

# **Tennessee Cotton Variety Test Results in 2004**

**Edited by  
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## INTRODUCTION

The purpose of the University of Tennessee cotton variety testing program is to provide an unbiased evaluation of new varieties for Tennessee commercial production. Experimental strains are also tested, and major cultivars are grown in county variety demonstrations. Results are intended to help cotton producers identify varieties that are well adapted to Tennessee, that produce high quality fiber, and that are relatively stable in yield performance. Results are also used by the seed industry, crop consultants, and the UT extension service to assess varietal adaptation to Tennessee field environments.

Three chapters in this report cover the major components of the 2004 cotton variety testing program of the University of Tennessee. Chapter I presents yield and fiber quality data from Official Variety Trials (OVTs) of 34 commercial cultivars tested at four Tennessee locations. Chapter II presents yield, fiber quality and data on the growth, development, and other agronomic traits of 30 new and transgenic varieties from an Early Evaluation study conducted at Jackson. Chapter III presents the results from standard test demonstrations of cotton varieties in counties in West and Middle Tennessee. A glossary is also included at the end of this report to define technical terms and abbreviations used.

### GENERAL PROCEDURES

Seed of commercial cultivars was provided by the respective companies from commercial seed lots. Smaller quantities of seed of experimental strains were furnished by the respective entrants. Seed sources are listed on the next page. Planting seed was two-way treated with fungicides by the entrants.

For small plot testing, varieties were assigned to plots arranged in a randomized complete block design. Fertilizer and lime were applied according to soil test results and UT recommendations for cotton. Seedbeds were prepared with conventional tillage methods at the Memphis Agricenter, while no-tillage methods were used at the West Tennessee Experiment Station, Milan Experiment Station and Ames Plantation. Seed

were planted on raised beds at the Memphis Agricenter, and in flat seedbeds at the other locations. Varieties were planted in 2-row plots with row widths of 38 inches at Jackson, Ames and Memphis and 40 inches at Milan. A systemic insecticide and fungicide were applied in-furrow while planting. Conventional UT-recommended weed- and pest-control measures were uniformly applied to all plots. A defoliant and boll opener were applied to terminate each experiment following UT recommendations. Plots in all OVTs were picked once with a spindle picker modified to harvest seedcotton from individual plots. Seedcotton harvested from each plot was weighed at picking. Subsamples of seedcotton were collected from each plot at first harvest, weighed, air-dried, and bulked by varietal entry. Gin turnout was determined for each entry using a 20-saw gin equipped with a stick machine, incline cleaners and two lint cleaners at the West Tennessee Experiment Station. No heat was applied during ginning. Lint yields were calculated using seedcotton weights, gin turnouts, and harvested areas. A subsample of lint of each entry was analyzed by HVI procedures at the USDA Cotton Classing Office in Memphis, TN.

County Standard Test demonstrations conducted in 2004 included both early and medium/full-season transgenic varieties. County standard tests of early-season transgenic varieties were planted in 17 locations with each location containing 13 varieties (7 Bollgard/Roundup Ready (BR) and 6 Roundup Ready (RR)). County standard tests of medium/full-season transgenic varieties were planted in 11 locations with each location containing 7 varieties (6 Bollgard/Roundup Ready (BR) and 1 Roundup Ready (RR)). Each variety was planted only once at each location and was maintained using the individual grower's production practices. Varieties were defoliated for a once-over harvest and harvested once using spindle pickers. Seedcotton weights were determined using wheel scales or a boll buggy equipped with load cells. Seedcotton samples were ginned and classed similarly to small-plot samples, as described above. County standard test data were analyzed using Proc GLM with locations as replications.

## **ACKNOWLEDGMENTS**

The authors appreciate the technical and financial support provided by the seed companies listed below. Their contributions to the University of Tennessee gift fund for cotton research helped defray some costs of conducting this research in 2004: Bayer Crop Science; Beltwide Cotton Genetics; Delta and Pine Land Co.; PhytoGen Seed Co.; Stoneville Pedigreed Seed Co.; Syngenta Seeds, Inc.

We gratefully acknowledge donations of agricultural chemicals used in conducting this research from Bayer CropScience, BASF Corp., Dow AgroSciences, DuPont, FMC Corp., Griffin Corp., Syngenta Crop Protection, Inc., Crompton-Uniroyal Chemical Co., and Valent USA Corp.

We appreciate logistical support and cooperation provided by the following Branch Station administrators:

- Dr. Rick Carlisle, Superintendent, Ames Plantation
- Dr. Blake A. Brown, Superintendent, Milan Experiment Station
- Dr. Robert M. Hayes, Superintendent, West Tennessee Experiment Station

We thank Dr. Jamie Jenkins, director of research and his farm crew at the Agricenter International in Memphis, for his collaboration in conducting an OVT at that location in 2004.

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Research at Ames Plantation was partially funded by the Hobart Ames Foundation under terms of the will of the late Julia Colony Ames.

We appreciate the cooperation of county extension agents and producers who conducted the county variety demonstrations in 2004. We also appreciate the technical cooperation of the USDA-AMS Cotton Division Classing Office in Memphis, which provided the fiber quality data reported herein.

Special thanks to all who helped pick and gin cotton for these experiments.

## **SEED SOURCES**

Seeds for the 2004 University of Tennessee cotton variety tests and demonstrations were provided by:

- Bayer CropScience, 311 Poplar View Lane West, Collierville TN 38017
- Beltwide Cotton Genetics, 574 Green Tree Cove, Suite 101, Collierville TN 38017
- Delta and Pine Land Co., P.O. Box 157, Scott MS 38772
- Phytogen Seed Co., P.O. Box 27, Leland MS 38756
- Seed Source, Inc., P. O. Box 28, Stoneville MS 38776
- Stoneville Pedigreed Seed Co., 6625 Lenox Park Drive, Suite 117, Memphis TN 38115
- Syngenta Seeds, Inc., 356 Hosek Road, Victoria TX 77905

## Chapter I. OFFICIAL VARIETY TRIALS

C. Craig and T.D. Bush, West Tennessee Experiment Station,  
M. C. Smith, Ames Plantation,  
J. S. Williams, Milan Experiment Station,  
The University of Tennessee

Replicated small-plot tests of promising commercial cultivars were conducted at four locations in 2004. Official Variety Trials (OVTs) at Milan were planted in 40-inch rows with no tillage, 38-inch rows at Ames and Jackson with no tillage, and 38-inch rows at Memphis with conventional tillage. No irrigation was applied to OVTs at Memphis, Milan, Ames or Jackson in 2004. All the 2004 OVTs had 34 entries. Of these, 31 were transgenic, including 12 cultivars with both *Bt* and RR genes, 12 cultivars containing the RR gene only, 5 cultivars with Bollgard II and Roundup Ready technology, 2 cultivars with Liberty Link technology and 3 conventional cultivars. Conventional pest- and weed management was uniformly applied to conventional and transgenic varieties at each location.

