



2002 SOUTHWEST OKLAHOMA ENTOMOLOGY REPORT

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Entomology Activities

Insect monitoring is a key component in a successful IPM program. Trapping activities in 2002 included Southwest, West Central and Northern Oklahoma. Trapping activities centered on the beet armyworm and the bollworm complex. Population trends, insect updates, and control tips are published in the Cotton Sentry and distributed to the state's cotton producers and consultants to help formulate management strategies to enhance profitability.

Like 2001, 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.

Special recognition and thanks to Jerry Goodson and Karen Coggeshall for their help in preparing and publishing of this report.

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OKLAHOMA COTTON INSECT REPORT 2002

Oklahoma. A total of 174,000 acres were planted. Rainfall in early July improved yield expectations across the Oklahoma. A cooler than normal summer reduced heat unit accumulations by 182 units (May 1st to October 1st), however sufficient heat units occurred to produce a full crop. The state's production average is projected at 580 lbs. of lint per acre.

Despite widespread use of at-planting insecticides, thrips infestations built to damaging levels across the state. Cotton fleahopper infestations were widespread requiring many fields to receive two insecticide applications to prevent significant yield loss.

Bt cotton continues to be very popular in Oklahoma. Bt cotton represented 35% of the cotton acreage in 2002. 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 51% of the fields.

Cotton aphid infestations flared during August. Heaviest aphid infestations occurred in cotton intensely managed. This aphid buildup was short lived and did not reoccur.

Ongoing Research Projects

Oklahoma. Several Bt cotton trials were conducted in 2002 to further evaluate the value of this technology under Oklahoma conditions. Since 1996, Bt cotton provided sufficient bollworm control and increased yields to compensate for rental fees under irrigation. During this 7-year period relying on the Bt technology enhanced profits by \$22.44 per acre annually. For the third straight year Bt stripper varieties' yields failed to compensate for rental fees under dryland conditions.

This was the seventh year that Heliiothine infestations failed to reach levels in economic threshold trials to activate insecticide applications. Heliiothine pressure remained below 5 larvae (> 3/8 inch long) per 100 terminals. Insecticide protection was planned if infestations approached 10 larvae (> 3/8 inch long) per 100 terminals. Biweekly tagging of eggs and newly hatched larvae revealed no Heliiothine survival on tagged plants. All newly hatched larvae died before any of the larvae reached 1/2 inch long.

Research continued in 2002 to determine the impact of planting date on boll weevil management grown under dryland conditions. Previous research during years with high boll weevil survival indicates planting date is critical regardless of management scheme to raise profitable cotton. Yields favored May-planted cotton. Yields in either planting regardless of treatment regime were not profitable due to the prolonged drought.

Nodes Above White Flower (NAWF4) is a reliable method to determine the last cohort of bolls that will contribute significantly to yield and accurate termination of scouting activities. The second of a three-year study began this summer to see if the absence of late-season boll weevil infestations enhanced the value of the top crop. Preliminary results indicated there is no change in the value or the last cohort of bolls that contribute to yield.

Bollworm / Tobacco Budworm and Beet Armyworm Monitoring

Bollworms/tobacco budworms are targets of many of the insecticide applications applied annually on cotton in Oklahoma. Monitoring moth activities helps determine species ratio and peak ovipositional activity for these insects. Besides Jackson, Harmon, and Tillman Counties, the West Central region (Kiowa County) and the Northern Region (Grant and Kay County) were also trapped. Traps were located near these farming communities – Altus, Hollis, Tipton, Hobart, Martha, Manchester, and Blackwell. In addition to Heliiothine activity, beet armyworm movements were also monitored at each location. Traps were maintained between June 1 and September 1, 2002.

Moth Pheromone Trap Catch Totals for Selected Regions of Oklahoma, Summer 2002.

Bollworm						
<u>Altus</u>	<u>Tipton</u>	<u>Martha</u>	<u>Hollis</u>	<u>Hobart</u>	<u>Manchester</u>	<u>Blackwell</u>
1,166	925	1,315	1,619	361	1,006	2,294
Tobacco Budworm						
<u>Altus</u>	<u>Tipton</u>	<u>Martha</u>	<u>Hollis</u>	<u>Hobart</u>	<u>Manchester</u>	<u>Blackwell</u>
47	55	23	96	62	69	13
Beet Armyworm						
<u>Altus</u>	<u>Tipton</u>	<u>Martha</u>	<u>Hollis</u>	<u>Hobart</u>	<u>Manchester</u>	<u>Blackwell</u>
912	702	335	276	220	389	144

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 9,051 moths were captured between the week of June 1 and September 1. Bollworms comprised 95.9% of the total catch in 2002 (Figure 1). Species composition was for all locations making up between 85.3% and 97.8% of the catch. (Figure 2). Control difficulties were reported in August 2002 when intense Heliiothine pressure occurred across the state requiring some Bollgard™.

Figure 1. Species composition of moths trapped across Oklahoma, Summer 2002.

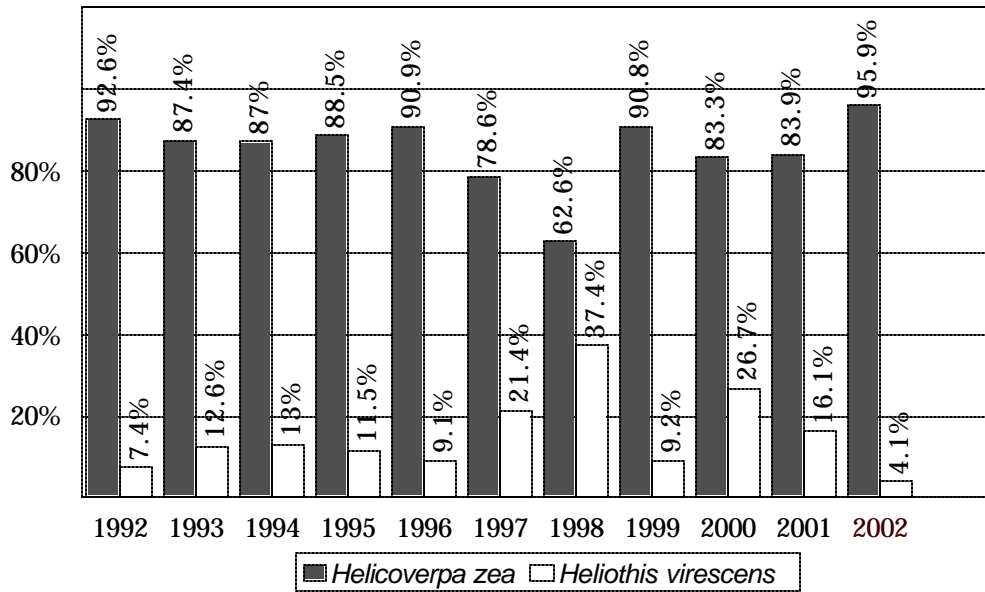
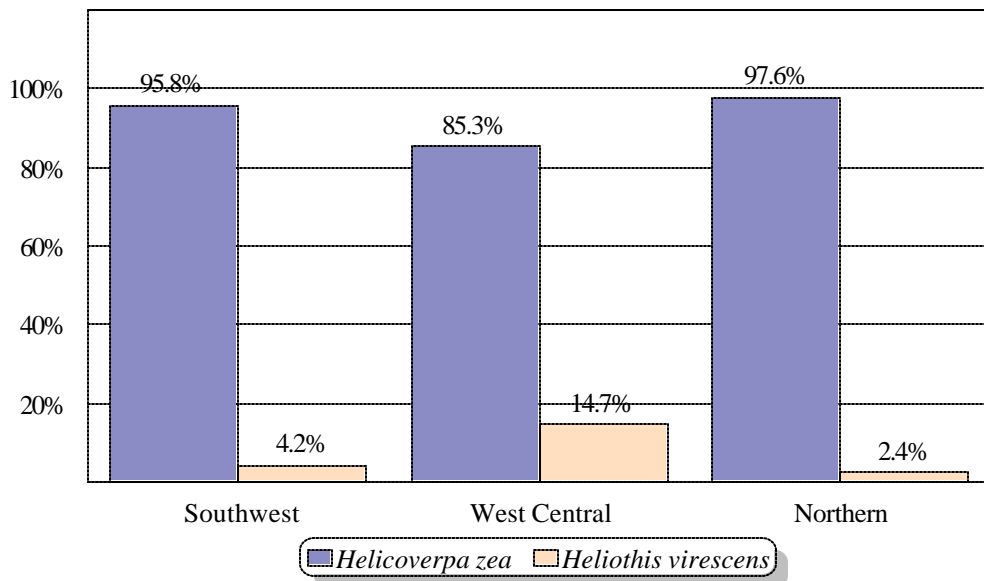


