint/acre.

Seed Treatment Insecticide Trial

Insect Code			Stand Count	Total Thrips	Total Thrips	Total Thrips	Over-the-top application applied			
							Total Thrips	Total Thrips		Thrips rating
Rating Unit			Plants/acre	/5 plants	/5 plants	/5 plants	/5 plants	/5 plants		scale
Rating Date			June 8	May 18	May 24	June 2	June 8	June 15		June 15
Trt-Eval Interval			28 DAP	7 DAP	13 DAP	22 DAP	Pre-count	7 DAT		7 DAT
Treatment	Rate									
Cruiser	0.34	G A/CWT	30,000	0	1	2	4	5	a	4
Dynasty +	32	G A/CWT	29,000	0	1	2	3	4	a	5
Cruiser	0.34	G A/CWT								
Temik	0.5	LB A/A	31,000	0	1	1	4	3	ab	5
Bidrin	0.1	LB A/A	29,250	0	1	2	4	0	b	5
Orthene	1.0	LB A/A	30,000	0	1	1	3	0	b	4
Untreated			30,000	0	1	2	3	4	a	5
Cruiser +	034	G A/CWT	28,000	0	1	2	4	0	b	5
Orthene	1.0	LB A/A								
LSD (P=.05)			3166.0	0.0	1.2	2.1	2.4	2.5		1.1
Standard Deviation			1779.5	0.0	0.8	1.4	1.3	1.7		0.7
CV			15.51	0.0	87.55	81.42	39.52	77.13		15.23

Insect Code			Plant Height	1st Fruiting Site	% Retention	NAWF	Yield Lint
Rating Unit			/5 plants	/5 plants	/5 plants	/5 plants	lbs/acre
Rating Date			August 9	August 9	August 9	August 9	October 21
Trt-Eval Interval							
Treatment	Rate						
Cruiser	0.34	G A/CWT	33	9	89	4	1580
Dynasty +	32	G A/CWT	32	9	89	4	1529
Cruiser	0.34	G A/CWT					
Temik	0.5	LB A/A	33	10	88	4	1446
Bidrin	0.1	LB A/A	32	9	89	4	1426
Orthene	1.0	LB A/A	32	10	88	4	1401
Untreated			32	9	88	4	1398
Cruiser +	034	G A/CWT	32	10	88	4	1339
Orthene	1.0	LB A/A					
LSD (P=.05)			0.8	0.4	2.0	0.4	211.6
Standard Deviation			0.5	0.2	1.4	0.3	142.5
CV			1.57	2.61	1.55	6.54	9.85
Means followed by same letter do not significantly differ (P=.05, Student-Newman-Keuls)							

[1] Treated June 8th 10 gpa finish spray.

Trial Comments: Thrips numbers never approached the economic threshold of 3 thrips per plant. There were no significant differences in yields between treatments. However, the untreated check 1398 lbs lint /acre out yielded the Cruiser plus Orthene treatment 1339 lbs lint/acre.

Comparison of Bollgard™, Bollgard™ II, Bollgard™ Roundup and Widestrike™ Cotton Varieties.

Insect Code	Stand Count	Stand Count	Bollworm eggs	Bollworm Larvae	Bollworm Damage Squares	Plant Height	1st Fruiting Site
Rating Unit	Plants/acre	Plants /acre	/10 plants	/10 plants	/10 plants	/5 plants	/5 plants
Rating Date	May 24	June 2	August 1	August 1	August 1	August 11	August 11
Treatment							
ST 4892 BG/RR	25,250	29,250	0	0	1	33.3	9.3
ST 5242 BG/RR	24,500	30.000	0	0	1	32.5	9.4
ST 4646 BGII/RR	25,500	30,250	1	0	1	33.1	9.1
ST 4575 BG/RR	25,250	29,000	0	0	1	31.6	9.3
DP 488 BG/RR	23,750	27,250	1	0	1	30.4	9.1
DP 445 BG/RR	26,500	29,750	1	0	1	30.1	9.6
DP 424 BGII/RR	27,750	29,000	0	0	1	30.7	9.2
DP 555 BG/RR	25,250	29,750	0	0	0	33.2	9.2
ST 5599 BG/RR	26,000	29.000	0	0	1	29.8	9.2
FM 960 BR	24,500	26,750	0	0	1	32.0	9.2
FM 960 BII/R	25,750	28.250	0	0	1	32.5	9.1
Phytogen 470 WR	24,500	30,500	0	0	1	33.0	9.4
DP 543 BGII/RR	27,500	29.000	0	0	0	33.9	9.6
Phytogen 480 WR	26.000	30.000	1	0	1	30.5	9.2
DP 444 BG/RR	27,250	28.250	0	0	1	30.5	9.4
ST 6636 BG/RR	26,415	28,750	0	0	1	33.9	9.3
LSD (P=.05)	3407.4	4838.0	0.8	0.0	0.9	3.59	0.50
Standard Deviation	2384.4	3385.4	0.5	0.0	0.6	2.51	0.35
CV	9.27	11.43	205.84	0.0	90.34	7.87	3.8