Four OVTs were successfully planted between 5 May and 20 May 2004 (Table 1) despite wet conditions. With the exception of the Milan location, adequate stands were obtained at all locations. Excessive thrips populations at Milan reduced plant stands and the lowest yielding plot was omitted from the analysis of data for each variety. Conditions improved, however, with moderate mid- and late-season temperatures and adequate late-season rainfall (Tables 2 and 3). With the exception of thrips, insect pest pressure was manageable low overall. A few bollworms and stinkbugs were found in July and August, but damage was light. Warm conditions in September and October favored maturation of late-set bolls, and abundant rainfall limited the number of harvest opportunities during the late season. No killing freeze occurred before final harvest at any location.

**Tables 4 through 7** present yield, gin turnout, fiber quality and loan value data from each of the four OVT locations. Lint yields were very high, with averages ranging from 910 lbs/acre at Milan to 1632 lbs/acre at the West Tennessee Experiment Station. Relatively late-maturing varieties were among the highest yielding group at all locations, due in part to adequate heat-unit accumulation and

lack of killing freeze.

**Table 8** presents mean yields, earliness and gin turnouts for 34 entries across the four OVTs for 2004. Across locations, the seven top-yielding entries did not differ significantly in total yield. This group included, ST 5599BR; DP 555 BG/RR, DP 444 BG/RR and four newly released transgenics, ST 5242BR, DP 488 BG/RR and ST 3636B2R and DP 432 RR. No high micronaire discounts were observed at any location in 2004 but DP 444 BG/RR and BCG 295 had micronaire values in the low discount range at Ames Plantation. Overall fiber length was very good reflecting the good growing conditions of 2004. Fiber strength and uniformity were at or above the discount range for all varieties at all but one location in 2004. Conditions for defoliation were very good and very few varieties were discounted for leaf grades of 5 or greater. Harvest conditions were excellent in late September and early October but late season rains had a detrimental effect on lint color. Overall fiber quality was excellent but loan values reflected the color discounts when cotton was harvested in late October and early November.

**Table 9** presents yield, gin turnout, fiber quality and loan value data for 19 varieties tested in all four OVTs in 2003 and 2004. The three top-yielding varieties did not differ significantly in total yield. This group includes three transgenic cultivars, ST 5599 BR, DP 555 BG/RR and FM 960BR. These varieties have shown broad adaptation in previous variety testing in the mid-South but they have benefited from extremely favorable fall conditions in Tennessee in recent years. The "top-ten" yielding entries on this list also include the most popular cultivars in Tennessee DP 444 BG/RR, PM 1218 BG/RR, DP 451 B/RR and ST 4892BR.

**Table 10** presents yield, gin turnout, fiber quality and loan value data for 10 varieties tested in all four OVTs in 2002, 2003 and 2004. The lack of killing freeze in October in the last three years has benefited the later maturing varieties like ST 5599BR and DP 555 BG/RR. These two varieties

had the statistically highest yields during this period. Varieties like ST 4892BR, PM 1218 BG/RR, DP 451 B/RR and ST 4793R were also consistent performers, and have been planted on large acres in Tennessee

**Table 11** presents node above cracked boll (NACB) data averaged across all four OVT locations in 2004 and days to node above white flower 5 (NAWF5) 'cutout' and plant heights from the Jackson location only. NACB measurements were taken to determine the relative maturities of each of the 34 varieties between 125 and 130 days after planting. The value represents the number of nodes from the highest first position cracked boll to the uppermost harvestable boll taken at approximately 50% open boll. Fewer nodes above cracked boll is an indicator of early maturity. However, maturities may vary from year to year and from location to location. The early maturing

varieties, DP 444 BG/RR, PM 1218 BG/RR and PM 1199 RR have NACB values of 3.5 or less while later maturing varieties like DP 491, DP 488 BG/RR, DP 494 RR, ST 5599BR and DP 555 BG/RR have NACB values 5.0 or greater. Number of days to cutout is also an indicator of maturity but does not always translate to faster boll opening. For example, DP 494 RR required only one more day than DP 444 BG/RR to reach NAWF5 but required more days for safe defoliation as evidenced by NACB (5.0 vs. 3.5, respectively). Determinate varieties like PM 1218 BG/RR and PM 1199 RR tend to have relatively little vegetative growth after bloom while more indeterminate varieties like ST 5599BR and DP 555 BG/RR tend to continue vegetative growth well into the bloom period. This information could be useful when making plant growth regulator applications prior to and during bloom.

Table 1. Agronomic information for the 2004 Tennessee Official Cotton Variety Trials.

Location	Soil Type	Irrigation	Planting Date	Defoliation Date	Harvest Date
Agricenter International	Falaya silt loam	No	20-May	27-Sep	29-Oct
Ames Plantation	Memphis silt loam	No	4-May	24-Sep	8-Oct
Milan Experiment Station	Collins silt loam	No	20-May	8-Oct	8-Nov
West Tennessee Experiment Station	Grenada silt loam	No	5-May	15-Sep	28-Sep

Table 2. Rainfall accumulation by month for the 2004 Tennessee Official Cotton Variety Trials.