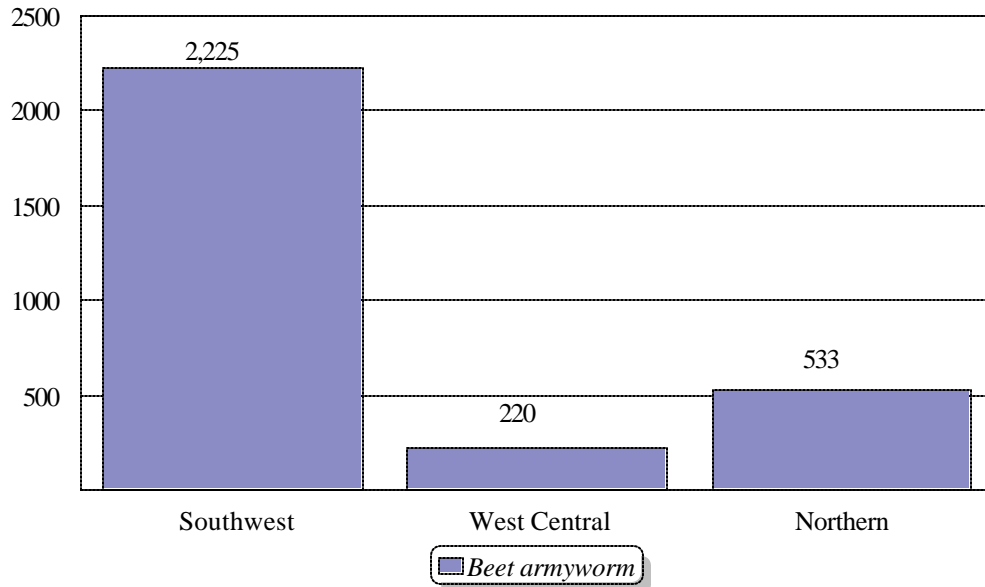
Figure 2. Species composition of trapped moths by production region, 2002.



Beet Armyworm Monitoring

A total of 2,978 beet armyworm moths were captured in Oklahoma in 2002 (Figure 3). Greatest numbers were recorded in southwest Oklahoma which was expected with the number of trapping locations and cropping system that favor beet armyworm development.

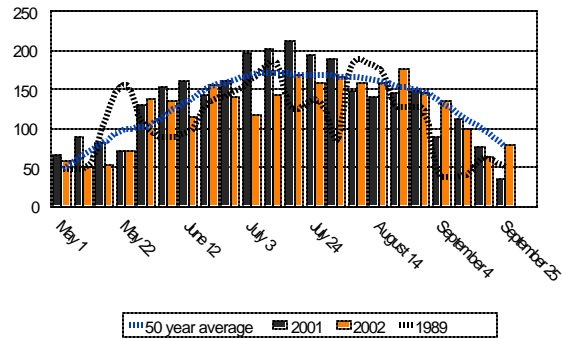
Figure 3. Beet armyworm moths trapped by region across Oklahoma, 2002.



GROWING DEGREE DAYS ACCUMULATION FOR SELECT LOCATIONS ACROSS OKLAHOMA, SUMMER 2002.

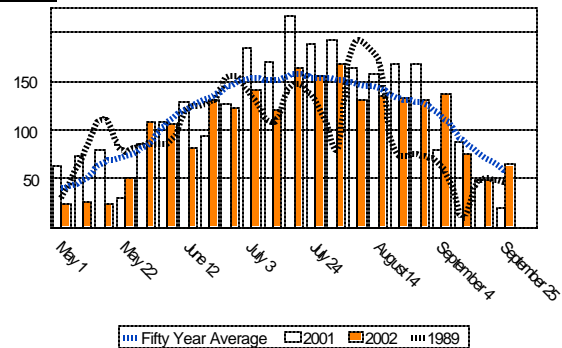
ALTUS

Growing Degree Days (GDD)				
	50 year	1989	2001	2002
May	397.0	462.5	441.6	370.6
June	570.5	464.0	618.6	545.4
July	846.7	695.5	996.4	754.7
August	628.2	621.3	579.0	635.0
September	423.6	190.5	313.4	379.2
Total	2,866.0	2,433.8	2,949.0	2,684.9



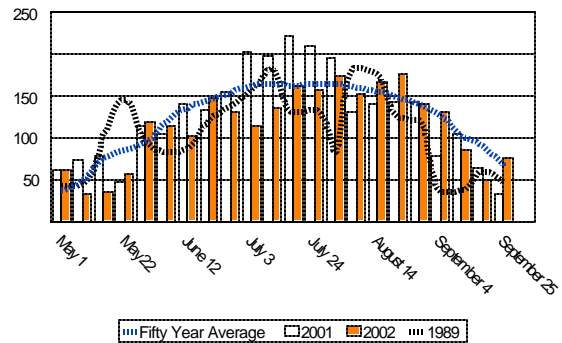
BLACKWELL

Growing Degree Days (GDD)				
	50 year	1989	2001	2002
May	312.0	378.5	315.5	257.9
June	510.0	494.5	457.8	441.9
July	767.0	599.5	951.9	746.7
August	550.0	511.6	658.7	533.6
September	333.0	167.6	234.4	325.4
Total	2,472.0	2,151.7	2,618.3	2,305.5



HOBART

Growing Degree Days (GDD)				
	50 year	1989	2001	2002
May	351.9	432.5	364.0	306.0
June	559.0	431.1	531.9	496.9
July	812.3	685.3	1,027.8	743.6
August	596.4	605.4	556.4	634.8
September	437.5	179.4	277.5	342.2
Total	2,757.1	2,333.7	2,757.6	2,523.5



ECONOMIC VALUE of Bollgard™ COTTON

Each year economic budgets and cost analysis are prepared to determine the value of Bollgard™ varieties and conventional varieties. These comparisons lumped varieties into two groups (Bollgard™ and conventional) regardless of maturity, variety type, or spray regime. Regardless of the management scheme or insect pressure Bollgard™ cotton yielded the best and increased profitability (return per acre) throughout the 7-year period 1996 – 2002. Irrigated cost comparison for 2002 (Table 1) indicates growing Bollgard™ varieties was worth \$65.66 per acre. Since its introduction investing in Bollgard™ technology (Table 2) is worth \$ 22.44 per acre (weighted average) or a total of \$7,353,027 (Bollgard acreage 327,615 acres for the 7-year period).

Irrigated Bollgard™ Cotton Cost Comparison - 2002¹ A.L. Hutson

<u>Return</u>	Bollgard™	Conventional
Cotton	1,100# \$555.00	796# \$398.00
<u>Operating Inputs</u>		
Seed	17# @ 1.34 \$ 22.78	\$22.78
Bt Cost	45.02	---
Hoeing	15.00	15.00
Herbicide	8.00	8.00
Nitrogen	24.88	24.88
Phosphorous	6.00	6.00
Ginning	33.00	23.88
Harvest Aid	43.20	43.20
Spraying ²	15.55	15.55
Crop Insurance	20.00	20.00
Custom Harvest	99.00	71.64
Labor	25.75	25.75
Fuel, Lube & Repair	28.00	28.00
Boll Weevil	18.50	15.46
Irrigation	45.00	45.00
Operating Interest	9.44	7.64
Total Operating Cost	\$459.12	\$372.78
Return to Land, Overhead, Risk & Management	<u>\$90.88</u>	<u>\$25.22</u>

¹ Based on 24 replicated tests.

Irrigated Bollgard™ Cotton Cost Comparison – 1996-02¹
A.L. Hutson

		Bollgard™	Conventional
<u>Return</u>			
Cotton @ \$.575	1,108#	\$ 554.00	931# \$ 465.50
<u>Operating Inputs²</u>			
Seed	17# @ 1.34	\$ 22.78	\$ 22.78
Bt Cost		45.02	---
Hoeing		15.00	15.00
Herbicide		8.00	8.00
Nitrogen		24.88	24.88
Phosphorous		6.00	6.00
Ginning		33.30	27.93
Harvest Aid		43.20	43.20
Spraying		19.55	23.18
Crop Insurance		20.00	20.00
Custom Harvest		99.72	83.79
Labor		25.75	25.75
Fuel, Lube & Repair		28.00	28.00
Boll Weevil		18.58	16.81
Irrigation		45.00	45.00
Operating Interest		9.60	7.94
Total Operating Cost		<u>\$ 464.32</u>	<u>\$ 398.26</u>
Return to Land, Overhead, Risk & Management		<u>\$89.68</u>	<u>\$ 67.24</u>

¹ Based on 7 years of replicated data (97 trials total).

²2002 input prices were used in determining the 7-year average.