Insect Code	% Retention	NAWF	Plant Height	1st Fruiting Site	% Retention	Yield Lint
Rating Unit	/5 plants	/5 plants	/5 plants	/5 plants	/5 plants	lbs/acre
Rating Date	August 11	August 1	August 29	August 29	August 29	October 21
Treatment						
ST 4892 BG/RR	90.9	4.1	34.8 b	9.6	76.9	1421 a
ST 5242 BG/RR	90.6	4.1	33.5 b	9.6	78.3	1418 a
ST 4646 BGII/RR	92.1	4.4	34.6 b	9.5	78.4	1402 a
ST 4575 BG/RR	89.1	3.8	35.3 b	9.6	75.6	1374 a
DP 488 BG/RR	92.0	4.1	35.0 b	9.6	78.5	1366 a
DP 445 BG/RR	89.9	3.6	35.4 b	9.4	78.1	1338 ab
DP 424 BGII/RR	90.1	4.0	35.5 b	9.4	76.6	1310 ab
DP 555 BG/RR	88.1	4.5	45.9 a	9.3	77.9	1292 ab
ST 5599 BG/RR	88.9	3.5	35.6 b	9.5	74.8	1272 ab
FM 960 BR	91.9	4.2	35.9 b	9.6	76.7	1265 ab
FM 960 BII/R	92.6	3.5	35.6 b	9.5	78.2	1246 ab
Phytogen 470 WR	90.3	3.9	35.8 b	9.5	78.2	1232 ab
DP 543 BGII/RR	91.8	4.3	35.3 b	9.3	76.0	1232 ab
Phytogen 480 WR	91.3	3.7	35.5 b	9.3	76.3	1152 ab
DP 444 BG/RR	88.8	3.9	34.6 b	9.4	78.5	1194 ab
ST 6636 BG/RR	88.1	4.0	45.9 a	9.5	78.1	1049 b
LSD (P=.05)	3.93	0.87	1.46	0.26	2.77	183.4
Standard Deviation	2.75	0.61	1.02	0.19	1.94	128.3
CV	3.04	15.43	2.81	1.96	2.51	9.99
Means followed by same letter do not significantly differ (P=.05, Student-Newman-Keuls)						

Trial Comments: ST 4892 BG/RR 1,421 lbs, ST 4252 BG/RR 1,418 lbs, ST 4646 BGII/RR 1,402 lbs, ST 4545 BG/RR 1,374 lbs, and DP 488 BG/RR 1,366 lbs were significantly different than ST 6636 BG/RR 1,049 lbs a very late maturing variety shown by the difference in plant height on August 29th.

Bollworm Economic Threshold Study – Bollgard™ Cotton

Insect Code	Stand Count	Plant Height	1st Fruiting Site	% Retention	NAWF	Bollworm Larvae
Rating Unit	Plants /acre	/5 plants	/5 plants	/5 plants	/5 plants	/10 plants
Rating Date	June 3	August 11	August 11	August 11	August 11	August 9
Treatment						
ST 4646 BGII/RR	25,333	30.6	9.1	89.8	3.9	0
ST 4686 RR	**27,333**	**31.9**	**9.2**	**89.0**	**4.1**	**0**
Phytogen 470 WR	24,667	31.4	9.2	88.2	3.9	0
Phytogen 410 RR	**27,667**	**32.3**	**9.1**	**89.8**	**4.0**	**0**
FM 960 BG/RR	28,333	31.3	9.3	88.5	3.9	0
FM 960 RR	**28,000**	**31.9**	**9.6**	**90.8**	**4.6**	**0**
LSD (P=.05)	5120.3	2.81	0.32	5.67	0.72	0.0
Standard Deviation	2814.6	1.54	0.17	3.11	0.40	0.0
CV	10.47	4.89	1.88	3.49	9.71	0.0