Location	May	June	July	Aug.	Sept.	Oct.	Nov.	Total
	-----inches-----							
Agricenter International	6.04	3.22	3.10	2.97	0.25	6.16	9.38	31.12
Ames Plantation	5.47	8.31	4.90	3.97	0.60	5.82	6.69	35.76
Milan Experiment Station	4.61	5.01	2.10	4.85	0.32	10.12	8.74	35.75
West Tennessee Experiment Station	6.22	2.90	4.73	4.93	0.69	7.98	8.33	35.78

Table 3. Heat unit accumulation by location for the 2004 Tennessee Official Cotton Variety Trials.

Location	May	June	July	Aug.	Sept.	Oct.	Nov.	Total
	-----DD60s-----							
Agricenter International	448	567	639	560	497	294	36	3041
Ames Plantation	375	478	563	451	368	203	25	2463
Milan Experiment Station	382	470	536	408	320	154	16	2285
West Tennessee Experiment Station	428	550	617	525	406	213	29	2767



Table 4. Gin turnout, lint yield and fiber quality of 34 cotton varieties in the 2004 Tennessee Official Variety Trial, Agricenter International, Memphis, TN.

Yield Rank	Variety	Gin		Fiber		Fiber	Uni-	HVI	Leaf	Net Loan
		Turnout	Lint Yield	Mike	Length	Strength	formity	Color	Grade	Value <sup>†</sup>
		%	lb./acre	units	in.	g/tex	%			¢/lb.
1	ST 5599BR	43.4	1976	46	1.10	29.9	82	51-1	4	50.35
2	ST 4892BR	41.7	1891	46	1.06	25.8	82	41-4	4	52.50
3	ST 4686R	41.0	1841	41	1.10	27.3	81	41-2	4	54.20
4	ST 5242BR	40.4	1834	45	1.08	26.6	82	41-2	3	54.45
5	ST 4793R	40.9	1786	44	1.06	27.8	82	51-3	4	49.35
6	DP 494 RR	39.6	1771	47	1.15	30.4	83	51-1	4	50.65
7	FM 960BR	39.0	1766	42	1.12	31.7	83	41-2	4	55.25
8	DP 444 BG/RR	39.3	1765	38	1.13	28.0	83	51-1	4	50.60
9	PM 1218 BG/RR	39.5	1738	44	1.10	26.6	82	41-2	3	54.45
10	DP 555 BG/RR	40.8	1720	42	1.11	27.2	82	41-2	4	54.50
11	DP 432 RR	37.1	1695	38	1.14	31.5	82	51-3	4	50.85
12	DP 493	40.6	1689	43	1.13	29.5	81	51-1	3	50.85
13	FM 960B2R	38.0	1683	44	1.15	29.8	82	41-2	4	54.60
14	PHY 410 R	36.6	1671	45	1.14	28.1	84	51-1	4	50.45
15	ST 3636B2R	37.3	1642	45	1.09	26.6	81	51-3	4	50.05
16	ST 4646B2R	39.7	1641	42	1.08	26.3	81	51-1	4	50.30
17	BCG 24R	37.4	1631	41	1.10	28.9	82	51-1	4	50.30
18	ST 4575BR	37.0	1612	41	1.10	27.0	82	41-4	4	54.20
19	FM 966LL	36.0	1603	43	1.14	31.3	83	51-1	4	50.85
20	SG 521 R	37.0	1598	41	1.09	26.3	82	41-2	3	54.70
21	DP 488 BG/RR	35.1	1588	43	1.16	30.1	83	41-2	4	54.85
22	DP 451 B/RR	34.8	1587	43	1.11	26.4	81	51-1	3	50.55
23	FM 958LL	36.6	1547	40	1.12	30.7	82	41-2	4	55.00
24	FM 960RR	37.8	1530	35	1.15	31.6	83	41-2	4	55.05
25	DP 491	39.3	1514	41	1.18	28.4	83	51-1	4	50.60
26	BCG 28R	37.0	1507	45	1.11	27.6	82	51-1	4	50.10
27	FM 989BR	36.9	1487	36	1.18	29.8	82	41-2	3	55.05
28	DP 434 RR	36.2	1483	41	1.09	27.7	82	41-2	3	54.70
29	DP 449 BG/RR	38.0	1482	39	1.12	28.2	83	51-1	4	50.60
30	DP 436 RR	34.6	1471	42	1.14	27.3	82	51-1	3	50.80
31	BCG 295	35.3	1462	46	1.13	27.7	82	41-2	4	54.25
32	ST 5454B2R	35.9	1446	39	1.08	26.8	81	51-1	3	50.80
33	DP 424 BGII/RR	33.0	1439	42	1.07	25.4	81	51-1	3	49.00
34	PM 1199 RR	34.1	1341	44	1.13	26.3	84	51-1	3	50.90
	Mean:	37.8	1631	42	1.12	28.3	82	51-1	3.7	52.23
	CV (%)		8.4							
	LSD (0.05)		192							

†Base price of 52.50 cents/lb lint adjusted for color, leaf, staple, micronaire, strength, and uniformity. Calculated by the 2004 Cotton Incorporated Cotton Loan Valuation Program, based on the 2004 upland cotton warehouse loan rates.

Tennessee Agricultural Experiment Station data of Craig et al. (2004)

Table 5. Gin turnout, lint yield and fiber quality of 34 cotton varieties in the 2004 Tennessee Official Variety Trial, Ames Plantation, Grand Junction, TN.