Bollgard™ Variety Demonstration 2002

Cooperator: Terry White
 Location: Harmon County

Planting Date: May 3, 2002
 Seeding Rate: 17.6 lbs/acre

Heat units accumulated: 2,541

Pesticide Usage:

Roundup (1 qt./acre) over-the-top application + Orthene 0.9 lbs AI/acre June 3
 Vydate .125 lbs AI/acre June 24
 Vydate .125 + Pix (12 oz) aerially applied July 17
 5 OBWEO Malathion applications August - October

Harvest Aid applied:

Finish (8 oz) + Prep (16 oz) + Ginstar (3 oz) September 20
 Prep (16 oz) + Ginstar (2 oz) September 25

Table 1. Stand Densities, Retention Rates, and Lint Production White's Farm - Summer 2002.

Variety	Stand density		%		Lint
	plants/acre		Retention		lbs/acre
	<u>5/13</u>	<u>5/27</u>	<u>7/15</u>	<u>8/5</u>	<u>10/4</u>
Stoneville 4892 BR	44,000	43,000	98.6	94.5	1,869.71
Sure Grow 215 BG/RR	48,000	44,000	98.5	93.5	1,569.05
DP 655 BRR	43,000	45,000	96.7	94.6	1,439.42
FiberMax 989 B/RR	46,000	43,000	97.8	93.5	1,428.52
DP 449 BGRR	46,000	42,000	95.6	94.6	1,420.08
DP 458 BRR	48,000	46,000	97.6	93.5	1,408.06
Stoneville 3539 BR	40,000	45,000	97.6	96.4	1,380.94
DP 555 BGRR	48,000	44,000	96.8	95.6	1,125.93
PM 2280 BG/RR	55,000	50,000	95.6	95.5	1,040.02
DP 5415 RR	38,000	42,000	92.5	85.4	931.43

Trial Comments:

Thrips and cotton fleahoppers were the only insect pests that required insecticide control to prevent economic loss in 2002. Stoneville 4892BR produced 1,870 lbs lint per acre followed by Sure Grow 215 BG/RR 1,569 lbs and DP 655 BRR 1,439 lbs respectively. All Bollgard™ varieties produced greater yields than DP 5415 RR (931 lbs) compensating for the technology rental fee.

Bollworm Economic Threshold Study – Bollgard™ Cotton – Irrigated Test

Insect Code	Stand Count	Stand Count	Bollworm Larvae	Bollworm Damage Squares	% Retention	Bollworm Eggs	Bollworm Damage Squares
Rating Unit	/acre	/acre	/10 plants	/10 plants	/5 plants	/10 plants	/10 plants
Rating Date	May-21	Jun-11	Aug-01	Aug-01	Jul-18	Aug-08	Aug-08
Treatment							
DP 237B	37666.7	44666.7	0.0	0.3	100.0	0.3	0.0
Paymaster 2280 BG/RR	34666.7	48666.7	0.0	0.0	98.8	0.7	0.7
NuCOTN 33B	36666.7	45333.3	0.0	0.0	98.8	0.0	0.3
Paymaster HS-26	39000	43666.7	0.3	0.7	98.8	0.0	0.0
Paymaster 2326BG/RR	36333.3	43000	0.0	0.0	98.8	0.7	0.0
DP 2379	37333.3	45333.3	0.3	0.3	98.2	1.7	0.3
Paymaster 280	28333.3	43333.3	0.0	0.0	100.0	1.0	0.7
DP 5415	35000	43666.7	0.7	1.0	98.8	0.3	0.0
LSD (P=.05)	5148.85	5359.09	0.65	1.14	3.289	1.32	0.98
Standard Deviation	2939.87	3059.92	0.37	0.65	1.878	0.76	0.56
CV	8.25	6.84	2.0	2.89	1.9	1.59	2.67
Grand Mean	35625	44708.33	0.17	0.29	99.02	0.58	0.25

Insect Code	Bollworm Damage Squares	% Retention	Lint lbs/acre
Rating Unit	/10plants	/5 plants	
Rating Date	Aug-14	Aug-01	Sep-23
Treatment			
DP 237B	1.0	90.07	869.78a
Paymaster 2280 BG/RR	0.0	90.20	815.60ab
NuCOTN 33B	0.0	91.97	814.98ab
Paymaster HS-26	0.7	94.33	749.90ab
Paymaster 2326BG	0.0	90.60	745.90ab
DP 2379	0.0	89.73	726.46 b
Paymaster 280	1.0	90.67	700.62 b
DP 5415	0.0	95.70	690.57 b
LSD (P=.05)	1.41	5.19	91.37
Standard Deviation	0.81	2.963	52.17
CV	241.65	3.23	6.83
Grand Mean	0.33	91.66	764.23

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

Trial Comments:

Despite light Heliothine pressure in 2002 all Bt transgenic varieties except Paymaster 2326BR significantly out-produced their parental variety. Lint production ranged from 691 lbs per acre for DP 5415 to 870 lbs per acre for DP237B.

Influence of Steward And Tracer Applications to Enhance Insect Protection in Bt Cotton

Insect Code	Stand Count	Stand Count	Bollworm Damage Squares	Bollworm Eggs	Bollworm Larvae	% Retention	Bollworm Eggs
Rating Unit	/acre	/acre	/10 plants	/10 plants	/10 plants	/5 plants	/10 plants
Rating Date	May-21	Jun-11	Jul-22	Aug-01	Aug-01	Jul-18	Aug-08
Treatment							
DP 33B	36000.0	42000.0	0.0	0.0	0.0	98.80	0.0
DP 5415	37666.7	42666.7	0.0	0.3	0.0	98.80	0.6
LSD (P=.05)	7171.67	16541.54	0.0	1.43	0.0	8.945	1.63
Standard Deviation	2041.24	4708.15	0.0	0.41	0.0	2.546	0.49
CV	5.54	11.12	0.0	244.95	0.0	2.58	248.95
Grand Mean	36833.33	42333.33	0.0	0.17	0.0	98.8	0.19

Insect Code	Bollworm Damage Squares	Bollworm Damage Squares	% Retention	Lint lbs/acre	Yield Difference
Rating Unit	/10 plants	/10 plants	/5 plants		Lint lbs/acre
Rating Date	Aug-08	Aug-15	Aug-01	Sep-23	
Treatment					
DP 33B	0.3	0.0	92.27	889.40	147.26
DP 5415	0.0	0.3	95.00	742.14	
LSD (P=.05)	1.43	1.43	14.907	222.89	
Standard Deviation	0.41	0.41	4.243	63.44	
CV	244.95	244.95	4.53	7.78	
Grand Mean	0.17	0.17	93.63	815.77	

Trial Comments:

Heliothine pressure did not materialize in 2002 preventing over-spray applications of Steward or Tracer in either variety. DP 33B out produced DP 5415 by 147 lbs lint per acre compensating for the technology rental fee.

Performance of Bollgard™ and Parental Varieties – Irrigated Test

Insect Code	Stand Count	Stand Count	Bollworm Damage Squares	% Retention	Bollworm Damage Squares	% Retention	Lint lbs/acre	Yield Difference
Rating Unit	/acre	/acre	/10 plants	/5 plants	/10 plants	/5 plants		Lint lbs/acre
Rating Date	May-21	Jun-11	Jul-22	Jul-15-	Aug-22	Jul-30	Sep-24	
Treatment								
Stoneville 4892 B	26333.3	45000	0.0	97.23	0.7	91.5	1006.64a	240.06
Stoneville 474	33000	43333.3	0.0	100.00	0.3	92.67	766.58ab	
DP 35B	27000	42666.7	0.0	100.00	0.7	92.2	1001.88a	192.66
DP 5690	28333.3	41666.7	0.3	95.23	0.0	96.8	901.79ab	
DP 655 B/RR	31666.7	43000	0.0	98.20	0.0	91.43	980.38a	72.13
DP 5690	28333.3	41666.7	0.3	95.23	0.0	96.8	908.38ab	
DP 33B	30333.3	38666.7	0.0	100.00	0.7	91.4	956.18ab	192.66
DP 5415	31666.7	42333.3	0.3	98.80	0.0	93.77	763.52ab	
PM 2326 BG/RR	35000	42000	0.7	100.00	0.3	92.13	934.16ab	210.58
PM HS-26	27000	36666.7	0.3	100.00	0.0	94.93	723.58ab	
Stoneville BXN 49B	31333.3	41000	0.0	98.20	0.0	91.33	925.52ab	118.88
Stoneville 474	29000	40333.3	0.0	95.87	0.0	90.73	806.64ab	
DP 237 B	25000	42333.3	0.0	97.23	0.0	88.07	911.89ab	84.64
DP 2379	27666.7	41333.3	0.7	94.67	0.0	88.07	827.25ab	
Sure Grow 215BG/RR	27666.7	41333.3	0.0	98.80	0.3	92.77	897.09ab	174.86
Sure Grow 521R	31000	40333.3	0.7	100.00	0.0	93.67	722.23ab	
Fibermax 989 B/RR	27000	40666.7	0.0	97.13	0.0	90.00	882.41ab	124.58
Fibermax 989	33000	45000	0.0	99.00	0.0	90.03	757.83ab	
DP 458 B/RR	26666.7	43666.7	0.0	100.00	0.0	88.67	876.12ab	46.75
DP 5415	27333.3	40333.3	0.7	100.00	0.0	90.6	829.37ab	
PM 2280 BG/RR	33000	43000	0.0	97.60	0.0	87.83	875.71ab	143.02
PM 280	26000	36333.3	0.3	96.93	0.0	92.63	732.69ab	
Fibermax 989 B/RR	36000	42333.3	0.3	99.40	0.0	94.33	873.54ab	209.99
Fibermax 989RR	24000	39333.3	0.0	95.70	0.3	95.60	663.55 b	
Stoneville 4691B	24666.7	34333.3	0.3	97.20	1.3	96.30	864.26ab	4.70
Stoneville 474	28333.3	41666.7	0.0	98.20	0.0	94.13	859.56ab	
Stoneville 3539BR	22333.3	37666.7	0.3	98.27	0.3	90.17	822.73ab	84.46
Stoneville 2454R	25666.7	41666.7	0.0	97.13	1.3	94.63	738.27ab	
LSD (P=.05)	8741.37	7140.56	1	4.516	0.87	6.371	169.121	
Standard Deviation	5352.97	4372.68	0.61	2.766	0.53	3.902	103.565	
CV	18.61	10.62	286.86	2.82	223.63	4.24	12.18	
Grand Mean	28761.9	41190.48	0.21	98.22	0.24	92.1	850.34	