Insect Code	Bollworm Damage Squares	Plant Height	1st Fruiting Site	% Retention	Yield Lint
Rating Unit	/10 plants	/5 plants	/5 plants	/5 plants	lbs/acre
Rating Date	August 16	August 30	September 14	September 14	October 21
Treatment					
ST 4646 BGII/RR	1	35.5	9.4	77.0	1,274
ST 4686 RR	**0**	**35.2**	**9.5**	**77.3**	**1,262**
Phytogen 470 WR	0	35.3	9.5	77.3	1,384
Phytogen 410 RR	**1**	**35.6**	**9.5**	**77.8**	**1,328**
FM 960 BG/RR	0	35.9	9.5	77.0	1,488
FM 960 RR	**1**	**35.3**	**9.5**	**78.5**	**1,469**
LSD (P=.05)	1.7	1.93	0.31	3.44	333.8
Standard Deviation	0.9	1.06	0.17	1.89	183.5
CV	142.3	3.0	1.79	2.44	13.42
Means followed by same letter do not significantly differ (P=.05, Student-Newman-Keuls)					
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.					

Trial Comments: Light Heliothine pressure prevented the need for insecticide protection. All Bt varieties out-produced their parental varieties but were not significantly different. ST 4646 BGII/RR and FM 960 BG/RR increase in yield failed to compensate for the technology rental fee. Only Phytogen 470 WR yield compensated for its technology rental fee.

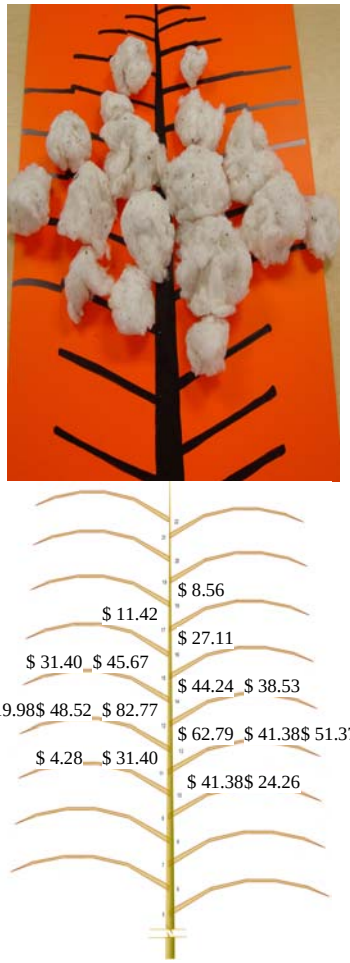
Irrigated Crop Termination

Insect Code Rating Unit Rating Date	Stand Count Plants/acre June 8	NAWF /10 plants July 13	NAWF /10 plants July 25	NAWF /10 plants August 11	NAWF /10 plants August 18	NAWF /10 plants August 25	Yield Lint lbs/acre October 20
Treatment							
ST 4646 BGII/RR	30,333	6	6	5	4	3	1,285 a
PM 2326 BG/RR	30,000	7	6	5	4	3	1,384 a
ST 4793 RR	26,667	6	6	5	4	3	968 c
PM 2266 RR	27,000	7	6	5	3	2	1,110 bc
LSD (P=.05)	4417.7	1.2	0.9	0.6	0.6	0.7	208.5
Standard Deviation	2211.1	0.6	0.4	0.3	0.3	0.4	104.4
CV	7.76	9.25	7.56	6.44	6.44	13.55	8.79
Means followed by same letter do not significantly differ (P=.05, Student-Newman-Keuls)							
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.							

Trial Comments: Both ST4646 BGII/RR 1,285 lbs and PM 2326 BG/RR 1,384 lbs were significantly different than ST 4793 RR 968 lbs and PM 2266 1,110 lbs lint per acre.