Yield Rank	Variety	Gin		Fiber		Fiber	Uni-	HVI	Leaf	Net Loan
		Turnout	Lint Yield	Mike	Length	Strength	formity	Color	Grade	Value <sup>†</sup>
		%	lb./acre	units	in.	g/tex	%			¢/lb.
1	DP 488 BG/RR	37.7	1494	41	1.15	30.0	82	21-2	3	57.70
2	ST 5599BR	40.8	1418	46	1.12	29.5	83	31-1	4	55.45
3	ST 3636B2R	39.4	1410	41	1.12	26.5	82	31-2	4	55.15
4	PM 1199 RR	42.2	1345	41	1.13	27.8	83	31-1	4	55.40
5	DP 444 BG/RR	38.8	1342	33	1.11	28.1	83	21-2	5	50.60
6	ST 4892BR	36.9	1332	42	1.10	27.8	83	31-1	4	55.00
7	DP 449 BG/RR	36.3	1323	42	1.13	29.3	83	21-1	3	57.50
8	ST 4793R	39.5	1302	44	1.09	26.7	83	21-2	4	55.05
9	FM 960RR	39.7	1302	36	1.12	31.8	83	31-1	4	55.65
10	ST 4646B2R	37.1	1294	42	1.09	27.8	83	31-1	4	55.00
11	FM 966LL	36.8	1294	41	1.14	33.1	84	21-1	4	56.70
12	DP 432 RR	36.1	1272	41	1.10	26.5	82	31-1	4	54.75
13	DP 555 BG/RR	39.0	1265	42	1.09	28.1	81	21-2	3	56.65
14	DP 434 RR	37.9	1261	37	1.16	27.4	83	21-1	3	57.65
15	FM 989BR	35.2	1240	38	1.14	31.0	82	21-2	4	56.25
16	ST 4575BR	38.4	1229	37	1.11	28.5	82	31-1	4	55.15
17	FM 958LL	38.9	1215	39	1.14	30.4	83	31-1	3	57.55
18	DP 424 BGII/RR	35.0	1209	42	1.10	26.4	82	21-1	3	56.65
19	DP 491	36.2	1205	41	1.17	31.0	84	21-2	3	58.25
20	ST 5242BR	34.0	1194	42	1.08	26.8	82	21-1	3	56.65
21	BCG 28R	39.4	1178	44	1.11	28.7	82	21-2	3	57.00
22	ST 5454B2R	36.2	1176	40	1.09	28.6	82	21-1	3	56.65
23	PM 1218 BG/RR	36.4	1172	42	1.07	26.3	81	31-1	3	54.55
24	DP 451 B/RR	36.7	1164	44	1.13	27.1	83	21-1	3	57.25
25	PHY 410 R	36.1	1153	45	1.15	26.5	83	31-1	4	55.30
26	DP 494 RR	37.9	1114	44	1.16	31.2	84	31-1	3	57.60
27	DP 436 RR	34.4	1107	40	1.15	26.6	83	21-1	3	57.65
28	FM 960BR	36.3	1069	38	1.11	32.2	82	21-2	3	57.75
29	FM 960B2R	36.0	1066	40	1.16	31.8	83	31-1	3	57.75
30	DP 493	36.5	1063	43	1.13	31.0	82	21-1	3	57.50
31	SG 521 R	35.0	1051	42	1.10	26.6	83	21-2	3	56.90
32	BCG 24R	36.7	1037	38	1.11	27.2	83	21-2	3	57.50
33	BCG 295	35.2	995	33	1.17	30.5	82	31-1	3	55.30
34	ST 4686R	35.4	975	42	1.12	27.8	82	21-1	3	57.25
	Mean:	37.2	1214	41	1.12	28.7	83	21-2	3.4	56.31
	CV (%)		14.9							
	LSD (0.05)		259							

†Base price of 52.50 cents/lb lint adjusted for color, leaf, staple, micronaire, strength, and uniformity. Calculated by the 2004 Cotton Incorporated Cotton Loan Valuation Program, based on the 2004 upland cotton warehouse loan rates.

Tennessee Agricultural Experiment Station data of Craig et al. (2004)

Table 6. Gin turnout, lint yield and fiber quality of 34 cotton varieties in the 2004 Tennessee Official Variety Trial, Milan Experiment Station, Milan, TN.

Yield Rank	Variety	Gin		Fiber		Fiber	Uni-	HVI	Leaf	Net Loan
		Turnout	Lint Yield	Mike	Length	Strength	formity	Color	Grade	Value <sup>†</sup>
		%	lb./acre	units	in.	g/tex	%			¢/lb.
1	DP 488 BG/RR	40.1	1226	46	1.14	28.0	82	51-3	3	50.55
2	ST 5242BR	41.8	1117	45	1.05	25.8	82	51-1	3	49.85
3	FM 960BR	43.4	1086	43	1.06	28.8	82	51-1	3	49.85
4	ST 5599BR	39.6	1085	45	1.06	27.1	81	51-3	3	49.85
5	DP 432 RR	38.4	1056	47	1.05	25.2	82	51-4	3	48.75
6	FM 966LL	40.5	1046	42	1.12	30.6	82	51-1	3	51.30
7	PM 1199 RR	39.1	1037	47	1.06	27.6	83	51-2	3	50.10
8	ST 4686R	42.3	1035	45	1.10	26.3	82	51-3	3	50.55
9	ST 3636B2R	39.3	1018	44	1.08	25.5	81	51-1	3	50.55
10	DP 451 B/RR	35.3	982	42	1.11	26.2	83	51-1	3	51.05
11	DP 494 RR	38.9	978	45	1.15	27.8	83	51-3	3	50.80
12	FM 958LL	40.4	964	44	1.11	28.8	82	51-1	3	50.55
13	PHY 410 R	39.3	963	48	1.08	27.2	83	51-4	3	50.80
14	DP 444 BG/RR	41.7	946	36	1.09	27.1	82	51-1	3	50.55
15	PM 1218 BG/RR	41.0	926	44	1.04	25.4	81	51-1	3	47.80
16	ST 4575BR	40.0	913	41	1.09	26.7	82	51-3	3	50.80
17	FM 960B2R	39.1	911	41	1.12	28.3	81	51-1	3	50.80
18	FM 989BR	39.9	886	41	1.13	28.3	81	51-1	3	50.80
19	DP 491	35.8	874	44	1.14	28.0	82	51-3	3	50.55
20	DP 436 RR	36.8	857	44	1.11	24.1	82	51-1	3	49.25
21	FM 960RR	40.5	835	37	1.11	29.4	82	51-3	3	50.80
22	DP 449 BG/RR	39.1	832	43	1.10	26.5	81	51-2	3	50.55
23	DP 555 BG/RR	39.8	825	43	1.07	26.0	81	51-1	3	49.85
24	ST 4892BR	41.8	816	45	1.04	25.4	81	51-3	3	47.80
25	DP 434 RR	37.1	811	41	1.13	25.4	83	51-1	3	49.95
26	ST 4646B2R	37.4	811	40	1.08	26.2	81	51-3	3	50.80
27	DP 493	39.1	790	43	1.08	27.4	80	51-1	3	50.55
28	SG 521 R	41.2	788	42	1.05	24.5	82	51-3	3	49.00
29	BCG 295	36.2	788	42	1.13	28.0	81	51-1	3	50.80
30	ST 4793R	39.1	775	49	1.05	25.8	81	51-3	3	49.85
31	DP 424 BGII/RR	38.8	772	42	1.08	27.2	81	51-1	3	50.80
32	BCG 24R	35.6	746	42	1.06	26.9	81	51-1	3	50.10
33	BCG 28R	39.6	728	48	1.10	26.0	82	51-1	3	50.55
34	ST 5454B2R	41.1	722	45	1.06	25.9	81	51-4	2	49.85
Mean:		39.4	910	43	1.09	26.9	82	51-1	3	50.19
CV (%)			8.7							
LSD (0.05)			130							