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

Variety – Parent variety.

Trial Comments:

All Bollgard™ varieties except Stoneville 4691B™ out-produced their parental variety to compensate for technology rental fees.

Performance of Picker and Stripper Bollgard™ Varieties – Irrigated Test

Insect Code	Stand Count	Stand Count	Bollworm Damage Squares	% Retention	Bollworm Eggs	Bollworm Damage Squares	Bollworm Damage Squares	% Retention	Lint lbs/acre
Rating Unit	/acre	/acre	/10 plants	/5 plants	/10 plants	/10 plants	/10 plants	/5 plants	
Rating Date	May-21	Jun-11	Aug-01	Jul-16	Aug-07	Aug-07	Aug-15	Aug-02	Aug-23
Treatment									
Stoneville 4892 BR	32000.0	35133.3	0.3	89.70	0.0	0.3	0.0	91.07	1102.67
DP 35B	36666.7	36333.3	0.0	95.73	0.0	0.0	0.0	95.73	1006.05
DP 449 BG/RR	32333.3	36333.3	0.3	94.27	0.7	0.3	0.7	91.07	975.04
Stoneville 4691 B	28000.0	38000.0	0.7	97.30	0.7	0.0	0.7	91.83	973.98
DP 33B	34000.0	41333.3	0.0	96.17	0.7	0.3	0.7	91.57	953.19
DP 458B/RR	35000.0	45000.0	0.0	95.70	0.0	0.3	0.0	95.20	943.67
DP 237B	30333.3	40333.3	0.0	100.00	0.0	0.0	0.0	90.30	931.69
DP 555 BG/RR	24666.7	35666.7	0.0	93.37	1.3	0.0	1.0	89.83	930.22
PM 2280 BG/RR	36333.3	45666.7	0.0	97.63	0.7	0.0	0.7	92.53	921.70
DP 655 B/RR	30000.0	40666.7	0.0	95.63	0.3	0.0	0.3	91.93	913.01
Stoneville BXN 49B	27333.3	38000.0	0.0	95.13	0.0	0.0	0.0	94.13	899.27
PM 2326 BG/RR	30666.7	43666.7	0.0	94.37	0.3	0.3	0.3	90.37	879.82
Stoneville 3539 BR	29666.7	42333.3	0.3	95.83	0.0	0.0	0.0	91.53	870.72
Sure Grow 215 BG/RR	28666.7	36333.3	0.0	94.43	0.7	0.0	0.7	90.73	854.45
Fibermax 989 B/RR	35333.3	42666.7	0.7	98.43	2.0	0.0	2.0	94.43	765.64
LSD (P=.05)	8655.15	85440.76	0.73	7.091	1.29	0.57	1.33	6.036	226.706
Standard Deviation	5175.95	51095.27	0.43	4.241	0.77	0.34	0.8	3.61	135.575
CV	16.48	107.39	279.39	4.44	157.6	308.45	170.53	3.92	14.61
Grand Mean	31400	47577.78	0.16	95.58	0.49	0.11	0.47	92.15	928.07

Trial Comments:

No significant difference in yield existed between varieties. Stoneville 4892 BG/RR was top yielder producing 1,103 lbs of lint per acre followed by DP 35B – 1,005 lbs of lint per acre and DP 449BG/RR – 975 lbs of lint per acre.

Cotton Fleahopper Insecticide Trial Conventional Cotton

Insect Code	Fleahopper	Fleahopper	% Control	Fleahopper	% Control	Fleahopper	% Control		
Rating Unit	/10sweep	/10sweep	/10sweep	/10sweep	/10sweep	/10sweep	/10sweep		
Rating Date	Jun-25-01	Jun-28-02	Jun-28-02	Jul-02-02	Jul-02-02	Jul-09-02	Jul-09-02		
Trt-Eval Interval	Precount	3 DAT	3 DAT	7 DAT	7 DAT	14 DAT	14 DAT		
Trt No.	Treatment Name	Rate							
1	Untreated		15.3	12.7 a	0.00 c	10.3 a	0.00 b	5.3 a	0.00 b
2	Trimax (2 appl)	.0313		3.3 b	76.38 b	1.3 b	85.00 a	2.3 ab	41.27 ab
3	Trimax (2 appl)	.0469		2.0 b	83.46 ab	1.0 b	90.00 a	0.0 b	100.00 a
4	Trimax (1 appl)	.0469		0.7 b	90.48 a	1.3 b	86.54 a	1.3 b	61.90 ab
5	Leverage (1 appl)	.0867		0.0 b	100.00 a	0.0 b	100.00 a	0.7 b	77.78 ab
6	Leverage (2 appl)	.0867		0.0 b	100.00 a	0.0 b	100.00 a	2.7 ab	29.37 ab
7	Bidrin (1 appl)	0.25		0.0 b	100.00 a	0.0 b	100.00 a	3.7 ab	13.49 ab
8	Orthene (1 appl)	0.25		0.0 b	100.00 a	0.0 b	100.00 a	0.3 b	88.89 ab
9	Vydate-CLV (1 appl)	0.25		0.0 b	100.00 a	0.3 b	97.44 a	2.7 ab	42.06 ab
10	Vydate-CLV (2 appl)	0.25		0.0 b	100.00 a	0.0 b	100.00 a	1.7 ab	73.81 ab
11	Centric (1 appl)	0.05		0.0 b	100.00 a	0.7 b	91.67 a	1.0 b	73.02 ab
12	Centric (1 appl)	.0312		0.0 b	100.00 a	1.0 b	92.31 a	1.7 ab	63.49 ab
13	Intruder (1appl)	0.05		0.0 b	100.00 a	0.3 b	96.67 a	0.7 b	83.33 ab
14	Asana (1appl)	0.036		0.0 b	100.00 a	0.0 b	100.00 a	1.7 ab	55.56 ab
15	Vydate-CLV (1 appl)	0.25		0.0 b	100.00 a	0.0 b	100.00 a	1.7 ab	63.49 ab
	Asana	0.036							
LSD (P=.05)			.	2.91	10.300	1.82	14.544	2.24	52.039
Standard Deviation			.	1.74	6.160	1.09	8.698	1.34	31.121
CV			.	140.03	6.84	99.93	9.74	73.59	53.81