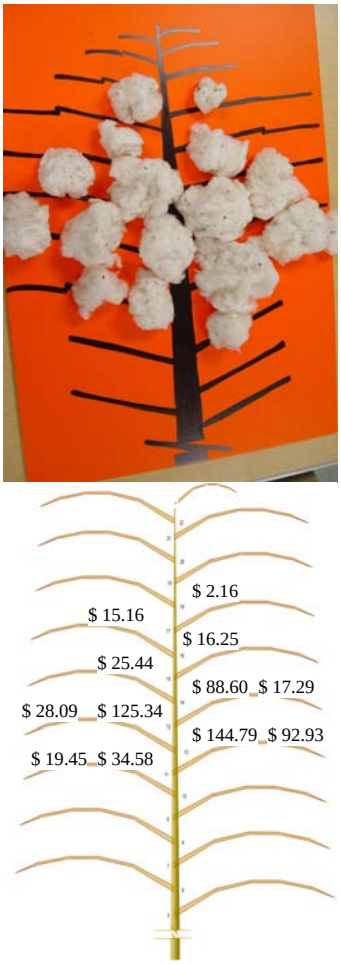
Cotton Distribution Contribution by Position

ST 4646 BGII/RR

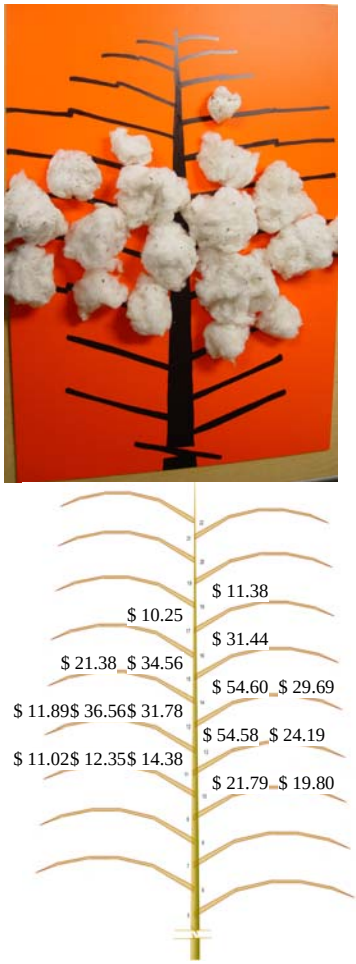


ST 4793 RR

PM 2326 BG/RR



PM 2266 RR



Boll Contribution by position

1st Position -	69%
2nd Position -	26%
3rd Position -	5%

Cotton Fleahopper Insecticide Trial

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Treatment	Rate	Total Number of Cotton Fleahoppers per 10 sweeps									
		Precount		3 DAT		% Control		7 DAT		% Control	
		Bt	Conv	Bt	Conv	Bt	Conv	Bt	Conv	Bt	Conv
Intruder 70 WP Crop Oil	0.026 LB A/A 1.0 PT/A			0.75 b	0.75 b	96.64	96.34	0.75 b	0.75 b	89.29	92.50
Intruder 70 WP Crop Oil	0.035 LB A/A 1.0 PT/A			0.50 b	0.50 b	97.78	97.73	2.25 b	1.25 b	69.37	81.19
Intruder 70 WP Crop Oil	0.05 LB A/A 1.0 PT/A			0.75 b	0.75 b	96.54	96.68	1.75 b	1.00 b	77.11	85.60
Intruder 94.6 SL Crop Oil	0.026 LB A/A 1.0 PT/A			0.25 b	0.50 b	98.91	97.61	1.25 b	1.00 b	81.55	84.76
Intruder 94.6 SL Crop Oil	0.035 LB A/A 1.0 PT/A			0.25 b	0.75 b	98.81	95.98	1.25 b	0.50 b	83.79	90.83
Intruder 94.6 SL Crop Oil	0.05 LB A/A 1.0 PT/A			0.00 b	0.75 b	100.00	95.98	2.00 b	0.50 b	75.18	92.50
Centric Crop Oil	0.037 LB A/A 1.0 PT/A			0.25 b	1.00 b	98.86	95.23	1.25 b	1.00 b	81.55	83.93
Centric Crop Oil	0.05 LB A/A 1.0 PT/A			0.75 b	0.75 b	96.54	96.41	1.75 b	1.25 b	77.70	81.43
Vydate Crop Oil	0.25 LB A/A 1.0 PT/A			0.00 b	0.00 b	100.00	100.00	1.50 b	0.50 b	82.92	90.83
Orthene Crop Oil	0.312 LB A/A 1.0 PT/A			0.00 b	0.00 b	100.00	100.00	1.25 b	0.25 b	82.14	95.83
Untreated		19.0	20.25	22.00 a	21.00 a	0.00	0.00	8.25 a	7.00 a	0.00	0.00
LSD (P=.05)				0.793	1.803	3.220	5.450	2.098	1.417	20.369	16.427
Standard Deviation				0.549	1.249	2.230	3.775	1.453	0.982	14.107	11.377
CV				23.69	51.35	2.49	4.27	68.73	71.99	19.38	14.23
Grand Mean				2.32	2.43	89.46	88.36	2.11	1.36	72.78	79.95