†Base price of 52.50 cents/lb lint adjusted for color, leaf, staple, micronaire, strength, and uniformity. Calculated by the 2004 Cotton Incorporated Cotton Loan Valuation Program, based on the 2004 upland cotton warehouse loan rates.

Tennessee Agricultural Experiment Station data of Craig et al. (2004)

Table 7. Gin turnout, lint yield and fiber quality of 34 cotton varieties in the 2004 Tennessee Official Variety Trial, West Tennessee Experiment Station, Jackson, TN.

Yield Rank	Variety	Gin	Fiber			Fiber	Uni-	HVI	Leaf	Net Loan
		Turnout	Lint Yield	Mike	Length	Strength	formity	Color	Grade	Value <sup>†</sup>
		%	lb./acre	units	in.	g/tex	%			¢/lb.
1	DP 555 BG/RR	39.7	1891	42	1.14	28.6	82	31-1	4	55.30
2	ST 4575BR	38.3	1850	38	1.13	28.6	83	31-1	4	55.40
3	ST 5599BR	38.1	1831	37	1.12	29.8	82	31-1	4	55.45
4	ST 5242BR	38.5	1814	38	1.10	28.0	82	21-1	4	55.05
5	DP 432 RR	36.8	1808	39	1.13	28.2	83	21-2	4	55.80
6	DP 444 BG/RR	38.1	1763	37	1.15	30.3	83	21-2	3	57.95
7	DP 493	39.1	1741	43	1.15	30.4	82	21-2	3	57.45
8	FM 966LL	35.1	1733	38	1.15	32.2	83	21-2	4	56.50
9	FM 960RR	35.5	1717	38	1.12	31.1	82	31-1	5	52.70
10	DP 451 B/RR	33.8	1711	40	1.14	27.5	83	31-1	3	57.25
11	ST 4793R	37.2	1706	45	1.09	28.6	83	21-1	4	55.05
12	FM 960BR	37.0	1705	37	1.11	31.6	83	21-1	4	56.30
13	PM 1199 RR	37.2	1697	42	1.15	28.6	83	31-1	4	55.55
14	FM 960B2R	35.6	1686	39	1.19	32.0	83	31-1	4	56.05
15	PM 1218 BG/RR	41.4	1676	39	1.10	27.4	83	31-1	4	55.00
16	PHY 410 R	36.0	1666	43	1.11	28.2	83	31-2	5	52.20
17	ST 3636B2R	37.2	1654	37	1.12	27.9	82	21-1	4	55.55
18	ST 4646B2R	35.6	1618	41	1.10	27.5	82	41-1	5	51.00
19	SG 521 R	36.8	1607	39	1.10	27.8	83	21-1	4	55.30
20	FM 989BR	36.1	1602	37	1.13	31.4	82	31-1	4	55.65
21	DP 488 BG/RR	37.3	1592	41	1.16	30.3	82	31-1	4	55.60
22	DP 434 RR	36.9	1589	39	1.18	27.3	83	21-2	3	57.65
23	FM 958LL	35.3	1588	39	1.15	31.4	83	31-1	3	57.75
24	DP 436 RR	34.3	1552	40	1.15	26.7	83	21-1	3	57.65
25	ST 4892BR	36.8	1548	41	1.10	28.3	84	31-1	4	55.10
26	DP 494 RR	37.2	1546	41	1.16	29.9	83	31-1	4	55.85
27	DP 449 BG/RR	37.7	1535	40	1.13	30.4	83	31-1	3	57.35
28	DP 424 BGII/RR	33.6	1498	39	1.14	29.1	82	21-2	3	57.40
29	BCG 24R	38.0	1469	41	1.09	28.6	83	11-1	3	56.90
30	BCG 295	35.4	1455	35	1.16	30.7	83	21-1	4	56.25
31	ST 4686R	36.3	1445	37	1.15	27.8	82	31-1	4	55.30
32	DP 491	34.9	1438	39	1.23	30.5	82	31-1	4	55.80
33	BCG 28R	36.4	1387	42	1.12	27.5	82	31-1	3	56.80
34	ST 5454B2R	34.5	1370	41	1.15	29.0	82	21-1	3	57.40
Mean:		36.7	1632	40	1.14	29.2	83	21-2	3.8	55.86
CV (%)			7.4							
LSD (0.05)			169							

†Base price of 52.50 cents/lb lint adjusted for color, leaf, staple, micronaire, strength, and uniformity. Calculated by the 2004 Cotton Incorporated Cotton Loan Valuation Program, based on the 2004 upland cotton warehouse loan rates.

Tennessee Agricultural Experiment Station data of Craig et al. (2004)

Table 8. Gin turnout, lint yield and fiber quality of 34 cotton varieties in the 2004 Tennessee Official Variety Trial, averaged across four locations.