Insect Code	Fleahopper	% Control	Fleahopper	% Control	Fleahopper	% Control	Fleahopper		
Rating Unit	/10sweep	/10sweep	/10sweep	/10sweep	/10sweep	/10sweep	/10sweep		
Rating Date	Jul-15-02	Jul-15-02	Jul-19-02	Jul-19-02	Jul-23-02	Jul-23-02	Aug-01-02		
Trt-Eval Interval	20 DAT	20 DAT	3DAT2nd	3DAT2nd	7DAT2nd	7DAT2nd	17DAT2nd		
Trt No.	Treatment Name	Rate							
1	Untreated		6.3	0.00	4.0 ab	0.00 ab	3.3	0.00	3.3 a
2	Trimax (2 appl)	.0313	4.0	38.10	0.0 b	100.00 a	2.7	19.44	0.3 ab
3	Trimax (2 appl)	.0469	4.7	25.40	0.0 b	100.00 a	1.7	50.00	1.3 ab
4	Trimax (1 appl)	.0469	4.7	26.19	3.0 ab	21.67 ab	0.7	80.56	1.7 ab
5	Leverage (1 appl)	.0867	2.7	57.93	2.3 ab	43.89 ab	1.3	55.56	0.7 ab
6	Leverage (2 appl)	.0867	2.7	57.94	0.0 b	100.00 a	3.0	8.33	0.0 b
7	Bidrin (1 appl)	0.25	3.7	42.86	2.7 ab	40.00 ab	2.0	38.89	1.0 ab
8	Orthene (1 appl)	0.25	4.7	26.99	3.3 ab	8.89 ab	1.7	50.00	1.7 ab
9	Vydate-CLV (1 appl)	0.25	3.3	46.03	3.3 ab	3.33 ab	1.3	55.56	0.7 ab
10	Vydate-CLV (2 appl)	0.25	4.7	25.40	0.0 b	100.00 a	1.0	72.22	0.7 ab
11	Centric (1 appl)	0.05	5.7	10.32	5.0 a	-30.56 b	2.3	30.56	0.7 ab
12	Centric (1 appl)	.0312	3.7	42.86	3.7 ab	5.00 ab	1.0	72.22	0.0 b
13	Intruder (1appl)	0.05	2.7	58.73	2.7 ab	38.33 ab	1.7	44.44	2.3 ab
14	Asana (1appl)	0.036	2.3	61.11	2.0 ab	55.56 ab	1.7	47.22	1.3 ab
15	Vydate-CLV (1 appl)	0.25	3.3	50.00	2.7 ab	38.33 ab	1.7	47.22	0.7 ab
	Asana	0.036							
LSD (P=.05)			2.81	44.275	2.51	71.476	1.82	55.944	1.82
Standard Deviation			1.68	26.477	1.50	42.744	1.09	33.455	1.09
CV			42.65	69.7	64.92	102.68	60.49	74.65	100.14

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

Insect Code		% Control	Combine	Per Cent	Per cent	Lint lbs/acre	Bigeyed	Beneficial
Rating Unit		/10sweep	% Control	Retention	Retention		/10sweep	Counts
Rating Date		Aug-01-02	/10sweep	/5 plants	/5 plants		/10sweep	/10 sweep
Trt-Eval Interval		17DAT2nd	season	Jul-22-02	Aug-02-02	Oct-01-02	Jun-25-01	Jun-28-02
Trt Treatment							Precount	3 DAT
No. Name	Rate							
1 Untreated		0.00	0.00 b	99.07	97.13	733.33	0.7	2.0
2 Trimax (2 appl)	.0313	88.89	64.15 a	99.07	95.27	763.11		0.3
3 Trimax (2 appl)	.0469	44.44	70.47 a	98.17	100.00	783.85		2.7
4 Trimax (1 appl)	.0469	32.22	57.08 a	97.33	94.33	765.64		1.0
5 Leverage (1 appl)	.0867	86.67	74.54 a	99.07	96.87	831.01		1.6
6 Leverage (2 appl)	.0867	100.00	70.80 a	100.00	92.23	822.44		0.0
7 Bidrin (1 appl)	0.25	61.11	56.62 a	98.17	98.13	671.37		0.3
8 Orthene (1 appl)	0.25	57.78	61.79 a	99.07	98.27	699.79		0.0
9 Vydate-CLV (1 appl)	0.25	66.67	58.73 a	100.00	95.37	821.26		0.7
10 Vydate-CLV (2 appl)	0.25	82.22	79.09 a	97.23	94.03	940.09		0.0
11 Centric (1 appl)	0.05	66.67	48.81 a	99.27	94.17	885.11		0.6
12 Centric (1 appl)	.0312	100.00	67.98 a	99.07	95.23	867.20		0.3
13 Intruder (1appl)	0.05	18.89	62.91 a	99.27	95.93	786.84		0.6
14 Asana (1appl)	0.036	44.44	66.27 a	98.00	94.40	782.44		0.3
15 Vydate-CLV (1 appl)	0.25	66.67	66.53 a	99.17	90.70	875.59		0.3
Asana	0.036							
LSD (P=.05)		63.808	18.253	3.727	6.985	150.485		1.42
Standard Deviation		38.159	10.915	2.229	4.177	89.993		0.85
CV		62.44	17.19	2.26	4.38	11.22		387.3

Insect Code		Beneficial	Beneficial	Beneficial	Beneficial	Beneficial	Beneficial
Rating Unit		Counts	Counts	Counts	Counts	Counts	Counts
Rating Date		/10sweep	/10sweep	/10sweep	/10sweep	/10sweep	/10sweep
Trt-Eval Interval		Jul-02-02	Jul-09-02	Jul-15-02	Jul-19-02	Jul-23-02	Aug-01-02
Trt Treatment		7 DAT	14 DAT	20 DAT	3DAT2nd	7DAT2nd	17DAT2nd
No. Name	Rate						
1 Untreated		0.0	0.3	0.7	0.0	0.3	4.3
2 Trimax (2 appl)	.0313	0.7	0.0	0.0	0.0	0.0	8.7
3 Trimax (2 appl)	.0469	0.0	0.0	1.3	0.0	0.0	4.7
4 Trimax (1 appl)	.0469	0.7	0.0	0.0	0.6	0.0	9.3
5 Leverage (1 appl)	.0867	1.0	0.6	0.0	0.0	0.0	4.3
6 Leverage (2 appl)	.0867	.6	0.0	1.0	0.0	0.0	8.3
7 Bidrin (1 appl)	0.25	1.0	0.0	0.3	0.7	0.6	5.0
8 Orthene (1 appl)	0.25	0.3	0.0	0.0	0.0	0.0	6.3
9 Vydate-CLV (1 appl)	0.25	0.3	0.3	0.7	0.0	0.0	4.7
10 Vydate-CLV (2 appl)	0.25	0.6	0.0	0.3	0.0	0.0	5.3
11 Centric (1 appl)	0.05	0.7	0.0	1.0	0.0	0.0	5.3
12 Centric (1 appl)	.0312	0.0	0.0	0.3	1.0	0.0	6.0
13 Intruder (1appl)	0.05	0.0	0.0	0.0	0.3	0.0	5.0
14 Asana (1appl)	0.036	0.7	0.0	0.0	0.0	0.0	7.0
15 Vydate-CLV (1 appl)	0.25	0.0	0.6	1.3	0.0	0.0	6.0
Asana	0.036						
LSD (P=.05)		1.41	0.51	1.45	0.58	0.36	5.27
Standard Deviation		.84	0.31	0.77	0.35	0.21	3.15
CV		387.3	670.82	323.21	314.64	670.82	53.13

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

Cotton Fleahopper Insecticide Trial

Bollgard™ Cotton

Insect Code Rating Unit Rating Date Trt-Eval Interval	Fleahopper /10sweep Jun-25-01 Precount	Fleahopper /10sweep Jun-28-02 3 DAT	% Control /10sweep Jun-28-02 3 DAT	Fleahopper /10sweep Jul-02-02 7 DAT	% Control /10sweep Jul-02-01 7 DAT	Fleahopper /10sweep Jul-09-02 14 DAT	% Control /10sweep Jul-09-01 14 DAT
Trt Treatment No. Name Rate							
1 Untreated	21.0	16.0 a	0.00 b	11.3 a	0.00 b	6.0 a	0.00 b
2 Trimax (2 appl)	.0313	3.0 b	78.01 a	1.3 b	84.26 a	0.7 b	86.67 a
3 Trimax (2 appl)	.0469	0.7 b	97.10 a	1.0 b	91.91 a	0.7 b	90.48 a
4 Trimax (1 appl)	.0469	0.7 b	92.59 a	1.3 b	86.00 a	0.0 b	100.00 a
5 Leverage (1 appl)	.0867	0.7 b	95.83 a	0.0 b	100.00 a	1.0 b	83.33 a
6 Leverage (2 appl)	.0867	0.0 b	100.00 a	0.0 b	100.00 a	0.3 b	95.24 a
7 Bidrin (1 appl)	0.25	0.0 b	100.00 a	0.0 b	100.00 a	0.0 b	100.00 a
8 Orthene (1 appl)	0.25	0.0 b	100.00 a	0.0 b	100.00 a	0.7 b	88.89 a
9 Vydate-CLV (1 appl)	0.25	0.0 b	100.00 a	0.0 b	100.00 a	1.0 b	85.71 a
10 Vydate-CLV (2 appl)	0.25	0.0 b	100.00 a	0.0 b	100.00 a	0.0 b	100.00 a
11 Centric (1 appl)	0.05	1.3 b	94.20 a	0.7 b	92.59 a	0.3 b	95.24 a
12 Centric (1 appl)	.0312	0.0 b	100.00 a	0.3 b	98.04 a	0.3 b	94.44 a
13 Intruder (1appl)	0.05	0.7 b	92.59 a	0.0 b	100.00 a	0.3 b	95.24 a
14 Asana (1appl)	0.036	0.0 b	100.00 a	0.0 b	100.00 a	0.7 b	87.78 a
15 Vydate-CLV (1 appl) Asana (1appl)	0.25 0.036	0.0 b	100.00 a	0.0 b	100.00 a	0.3 b	94.44 a
LSD (P=.05)	.	3.72	13.820	2.34	9.810	1.55	24.597
Standard Deviation	.	2.22	8.265	1.40	5.867	0.93	14.709
CV	.	144.99	9.18	131.15	6.51	112.81	17.01