Finish spray 10 gal/acre.

Treatment	Rate		Yield Lint lbs/acre	
			Bt	Conv
Intruder 70 WP	0.026	LB A/A	1,229	789
Crop Oil	1.0	PT/A		
Intruder 70 WP	0.035	LB A/A	1,217	782
Crop Oil	1.0	PT/A		
Intruder 70 WP	0.05	LB A/A	1,251	803
Crop Oil	1.0	PT/A		
Intruder 94.6 SL	0.026	LB A/A	1,382	887
Crop Oil	1.0	PT/A		
Intruder 94.6 SL	0.035	LB A/A	1,375	883
Crop Oil	1.0	PT/A		
Intruder 94.6 SL	0.05	LB A/A	1,230	790
Crop Oil	1.0	PT/A		
Centric	0.037	LB A/A	1,348	866
Crop Oil	1.0	PT/A		
Centric	0.05	LB A/A	1,204	773
Crop Oil	1.0	PT/A		
Vydate	0.25	LB A/A	1,315	845
Crop Oil	1.0	PT/A		
Orthene	0.312	LB A/A	1,207	775
Crop Oil	1.0	PT/A		
Untreated			1,145	735
LSD (P=.05)			242.2	242.2
Standard Deviation			167.8	167.8
CV			13.27	13.27
Grand Mean			1263.73	1263.73

Trial Comments: Cotton fleahopper numbers were the highest at the beginning of the test and declined steadily thereafter terminating the test after 7DAT. All insecticide treatments were significantly different from the untreated check for both Bt and conventional cotton 3 DAT and 7 DAT. There were no significant differences in treatment yields. Top yielding treatments were the same for both varieties;
Intruder .026lbs A/A plus Crop Oil produced 1,382 lbs and 887 lbs followed by Intruder .035lbs A/A plus Crop Oil 1,375 lbs and 883 lbs, and Centric 0.037 lbs A/A plus Crop Oil 1,348 lbs and 866 lbs. The untreated check yielded the least in both varieties producing 1,145 lbs and 735 lbs respectably.

Early Season Insect Protection In Bollgard II/Roundup Ready Flex Cotton

Insect Code		Stand Count	Total Thrips	Total Thrips	Total Thrips	Total Thrips	Total Thrips	Phyto rating
Rating Unit		Plants/acre	/5 plants	/5 plants	/5 plants	/5 plants	/5 plants	scale
Rating Date		June 8	May 18	May 24	June 2	June 8	June 15	June 15
Trt-Eval Interval		28 DAP	7 DAP	13 DAP	22 DAP	28 DAP	35 DAP	23 DAT
Treatment	Rate							
Orthene	0.18 LB A/A	26,250	0	0	1 ab	2	4	0
Unteated		25,500	0	0	0 b	2	4	0
Temik	0.3 LB A/A	27,000	0	0	0 b	2	5	0
Orthene	0.18 LB A/A							
Temik	0.3 LB A/A	25,000	0	0	0 b	2	3	0
Guacho	12.8 OZ A/CWT	23,000	0	0	1 ab	2	4	0
Orthene	0.18 LB A/A							
Guacho	12.8 OZ A/CWT	26,750	0	0	1 ab	2	4	0
Cruiser	0.34 G A/CWT	25,750	0	0	0 b	1	4	0
Orthene	0.18 LB A/A							
Cruiser	0.34 G A/CWT	25,000	0	0	1 ab	2	4	0
LSD (P=.05)		4951.6	0	0	0.6	1.0	1.7	0
Standard Deviation		3429.3	0	0	0.4	0.7	1.2	0
CV		13.3	0	0	112.69	37.28	30.39	0
Grand Mean		24791.67	0	0	0.38	1.88	3.84	0