Yield Rank	Variety	Gin	Fiber		Fiber	Uni-	HVI	Leaf	Net Loan	
		Turnout	Lint Yield	Mike	Length	Strength	formity	Color	Grade	Value <sup>†</sup>
		%	lb./acre	units	in.	g/tex	%		¢/lb.	
1	ST 5599BR	40.5	1577	44	1.10	29.1	82.0	41-1	3.8	52.78
2	ST 5242BR	38.7	1490	43	1.08	26.8	82.0	31-2	3.3	54.00
3	DP 488 BG/RR	37.5	1475	43	1.15	29.6	82.3	41-1	3.5	54.68
4	DP 432 RR	37.1	1458	41	1.11	27.9	82.3	41-1	3.8	52.54
5	DP 444 BG/RR	39.5	1454	36	1.12	28.4	82.8	41-1	3.8	52.43
6	ST 3636B2R	38.3	1431	42	1.10	26.6	81.5	41-1	3.8	52.83
7	DP 555 BG/RR	39.8	1425	42	1.10	27.5	81.5	41-1	3.5	54.08
8	FM 966LL	37.1	1419	41	1.14	31.8	83.0	41-1	3.8	53.84
9	FM 960BR	38.9	1406	40	1.10	31.1	82.5	41-1	3.5	54.79
10	ST 4575BR	38.4	1401	39	1.11	27.7	82.3	41-1	3.8	53.89
11	ST 4892BR	39.3	1397	44	1.08	26.8	82.5	41-1	3.8	52.60
12	ST 4793R	39.2	1392	46	1.07	27.2	82.3	41-1	3.8	52.33
13	PM 1218 BG/RR	39.6	1378	42	1.08	26.4	81.8	41-1	3.3	52.95
14	PHY 410 R	37.0	1363	45	1.12	27.5	83.3	41-1	4.0	52.19
15	DP 451 B/RR	35.1	1361	42	1.12	26.8	82.5	41-1	3.0	54.03
16	PM 1199 RR	38.2	1355	44	1.12	27.6	83.3	41-1	3.5	52.99
17	DP 494 RR	38.4	1352	44	1.16	29.8	83.3	41-1	3.5	53.73
18	FM 960RR	38.4	1346	37	1.13	31.0	82.5	41-1	4.0	53.55
19	ST 4646B2R	37.4	1341	41	1.09	27.0	81.8	41-1	4.0	51.78
20	FM 960B2R	37.2	1336	41	1.16	30.5	82.3	41-1	3.5	54.80
21	FM 958LL	37.8	1329	41	1.13	30.3	82.5	41-1	3.3	55.21
22	ST 4686R	38.7	1324	41	1.12	27.3	81.8	41-1	3.5	54.33
23	DP 493	38.8	1321	43	1.12	29.6	81.3	41-1	3.0	54.09
24	FM 989BR	37.0	1304	38	1.15	30.1	81.8	41-1	3.5	54.44
25	DP 449 BG/RR	37.8	1293	41	1.12	28.6	82.5	41-1	3.3	54.00
26	DP 434 RR	37.0	1286	40	1.14	27.0	82.8	41-1	3.0	54.99
27	SG 521 R	37.5	1261	41	1.09	26.3	82.5	31-2	3.3	53.98
28	DP 491	36.6	1258	41	1.18	29.5	82.8	41-1	3.5	53.80
29	DP 436 RR	35.0	1247	42	1.14	26.2	82.5	41-1	3.0	53.84
30	DP 424 BGII/RR	35.1	1230	41	1.10	27.0	81.5	41-1	3.0	53.46
31	BCG 24R	36.9	1221	41	1.09	27.9	82.3	41-1	3.3	53.70
32	BCG 28R	38.1	1200	45	1.11	27.5	82.0	41-1	3.3	53.61
33	ST 5454B2R	36.9	1178	41	1.10	27.6	81.5	41-1	2.8	53.68
34	BCG 295	35.5	1175	39	1.15	29.2	82.0	41-1	3.5	54.15
	Mean:	37.8	1347	41	1.12	28.3	82.3	41-1	3.5	53.65
	CV (%)	4.5	8.2	4.7	1.50	3.0	0.70		12.0	2.9
	LSD (0.05)	2.4	155	2.8	0.02	1.2	0.8		0.6	NS

†Base price of 52.50 cents/lb lint adjusted for color, leaf, staple, micronaire, strength, and uniformity. Calculated by the 2004 Cotton Incorporated Cotton Loan Valuation Program, based on the 2004 upland cotton warehouse loan rates.

Tennessee Agricultural Experiment Station data of Craig et al. (2004)

Table 9. Gin turnout and lint yield of 19 cotton varieties in the Tennessee Official Variety Trial, averaged across four locations, 2003-2004.

Yield Rank	Variety	Gin	Fiber	Fiber	Uni-	HVI	Leaf	Net Loan		
		Turnout	Lint Yield	Mike	Length	Strength	formity	Color	Grade	Value <sup>†</sup>
		%	lb./acre	units	in.	g/tex	%		¢/lb.	
1	ST 5599BR	40.0	1583	43	1.12	30.0	82.1	31-2	3.9	53.92
2	DP 555 BG/RR	39.4	1470	41	1.12	28.7	81.8	31-1	3.3	55.33
3	FM 960BR	38.1	1429	40	1.11	32.5	82.6	31-1	3.6	55.09
4	ST 4892BR	38.9	1405	42	1.10	28.5	82.9	31-2	3.9	53.78
5	DP 444 BG/RR	39.5	1395	36	1.12	29.0	82.6	31-2	3.8	53.43
6	DP 493	39.2	1383	43	1.14	31.0	81.9	31-2	3.5	54.86
7	ST 4793R	38.3	1374	43	1.09	28.7	82.4	31-1	4.0	53.29
8	PM 1218 BG/RR	39.5	1333	42	1.08	27.7	82.0	31-2	3.3	53.74
9	DP 451 B/RR	34.7	1320	41	1.13	27.9	82.5	31-1	3.1	55.04
10	ST 4646B2R	36.6	1310	40	1.10	28.5	82.0	31-2	4.1	52.73
11	PM 1199 RR	38.2	1299	42	1.12	29.3	83.4	41-1	3.9	53.84
12	FM 989BR	37.0	1282	38	1.14	31.0	81.9	31-2	3.4	55.33
13	DP 449 BG/RR	37.0	1267	39	1.13	30.3	82.9	31-1	3.3	55.43
14	DP 491	37.4	1257	41	1.20	31.1	82.4	31-2	3.9	54.28
15	SG 521 R	36.9	1220	40	1.09	27.6	82.6	31-2	3.6	54.13
16	BCG 28R	37.9	1208	45	1.13	28.6	82.4	31-2	3.4	54.64
17	DP 436 RR	34.5	1195	40	1.14	27.5	82.4	31-1	3.1	54.98
18	BCG 295	36.1	1182	38	1.16	30.6	82.3	31-1	3.6	54.54
19	BCG 24R	37.4	1178	40	1.10	28.7	82.4	31-1	3.4	54.51
Mean:		37.7	1321	41	1.12	29.3	82	31-2	3.6	54.36
CV (%)		4.5	12.7	4.7	2.1	3.3	1.3		12.2	5.30
LSD (0.05)		1.7	166	1.9	0.02	0.97	NS		0.4	NS

†Base price of 52.50 cents/lb lint adjusted for color, leaf, staple, micronaire, strength, and uniformity. Calculated by the 2004 Cotton Incorporated Cotton Loan Valuation Program, based on the 2004 upland cotton warehouse loan rates.