Insect Code Rating Unit Rating Date Trt-Eval Interval	Fleahopper /10sweep Jul-15-02 20 DAT	% Control /10sweep Jul-15-01 20 DAT	Fleahopper /10sweep Jul-19-02 3DAT2nd	% Control /10sweep Jul-19-02 3DAT2nd	Fleahopper /10sweep Jul-23-02 7DAT2nd	% Control /10sweep Jul-19-02 7DAT2nd	Fleahopper /10sweep Aug-01-02 17DAT2nd
Trt Treatment No. Name Rate							
1 Untreated	1.7	0.0	4.3 ab	0.00	3.0	0.00	2.7
2 Trimax (2 appl)	.0313	1.3	16.67	0.0 b	100.00	1.0	33.33
3 Trimax (2 appl)	.0469	3.7	-8.33	0.0 b	100.00	1.0	0.00
4 Trimax (1 appl)	.0469	4.0	-66.67	3.7 ab	4.44	0.0	100.00
5 Leverage (1 appl)	.0867	3.0	75.00	3.7 ab	4.44	2.3	-50.00
6 Leverage (2 appl)	.0867	2.7	66.67	0.0 b	100.00	1.7	-16.67
7 Bidrin (1 appl)	0.25	3.3	-116.67	2.7 ab	46.67	2.0	-27.78
8 Orthene (1 appl)	0.25	0.3	66.67	2.3 ab	53.33	0.7	61.11
9 Vydate-CLV (1 appl)	0.25	4.0	-58.33	1.3 ab	73.33	1.3	11.11
10 Vydate-CLV (2 appl)	0.25	2.3	-33.33	0.0 b	100.00	0.3	66.67
11 Centric (1 appl)	0.05	2.7	-58.33	4.7 ab	-28.89	2.0	33.33
12 Centric (1 appl)	.0312	1.7	0.00	6.0 a	-60.00	1.7	5.56
13 Intruder (1appl)	0.05	3.3	-133.33	4.0 ab	-2.22	1.0	61.11
14 Asana (1appl)	0.036	4.3	-200.00	3.0 ab	26.67	1.3	55.56
15 Vydate-CLV (1 appl) Asana (1appl)	0.25 0.036	2.7	33.33	3.7 ab	0.00	2.3	-50.00
LSD (P=.05)	3.89	235.472	2.74	91.382	2.39	157.091	2.33
Standard Deviation	2.33	140.817	1.64	54.648	1.43	93.944	1.39
CV	85.09	0.0	62.42	158.32	98.91	497.35	69.52

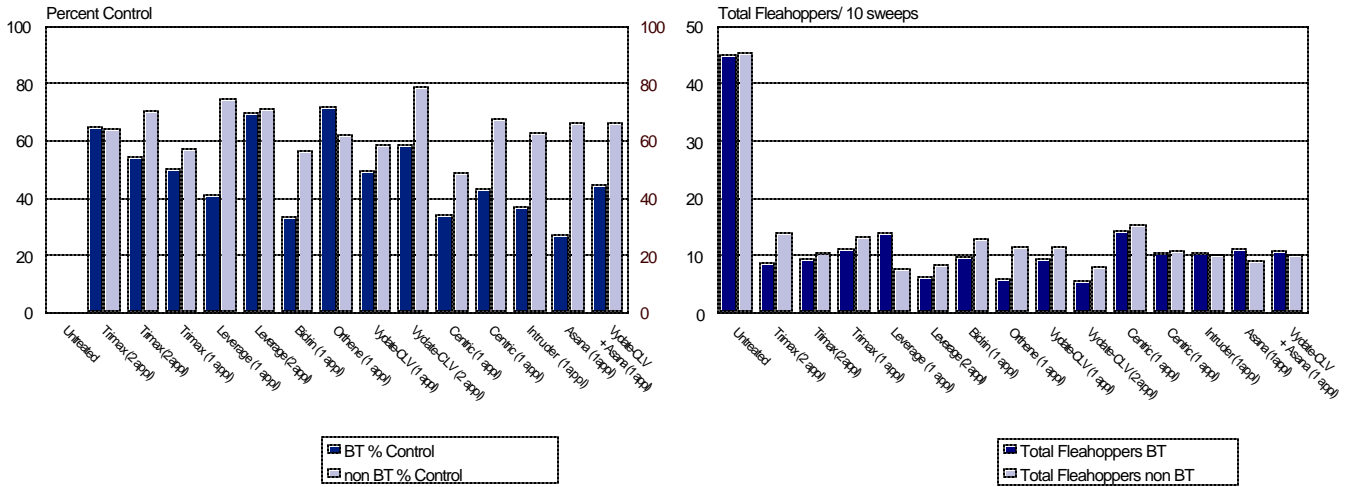
Insect Code		% Control	Combine	Per cent	Per cent	Lint lbs/acre	Bigeyed	Beneficial
Rating Unit		/10sweep	% Control	Retention	Retention		/10sweep	Counts
Rating Date		Aug-01-02	Season	/5 plants	/5 plants		Jun-25-01	/10sweep
Trt-Eval Interval		17DAT2nd		Jul-22-02	Aug-02-02	Oct-01-02	Precount	Jun-28-02
Trt Treatment								3 DAT
No. Name	Rate							
1 Untreated		0.00	0.00	100.00	97.73	780.09 ab	1.0	0.0
2 Trimax (2 appl)	.0313	55.56	64.93	100.00	97.00	931.39 ab		1.0
3 Trimax (2 appl)	.0469	11.11	54.61	95.00	94.83	959.30 ab		0.0
4 Trimax (1 appl)	.0469	33.33	49.96	100.00	100.00	718.88 b		0.3
5 Leverage (1 appl)	.0867	-22.22	40.91	99.07	98.80	939.32 ab		1.4
6 Leverage (2 appl)	.0867	44.44	69.95	100.00	92.97	726.70 b		0.0
7 Bidrin (1 appl)	0.25	33.33	33.65	99.17	98.80	991.72 ab		0.0
8 Orthene (1 appl)	0.25	33.33	71.90	99.27	97.13	1052.75 a		0.3
9 Vydate-CLV (1 appl)	0.25	33.33	49.31	100.00	93.30	1033.66 ab		0.3
10 Vydate-CLV (2 appl)	0.25	-22.22	58.73	98.07	93.50	1095.33 a		0.0
11 Centric (1 appl)	0.05	11.11	34.18	98.93	93.27	1022.91 ab		2.0
12 Centric (1 appl)	.0312	66.67	43.53	100.00	95.00	792.89 ab		1.6
13 Intruder (1appl)	0.05	44.44	36.83	97.27	97.87	899.97 ab		0.0
14 Asana (1appl)	0.036	22.22	27.46	100.00	97.73	817.09 ab		0.0
15 Vydate-CLV (1 appl)	0.25	33.33	44.44	92.67	100.00	840.12 ab		0.3
Asana (1appl)	0.036							
LSD (P=.05)		90.914	41.356	6.346	4.494	181.225	1.17	1.17
Standard Deviation		54.368	24.732	3.795	2.688	108.376	0.70	0.70
CV		215.87	54.14	3.85	2.78	11.95	400.89	400.89

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

Insect Code		Beneficial	Beneficial	Beneficial	Beneficial	Beneficial	Beneficial
Rating Unit		Counts	Counts	Counts	Counts	Counts	Counts
Rating Date		/10sweep	/10sweep	/10sweep	/10sweep	/10sweep	/10sweep
Trt-Eval Interval		Jul-02-02	Jul-09-02	Jul-15-02	Jul-19-02	Jul-23-02	Aug-01-02
Trt Treatment		7 DAT	14 DAT	20 DAT	3DAT2nd	7DAT2nd	17DAT2nd
No. Name	Rate						
1 Untreated		1.4	0.3	0.0	0.7	0.3	7.3
2 Trimax (2 appl)	.0313	1.0	0.3	0.3	0.0	1.0	7.0
3 Trimax (2 appl)	.0469	0.3	0.0	1.6	0.0	0.0	6.0
4 Trimax (1 appl)	.0469	0.3	0.3	0.0	0.3	0.3	5.7
5 Leverage (1 appl)	.0867	0.7	0.3	0.0	0.0	0.0	6.0
6 Leverage (2 appl)	.0867	0.3	0.0	0.3	0.0	0.0	6.3
7 Bidrin (1 appl)	0.25	0.9	0.0	0.0	0.6	0.0	5.7
8 Orthene (1 appl)	0.25	0.3	0.3	1.3	0.3	0.0	7.0
9 Vydate-CLV (1 appl)	0.25	0.3	0.0	0.0	0.3	0.0	5.3
10 Vydate-CLV (2 appl)	0.25	0.0	0.0	0.7	0.0	0.0	5.0
11 Centric (1 appl)	0.05	0.0	0.0	0.3	0.0	0.3	4.7
12 Centric (1 appl)	.0312	0.3	0.0	0.0	1.0	0.0	7.0
13 Intruder (1appl)	0.05	0.3	0.0	0.0	0.3	0.0	6.7
14 Asana (1appl)	0.036	0.3	0.0	0.3	0.0	0.0	6.3
15 Vydate-CLV (1 appl)	0.25	0.0	0.0	1.3	0.0	0.0	6.0
Asana (1appl)	0.036						
LSD (P=.05)		0.85	0.40	1.47	0.72	0.51	3.58
Standard Deviation		0.56	0.21	0.88	0.43	0.31	2.14
CV		506.36	482.74	344.28	360.36	482.74	36.05

