

**EVALUATION OF TRANSGENIC VERSUS
CONVENTIONAL COTTON VARIETIES (1998-2000)**

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Introduction

Most University cotton variety tests are conducted to determine the genetic potential of each variety, hence, all varieties are treated the same. This three year (1998-2000) study was undertaken in Decatur County, Georgia to determine how each variety would perform in their designed technology system. Each variety was planted in a block according to their technology system—bollgard (Bt); roundup ready (RR); stacked (Bt/RR) or conventional and treated according to University of Georgia Extension recommendations.

Twenty-four conventional and nineteen transgenic cotton varieties in 2000 were randomly replicated four times in a split block design. Nine stacked (Bt/RR) varieties averaged 1,400 lbs/acre; four Bt varieties averaged 1,396 lbs/acre; twenty-four conventional varieties averaged 1,306 lbs/acre; and six roundup ready (RR) varieties averaged 1,200 lbs/acre in 2000. There was no significant yield difference between the transgenic and conventional varieties when taken as a group from 1998-2000.

Material and Methods

All Plots

Plots were four rows, 36 inch centers, and 150 feet in length. The two inside rows were harvested.

May 8	Laid-off rows and subsoiled
May 15-16	Planted 3 seed/foot of row strip-tilled and applied 4.0 lbs/acre Temik in-furrow
June 30	Sprayed 12 oz Pix + 1 lb solubor/acre
October 7	Sprayed 1 qt Finish + 1 pint Folex/acre
October 19-20	Harvested

Weed Control

Bt/RR and RR Plots

May 16	Applied 1 qt Prowl + 1 pint Roundup Ultra/acre, Preemergence
June 6	Oversprayed 1 qt Roundup Ultra/acre (didn't cultivate)

Conventional and Bt (Plots)

May 16	Applied 1 qt Prowl + 1 qt Meturon 4L + 1 pint Roundup Ultra/acre, Preemergence
June 9	Cultivated & direct sprayed 1 qt Meturon 4L + 2.8 pints MSMA/acre on 18 inch band

Fertilization

All Plots

May 15-16	Applied 17.5 gallons 10-34-0 acre dribbled 2 inches to side of seed on top of ground
June 1	Applied 260 lbs of 0-7-28/acre
June 5	Applied 20.5 gallons 28-0-0-5/acre
July 5	Applied 25 gallons 28-0-0-5/acre
June 26	Applied 250 lbs/acre 0-0-40

Insect Control

Conventional and RR Plots

June 26	Applied 1.5 oz Tracer + surfactant/acre
July 5	Applied 1.5 oz Tracer + surfactant/acre
July 19	Applied 1.5 oz Tracer + surfactant/acre
July 26	Applied 2.0 oz Tracer + surfactant + 1.6 oz Karate Z/acre
August 4	Applied 2.0 oz Tracer + surfactant/acre
August 15	Applied 1 pt methyl parathion 4E/acre

Bt and Bt/RR Plots

July 26	Applied 1.6 oz Karate Z/acre
August 15	Applied 1 pt methyl parathion 4E/acre

2000 Decatur Co. Cotton Variety Test.

	2000	1999-	1998-			
	Lbs of	2000	2000			
	Lint/ Acre	2 Year Avg	3 Year Avg	Mike	Staple	Strength
ST 4691B	1580			47	35	29.1
DELTA PEARL	1563	1446		43	36	29.8
ST 4892B/RR	1538			52	34	27.3
DPL 458B/RR	1520	1380	1307	48	35	28.7
SG 521B/RR	1513			49	32	25.4
SG 821	1482	1390	1306	49	35	26.8
DPL 5415	1454	1316	1302	40	37	31.2
DPL 35B	1446	1307	1339	41	37	32.8
SG 747	1442	1358	1283	50	36	24.8
AP 7126	1439			45	37	28.4
DELTA TOPAZ	1424			42	36	27.8
PSC 355	1393			51	36	28.5
SG 501B/RR	1384	1302	1230	50	35	29.1
AP 6101	1362	1344	1328	48	36	30.2
SG 125B/RR	1357	1265	1237	45	36	28.1
FM 966	1352			46	37	32.2
ST BXN 47	1348	1172		49	36	28.0
PM 1560B/RR	1341	1187		42	35	29.5
DPL 451B/RR	1333	1254		46	36	27.9
SG 150B/RR	1321			52	34	28.1
DPL 33B	1305	1238	1249	43	36	28.7
DPL 90	1301			42	36	30.5
HS 44	1301	1283		46	37	33.3
HS 12	1299	1260	1320	45	37	30.7
DPL 5690	1296	1224		45	35	31.5
DPL 655B/RR	1293	1150	1144	45	36	28.7
SG 105	1293	1205		44	37	28.9
HS 46	1290	1304	1353	45	36	29.9
ST 4793RR	1273			51	36	27.7
PSC 952	1269	1292	1330	50	35	27.3
DPL 428B	1254	1252	1221	46	35	25.9
ST 474	1240	1196	1161	49	34	26.7
GA 161	1240	1213		47	38	29.7
DPL 90RR	1239			44	36	29.5
DPL 5690RR	1230	1165	1175	45	36	30.4
AP 7115	1222	1267		44	35	26.8
FM 989	1188	1189	1117	46	37	31.8
ST 580	1184			46	37	31.3
AP 4600RR	1178			49	35	27.4
FM 958	1177			47	37	30.6
DPL 436RR	1145			50	35	25.9
DPL 425RR	1135	1164	1154	51	36	25.8
DPL 6207	796			38	36	33.3

1998-2000 Results — Comparison of Technology Systems as a Group.

	1998		1999		2000		1998-2000
	No.	Yield	No.	Yield	No.	Yield	Yield
Conventional							
Varieties	26	1212	27	1223	24	1306	1247
Bt Varieties	9	1180	8	1107	4	1396	1228
Stacked (Bt/RR)							
Varieties	5	1117	10	1127	9	1400	1215
Roundup Ready (RR)							
Varieties	9	1105	5	1134	6	1200	1146

2000 Decatur County, GA Variety Test — Conventional Parent Compared to Technology Progeny.

Conventional Variety	2000 Yield	Bt Variety	2000 Yield	RR Variety	2000 Yield	Bt/RR Variety	2000 Yield
DPL	1454	DPL	1305			DPL	1520
5415		33B				458	
DPL	1296	DPL	1446	DPL	1230	DPL	1293
5690		35B		5690RR		655	
DPL	1301			DPL	1239		
90				90RR			
ST 474	1240	ST	1580	ST	1273	ST	1538
		4691B		4793RR		4892B/RR	