Tennessee Agricultural Experiment Station data of Craig et al. (2004)

Table 10. Gin turnout and lint yield of 10 cotton varieties in the Tennessee Official Variety Trial, averaged across four locations, 2002-2004.

Yield Rank	Variety	Gin Turnout	Lint Yield	Mike	Fiber Length	Fiber Strength	Uni-formity	HVI Color	Leaf Grade	Net Loan Value <sup>†</sup>
		%	lb./acre	units	in.	g/tex	%			¢/lb.
1	ST 5599BR	39.2	1492	44	1.12	30.9	82.1	41-1	3.9	53.13
2	DP 555 BG/RR	39.2	1391	43	1.12	30.1	82.0	31-2	3.3	54.98
3	ST 4892BR	38.3	1334	43	1.10	29.8	83.3	31-4	3.9	53.34
4	ST 4793R	37.9	1296	44	1.09	29.7	82.6	31-2	4.1	52.83
5	PM 1218 BG/RR	39.0	1272	44	1.08	28.9	82.3	31-2	3.5	53.57
6	DP 451 B/RR	34.4	1256	42	1.14	28.9	82.8	31-2	3.3	54.85
7	PM 1199 RR	37.7	1213	43	1.13	30.1	83.5	41-1	3.8	53.94
8	FM 989BR	36.5	1196	39	1.13	32.3	82.0	31-2	3.4	55.24
9	SG 521 R	36.3	1153	41	1.10	28.3	82.9	31-2	3.8	53.70
10	DP 436 RR	34.1	1136	41	1.14	28.5	82.5	31-1	3.3	54.86
	Mean:	37.3	1274	42	1.12	29.7	83	31-5	3.6	54.04
	CV (%)	4.3	12.4	6.2	2.2	3.4	0.97		0.75	4.0
	LSD (0.05)	1.3	128	2.2	0.02	0.8	0.7		0.3	NS

†Base price of 52.50 cents/lb lint adjusted for color, leaf, staple, micronaire, strength, and uniformity. Calculated by the 2004 Cotton Incorporated Cotton Loan Valuation Program, based on the 2004 upland cotton warehouse loan rates.

Tennessee Agricultural Experiment Station data of Craig et al. (2004)

Table 11. Maturity as measured by nodes above cracked boll (NACB) and days to 5 nodes above white flower (NAWF5) and plant height of 34 cotton varieties in the 2004 TN OVT.

Variety	NACB no.	Days to NAWF5 no.	Plant Height at Early Bloom in.	Plant Height at Harvest in.	Growth after bloom in.
PM 1199 RR	3.1	76	34.0	42.3	8.3
PM 1218 BG/RR	3.3	76	35.3	42.1	6.8
PHY 410 R	3.4	76	34.1	43.9	9.8
DP 444 BG/RR	3.5	76	36.1	46.1	10.1
BCG 28R	3.5	78	31.8	40.1	8.3
BCG 295	3.6	76	31.6	40.5	9.0
ST 4793R	3.7	77	36.5	45.5	9.0
DP 432 RR	3.9	76	34.6	44.3	9.7
FM 958LL	3.9	76	31.2	39.5	8.4
ST 4646B2R	3.9	77	35.0	45.3	10.3
ST 4575BR	4.0	76	34.1	42.6	8.5
ST 4686R	4.0	76	32.6	40.8	8.2
SG 521 R	4.0	77	34.6	41.4	6.8
DP 434 RR	4.0	78	35.1	44.3	9.2
ST 5242BR	4.0	75	36.6	44.1	7.5
ST 4892BR	4.0	77	35.3	44.1	8.9
ST 5454B2R	4.0	75	32.8	39.7	6.9
FM 966LL	4.1	76	31.1	40.2	9.1
DP 424 BGII/RR	4.1	77	33.5	40.9	7.4
FM 960B2R	4.2	74	31.2	38.1	6.9
FM 960RR	4.3	76	30.6	38.7	8.2
DP 451 B/RR	4.3	77	36.4	44.4	8.0
FM 960BR	4.4	76	31.5	39.0	7.5
BCG 24R	4.4	78	34.0	41.4	7.4
FM 989BR	4.4	75	33.2	40.2	7.0
DP 436 RR	4.5	77	31.1	40.4	9.3
ST 3636B2R	4.5	75	34.2	42.8	8.6
DP 449 BG/RR	4.7	78	33.3	40.7	7.4
DP 493	4.9	79	34.3	41.5	7.3
ST 5599BR	5.0	78	35.5	45.5	10.1
DP 494 RR	5.0	77	32.6	42.6	10.0
DP 488 BG/RR	5.3	79	30.1	40.3	10.2
DP 491	5.6	79	30.6	40.3	9.7
DP 555 BG/RR	5.9	80	34.6	45.9	11.4
Mean	4.2	76.8	33.5	42.0	8.5

NACB is an average from four OVT locations taken between 125 and 130 DAP.

Days to NAWF5 and plant heights are averages from the WTES OVT location only.