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

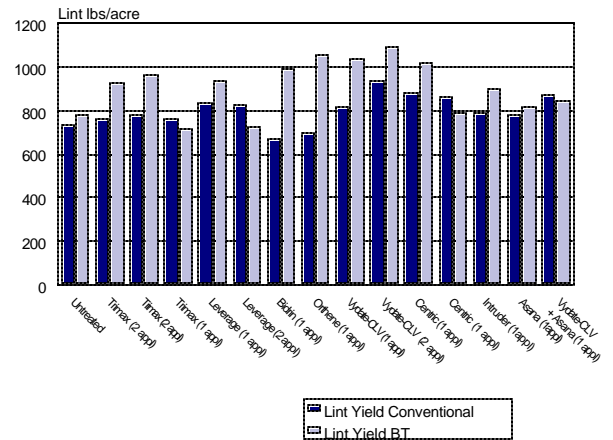
Percent Control and Total Numbers of Cotton Fleahoppers, June 25 – August 1, 2002.



Economic impact of Insecticide treatment regimes.

Rating Unit	Rating Date	Trt-Eval Interval	Conventional		Bollgard™	
			Lint Gain ¹	Value (\$) ² Return on Spray	Lint Gain	Value (\$) Return on Spray
Trt No.	Treatment Name	Rate				
1	Untreated		0.00	--	0.00	ab
2	Trimax (2 appl)	.0313	29.78	3.89	151.30	ab
3	Trimax (2 appl)	.0469	50.51	8.76	179.21	ab
4	Trimax (1 appl)	.0469	32.31	7.90	-61.21	b
5	Leverage (1 appl)	.0867	97.68	38.55	159.24	ab
6	Leverage (2 appl)	.0867	89.11	23.97	-53.39	b
7	Bidrin (1 appl)	0.25	-61.97	-33.86	211.63	ab
8	Orthene (1 appl)	0.25	-33.54	-19.57	272.66	a
9	Vydate-CLV (1 appl)	0.25	87.93	39.39	253.57	ab
10	Vydate-CLV (2 appl)	0.25	206.75	94.22	315.24	a
11	Centric (1 appl)	0.05	151.78	69.69	242.82	ab
12	Centric (1 appl)	.0312	133.86	62.53	12.80	ab
13	Intruder (1 appl)	0.05	53.51	17.12	119.88	ab
14	Asana (1 appl)	0.036	49.10	18.75	37.00	ab
15	Vydate-CLV (1 appl)	0.25	142.26	60.75	60.03	ab
	Asana	0.036				
LSD (P=.05)			150.48		1.45	
Standard Deviation			89.992		0.77	
CV			131.17		323.21	

Yield Trends



¹Lint = Lint lbs /acre gain over the Check; (-) treatment yield less than the check.

²Value = (Lint lbs of lint * \$ 0.50) minus cost of insecticide regimes; does not include application costs.

Trial Comments:

Insecticides' performance varied greatly throughout the sampling period. Yields were slightly better for all treatments in Bollgard™ than in conventional cotton. Vydate .25lb AI/acre (two applications) was the top performer in both Bollgard™ (1,095lb lint/acre) and conventional cotton (940lb lint/acre). All treatments in conventional cotton except Bidrin .25lb AI/acre (single applications) and Orthene .25lb AI/acre (single application) out-produced the Check 733 lbs lint/acre. In Bollgard™ cotton, two treatments - Trimax .0469lb AI/acre (single application) and Leverage .0867lb AI/acre (two applications) - failed to exceed the Check 780lb lint/acre. Economic returns indicate that only 9 of the 14 treatments in conventional cotton and 10 of the 14 treatments in Bollgard™ cotton increased profits (greater than \$15.00 per acre). Overall cotton fleahopper materials applied singularly or twice out-performed pyrethroids applied alone or in tank mixes regardless of spray regime in both conventional and Bollgard™ cotton.

Performance of Bollgard™ and Parent Varieties – Dryland Test

Insect Code	Stand Count	Stand Count	% Retention	% Retention	Lint lbs/acre	Yield Difference
Rating Unit	/acre	/acre	/5 plants	/5 plants		Lint lbs/acre
Rating Date	May-21	Jun-11	Jul-20	Aug-08	Sep-25	
Treatment						
PM 2326 BG/RR	3000.0ab	37333.3	91.47	74.80	199.77	-7.28
PM HS-26	2666.7ab	34666.7	91.57	71.57	207.05	
DP 2280 BG/RR	0.0b	34666.7	97.1	77.10	190.13	42.38
PM 280	666.7ab	33333.3	87.8	77.80	147.67	
DP 237 B	4000.0a	33333.3	87.93	77.93	176.86	-4.76
DP 2379	2666.7ab	37333.3	92.77	72.77	181.62	
LSD (P=.05)	2417.95	6564.66	11.539	7.538	40.371	
Standard Deviation	1329.16	3608.63	6.343	4.144	22.192	
CV	61.35	10.28	6.94	5.5	12.07	
Grand Mean	2166.67	35111.11	91.44	75.33	183.85	

Variety – Parent variety

Trial Comments:

Heliothine pressure did not materialize in 2002. Hot, dry conditions prevailed most of the summer retarding plant development and lint production. There were no significant yield differences between varieties. Bollgard™ varieties failed to compensate for technology rental fees increasing the monetary loss experienced.

Impact of Planting Date and Different Insect Control Strategies on Dryland Production

Insect Code		Stand Count	Stand Count	% Retention	% Retention	NAWF	Lint lbs/acre
Rating Unit		/acre	/acre	/5 plants	/5 plants	/5 plants	
Rating Date		May-29	Jun-11	Jul-20	Jul-29	Aug-07	Sep-25
Treatment	Rate LB A/A						
Paymaster HS-26		33000	37000ab	86.87	66.87	1.0 b	227.66
Planted May 15	Untreated						
Paymaster HS-26			38666.7ab	82.9	72.9	2.7a	173.1
Planted May 30	Untreated						
Paymaster HS-26		31666.7	37000ab	86.47	69.8	2.0ab	235.83
Planted May 15 Vydate	0.125						
Paymaster HS-26			34666.7ab	88.53	75.2	3.0a	208.46
Planted May 30 Vydate	0.125						
Paymaster 280		33666.7	35333.3ab	84.77	74.77	2.3ab	164.17
Planted May 15	Untreated						
Paymaster 280		300000	41000.0a	93.1	66.43	2.7a	163.7
Planted May 30	Untreated						
Paymaster 280		32000	33666.7 b	90.67	71.6	2.3ab	149.66
Planted May 15 Vydate	0.125						
Paymaster 280			34666.7ab	93.63	73.63	2ab	202.23
Planted May 30 Vydate	0.125						
LSD (P=.05)		5508.02	4405.48	9.156	10.425	0.93	108.683
Standard Deviation		2756.81	2515.43	5.228	5.952	0.53	62.055
CV		10.58	6.89	5.92	8.34	23.51	32.56
Grand Mean		26066.67	36500	88.37	71.4	2.25	190.6

Trial Comments:

Light insect pressure dominated in 2002. Hot, dry conditions prevailed most of the summer retarding plant development and lint production. There were no significant yield differences between varieties. Highest yields resulted in Vydate .125lb AI treated plots (except Paymaster 280 planted May 15th), but yields failed to compensate for control expense.