Insect Code		Plant Height	1st Fruiting Site	% Retention	NAWF	Yield Lint
Rating Unit		/5 plants	/5 plants	/5 plants	/5 plants	lbs/acre
Rating Date		August 11	August 11	August 11	August 11	October 21
Treatment	Rate					
Orthene	0.18 LB A/A	29	9	93	4	1,601
Unteated		28	9	95	4	1,429
Temik	0.3 LB A/A	29	9	92	4	1,445
Orthene	0.18 LB A/A					
Temik	0.3 LB A/A	29	9	93	4	1,493
Guacho	12.8 OZ A/CWT	30	9	92	4	1,658
Orthene	0.18 LB A/A					
Guacho	12.8 OZ A/CWT	30	9	93	4	1,646
Cruiser	0.34 G A/CWT	29	9	93	4	1,460
Orthene	0.18 LB A/A					
Cruiser	0.34 G A/CWT	29	9	94	4	1,602
LSD (P=.05)		1.6	0.2	3.6	0.4	226.5
Standard Deviation		1.1	0.2	2.5	0.3	154.0
CV		3.7	1.73	2.65	7.64	9.99
Grand Mean		28.96	9.14	93.04	3.82	1541.72

Trial Comments: Light thrips numbers prevailed throughout the sampling period. There were no significant differences in thrips numbers or yield between treatments. All treatment combinations produced greater yields than the untreated check 1,429 lbs lint/acre.

Performance of Bollgard™ and Parent Varieties Under Dryland Conditions

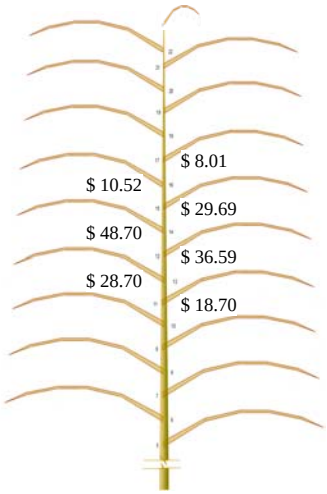
	Stand Count Plants/acre June 8	1st Fruiting Site /5 plants August 8	% Retention /5 plants August 8	NAWF /5 plants August 8	% Retention /5 plants August 23	Yield Lint Lint/acre October 24
Treatment						
ST 4575 BG/R	26,000	8	77	3	63	429
PARENT ST 4686 RR	**28,667**	**8**	**77**	**3**	**68**	**393**
ST 5242 BG/R	25,000	8	77	3	61	429
PARENT ST 5303 RR	**26,667**	**9**	**76**	**3**	**59**	**324**
ST 6636 BG/R	27,000	9	82	4	62	514
PARENT ST 6848 RR	**26,333**	**9**	**79**	**4**	**62**	**301**
FM 960 BG2RR	28,667	8	75	3	63	384
PARENT FM 960 RR	**30,000**	**9**	**77**	**3**	**65**	**378**
FM 960 BGRR	28,000	9	79	4	61	427
PARENT FM 960 RR	**27.333**	**9**	**77**	**3**	**59**	**421**
LSD (P=.05)	5122.0	0.5	6.2	0.9	11.6	67.646
Standard Deviation	2985.8	0.3	3.6	0.5	6.9	39.433
CV	10.91	3.21	4.64	15.95	12.84	9.85
Means followed by same letter do not significantly differ (P=.05, Student-Newman-Keuls)						
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.						