Cotton Termination Based on 4NAWF Irrigated Cotton

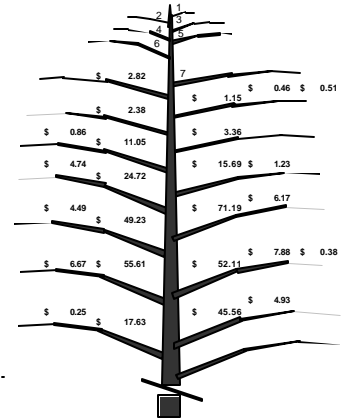
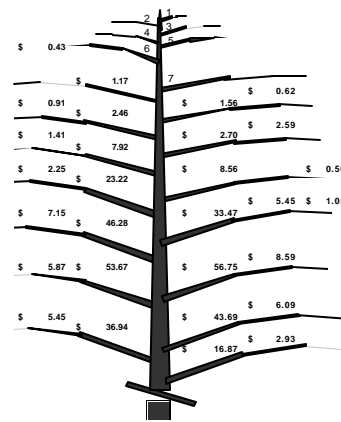
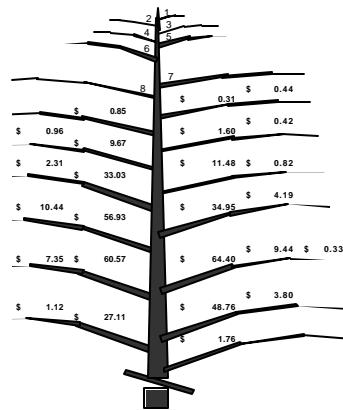
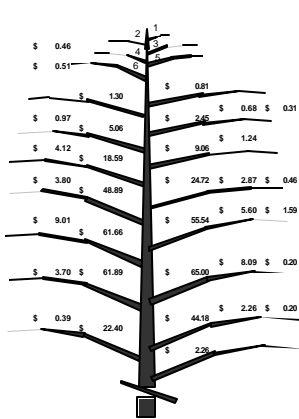
Insect Code	Stand Count	Stand Count	Bollworm Damage Squares	Bollworm Damage Squares	Bollworm Damage Squares	% Retention	Bollworm Damage Squares	Lint lbs/acre
Rating Unit	/acre	/acre	/10 plants	/10 plants	/10 plants	/5 plants	/10 plants	
Rating Date	May-21	Jun-09	Jul-15	Jul-22	Aug-01	Jul-15	Aug-08	Sep-23
Treatment								
DP 33 B	38000.0	46333.3	0.0	0.3	0.0	97.23a	0.0	1073.01a
DP 5415	34333.3	43333.3	1.0	0.7	0.3	91.90ab	0.3	913.3ab
PM2326 BG/RR	42333.3	45000.0	0.0	1.3	0.0	87.63 b	0.0	866.73ab
PM HS-26	35333.3	43000.0	1.3	0.7	0.7	91.53ab	0.7	805.17 b
LSD (P=.05)	14453.65	6832.48	2.38	1.85	1.37	6.685	1.37	181.488
Standard Deviation	7234.18	3419.71	1.19	0.93	0.69	3.346	0.69	90.836
CV	19.29	7.7	204.04	123.73	274.87	3.63	274.87	9.93
Grand Mean	37500	44416.67	0.58	0.75	0.25	92.08	0.25	914.55

DP 33B

DP 5415

PM 2326 BG/RR

PM HS-26



Average lint value = **\$ 412.43**

BOLL CONTRIBUTION BY POSITION

1st Position - 89%

2nd Position - 10%

3rd Position - 1%

Cotton Termination Based on 4NAWF Dryland Cotton

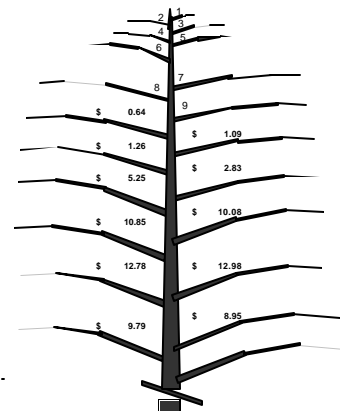
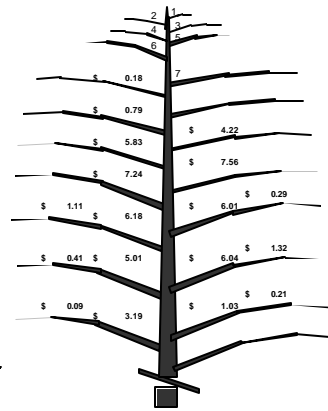
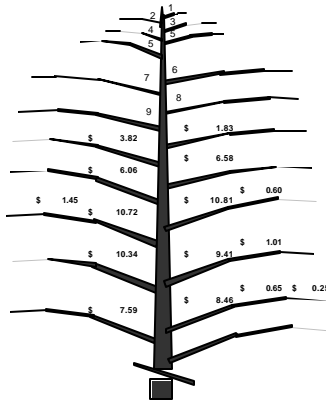
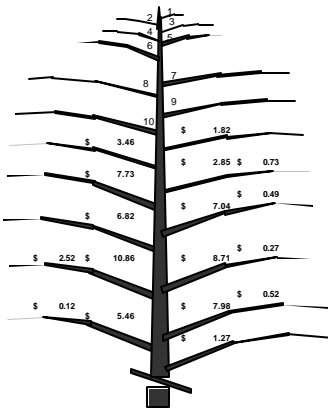
Insect Code	Stand Count	Stand Count	% Retention	NAWF	NAWF	Lint lbs/acre
Rating Unit	/acre	/acre	/5 plants	/5 plants	/5 plants	
Rating Date	May-21	Jun-11	Jul-15	Jul-30	Aug-07	Sep-25
Treatment						
PM 2280 BG/RR	3000.0	36000.0	90.97 b	2.3b	0.7	200.88a
PM 2326 BG/RR	2666.7	37333.3	93.67 b	3.7a	0.3	224.43a
PM 280	1666.7	38000.0	94.43 b	3.0ab	1.0	146.37 b
PM HS-26	2666.7	37666.7	97.93a	2.3 b	0.7	206.05a
LSD (P=.05)	4316.1	2805.86	3.144	0.74	1.1	43.885
Standard Deviation	2160.25	1404.36	1.574	0.37	0.55	21.965
CV	86.41	3.77	1.67	13.15	82.92	11.3
Grand Mean	2500	37250	94.25	2.83	0.67	194.43

PM 2280 BG/RR

PM 2326 BG/RR

PM 280

PM HS-26



Average lint value = \$ 141.66

Boll Contribution by position

- 1st Position - 95%
- 2nd Position - 4%
- 3rd Position - 1%

Cotton Aphid Insecticide Trial

Insecticides and Rate	Insects per 15 leaves ¹				
	Aphids	% Control	Lady Bug Larvae	Syrphid Larvae	Wasp Mummies
Pre-count (8/6/02)					
Check	247.0	----	12.0	6.0	7.0
2 DAT					
Furadan .25 lbs AI/acre	0.0	99.9a	1.3	1.0	0.7
Centric .03 lbs AI/acre	9.3	90.9b	6.7	3.0	1.7
Intruder	100.0	85.1b	8.0	2.0	1.0
5 DAT					
Check	8.3	----	3.7	0.3	1.0

¹A total of 5 tagged plants (3 leaves per plant) per replication were examined at random. Sampling concentrated in upper 1/2 of the plant canopy.

Spray facts:

- Application - August 6, 2002
- Time of day – morning
- Application – ground rig
 - 10 gallons finish spray
 - 1% by volume Crop Oil

Trial Comments:

Good control resulted 2DAT from all three insecticides. Besides control what stood out was the number of beneficial insects remaining in the Centric and Intruder treatments. Unfortunately the aphids crashed 5DAT preventing future evaluations.

Alfalfa Weevil Insecticide Demonstration - Roger Mills County

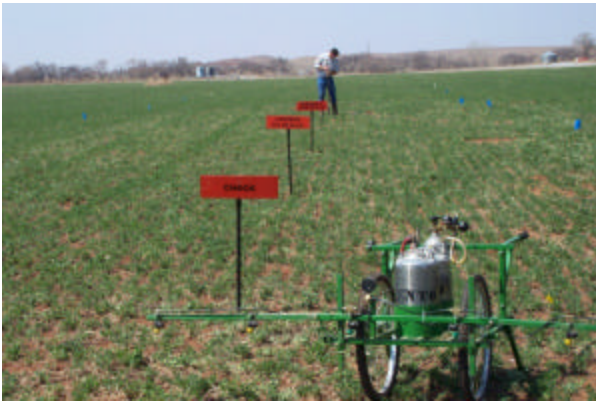
Cooperator: Larry Graybel

Insecticides applied in 10.6 gallons finish spray per acre on April 4, 2002.

Weather conditions:

Temperature: 54⁰F Wind: 7mph

Insecticides and Rate	Larvae per 15 stems Days Post-Treatment			
	0	4	11	22
Check	15	22	23	22
Lorsban .50 lbs AI/acre		0	0	0
Warrior T .028 lbs AI/acre		2	0	0
Furadan .50 lbs AI/acre		2	0	0



	Prices (\$)/acre
Lorsban	4.24
Warrior T	7.33
Furadan	9.40

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