Trial comments: Cotton yields ranged from ST 6636BG/RR 510 lbs lint /acre to ST 6848 RR 301 lbs lint /acre. Three of the five Bt varieties out-produced parental varieties to compensate for technology rental fee. FM 960 BGII RR and FM 960 BGRR failed to compensate for their technology rental fee.

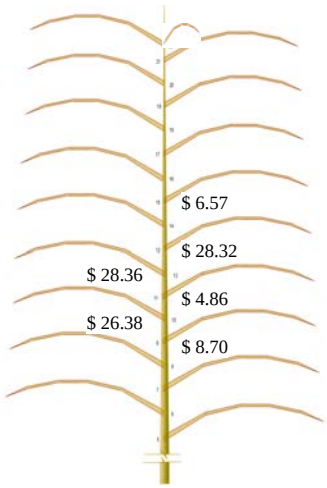
Dryland Crop Termination

Insect Code Rating Unit Rating Date	Stand Count Plants/acre May 24	Stand Count Plants/acre June 8	NAWF /10 plants July 18	NAWF /10 plants July 25	NAWF /10 plants August 1	NAWF /10 plants August 8	Yield Lint lbs/acre October 24
Treatment							
ST 4646 BGII/RR	17000	24667	5	5	4	3	404
PM 2326 BG/RR	16333	21000	5	6	4	3	411
ST 4793 RR	14667	20333	6	5	4	3	393
PM 2266 RR	14667	25667	5	5	4	3	433
LSD (P=.05)	10551.3	4983.8	1.1	1.1	0.9	3.1	103.9
Standard Deviation	5281.0	2494.4	0.6	0.6	0.5	1.909	52.0
CV	33.71	10.88	10.36	10.36	12.04	0.592	12.67
Means followed by same letter do not significantly differ (P=.05, Student-Newman-Keuls)							
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.							

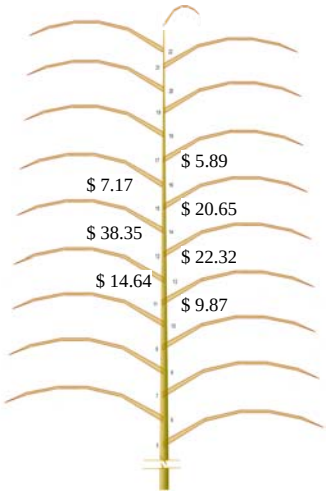
ST 4646 BGII/RR



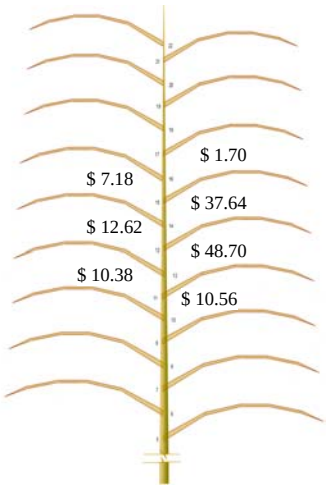
ST 4793 RR



PM 2326 BG/RR



PM 2266 RR



Boll Contribution by position

1st Position - 100%

Production Practices for Entomology Trials Summer 2005

ALTUS:

Planted Date: May 10
Planting method: Cone type planter
Seeding rate: 18.6 lbs/acre
Insecticide applied in 10 gallon Finish Spray
May 20 Bidrin 0.1 lbs AI/acre except for **Seed Treatment Insecticide Trial**

June 15 Vydate 0.25 ai/acre

In-season Fertilizer applied in 10 gallon Finish Spray
July 12 Coron 10 lbs Actual N
July 24 Coron 10 lbs Actual N
August 2 Coron 10 lbs Actual N
August 24 Coron 10 lbs Actual N

Harvest aid applied in10 gallon Finish spray
September 27
Finish 8 oz /acre
Ethephon 20 oz/acre
Ginstar 3.0 oz/acre

Irrigations: July 13, July 25, August 3 and August 29

Tipton:

Planted Date: May 18
Planting method: JD 7100
Seeding rate: 12.6 lbs/acre
Insecticide applied in 10 gallon Finish Spray
June 22 Vydate 0.25 ai/acre

Harvest aid aerial applied
October 14
Cotton Quick 64 oz/acre
Def 6 32 oz/acre
Induce 1 ½ % V/V