Tennessee Agricultural Experiment Station data of Craig et al. (2004)



## Chapter II. EARLY EVALUATION OF NEW VARIETIES IN 2004

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Objectives of this research are to evaluate the growth, development and agronomic traits of newly introduced transgenic varieties and strains, relative to several popular cultivars grown in Tennessee. Thirty commercial cultivars and experimental strains from six seed companies were evaluated in 2004, including 24 transgenic entries and six conventional varieties or strains. The transgenic group included seven Bollgard II and two Liberty Link entries, as well as traditional Bollgard, Roundup Ready and stacked gene technologies. Seven popular cultivars were entered as checks. The respective seed companies had treated all planting seed with fungicides.

The site was a conventionally tilled Calloway silt loam at the West Tennessee Experiment Station that had been planted to corn in 2003. Fertilizer was applied according to soil test results and UT recommendations. Row spacing was 38 inches. Entries were assigned to 2-row plots arranged in a RCB design with four replications. The number of seed planted per foot of row was adjusted for the germination rate of each seed lot. Systemic insecticide and fungicide were applied in-furrow while planting on May 5, 2004. Conventional UT-recommended weed- and pest-control measures were uniformly applied to all plots. A total of 44 oz/acre Mepex<sup>®</sup> was applied at cutout to control plant growth. Application of mepiquat chloride was delayed, relative to product label and UT recommendations, to allow varieties to express their growth potential more fully in this test. The test was irrigated once with 0.5" water at 104 days after planting (DAP) by overhead sprinkler boom.

At 26 DAP, seedling vigor was evaluated on a scale of 1 to 5 (1 = most vigor), and plant stands were counted at 36 DAP. At 83 DAP, data on plant height, first fruiting branch, white flower position, and terminal were collected to calculate fruiting branch number, nodes above white flower (NAWF), and height-to-node ratio (HNR). At 134 DAP, data on plant height, fruiting branch number, lowest and highest harvestable bolls, cracked boll position, and first-position boll number were

collected to calculate vertical fruiting zone, nodes above cracked boll (NACB) and boll retention. At 117 DAP, incidence of boll rot, off-types, leaf spot, verticillium wilt and other abnormalities of plants were rated or counted in each plot. Plots were rated again at 170 DAP for cotton dropped on the ground and regrowth of leaves. Plot notes are reported if they were observed in at least three of four replications during "blind" plot evaluation. Not all plants in these plots had the noted condition.

At 138 DAP, defoliant were applied without a boll opening material, in order for entries to express earliness as percent of total yield picked at first harvest. All plots were spindle picked at 145 and 170 DAP. Seedcotton harvested from each plot was weighed at picking, and samples collected at first harvest were weighed and air-dried. The gin turnout of each entry was determined using a 20-saw gin assembly equipped with a stick machine, incline cleaners and two lint cleaners at the West Tennessee Experiment Station. No heat was applied during ginning. Lint yields were calculated using seedcotton weights, gin turnouts, and harvested areas. A subsample of lint of each entry was analyzed by HVI procedures at the USDA-AMS Cotton Classing Office in Memphis TN.

### Results and Discussion

The 2004 growing season was nearly optimal for temperature and rainfall distribution, and pest pressure was relatively light at Jackson. Nearly 2,300 DD60s accumulated between planting and second harvest. Harvest season was relatively mild with no killing freeze, so nearly all harvestable bolls matured and opened in time to be picked.

**Table 2-1** presents early season seedling vigor, plant stand, and mid-season plant growth data. All entries produced adequate stands, ranging from 3 to 4.2 plants/ft row. On a scale of 1 to 5 with 1 best, seedling vigor ranged from 1.4 for DP 444 BG/RR to 3.1 for BCG P0104 BII/R. Seedling vigor was directly related to earliness at harvest, showing that how well the crop grew off could

affect harvest readiness. Because application of mepiquat chloride was delayed, vegetative growth was vigorous in nearly all varieties. Internodes were generally more compact in the FiberMax and Beltwide Cotton Genetics (BCG) entries than in most others. By mid-bloom, entries differed significantly in such earliness predictors as node of first fruiting branch and NAWF. First fruiting branch ranged from node 4.5 for BCG P0204 BII/R, up to node 6.6 for Syngenta DX 241203. At 83 DAP, NAWF ranged from 3.9 for DPLX 02T57R up to 6.4 NAWF for DP 543 BGII/RR and DP 555 BG/RR. These two earliness predictors were directly related to earliness at harvest.

**Table 2-2** presents late season plant mapping data for the 30 entries. Again in 2004, DP 555 BG/RR had the most fruiting branches and was among the tallest plants by late season, despite weak seedling vigor. Another late maturing entry, ST 5599BR, also produced a relatively large plant. Later maturity at harvest was associated with the last harvestable boll set relatively high on the plant, as in DP 488 and DP 555 BG/RR. The number of nodes from the cracked boll to the highest harvestable boll (NACB) at 134 DAP was directly related to late maturity at harvest. The fewest NACB were recorded for BCG P0304 BII/R, and the most NACB were found in ST 5599BR.

**Table 2-2** also contains notes from “blind” plot observations of boll rot, off-types, leaf spot, verticillium wilt, dropped cotton, regrowth and other abnormalities. Of these, only dropped cotton and verticillium wilt appeared to be sufficiently severe to have much impact on yields or quality in this study. Dropped cotton was due in part to heavy rains that fell between first and second harvest. Occurrence of Verticillium wilt may have been aggravated by relatively mild, rainy weather in 2004. Not all plants in the affected plots had the conditions noted in Table 2-2.

**Table 2-3** shows that total yields ranged from 1222 to 1676 lb lint/acre, thanks to moderate mid-season temperatures, favorable rainfall distribution, and low pest pressure. The top-yielding group included two popular cultivars, DP 444 BG/RR and FM 960 BR, and three new cultivars, DP 455 BG/RR, DP 488 BG/RR, and PHY 310 R. Six early maturing entries produced more than 85% of their yield by first harvest (145 DAP). This early-maturing group included DP 444 BG/RR, DP 455 BG/RR, PHY 310 R, and ST 4575BR. Varieties in this group are good candidates for an early, once-over harvest strategy. Four later-maturing entries

produced less than 70% of their yield by first harvest, and ranked from 9th to 30th in total yield. The most widely planted cultivar in Tennessee in 2004, PM 1218 BG/RR, ranked 11th in total yield. The seven entries containing Bollgard II genes ranked from 18th to 30th in total lint yield.

**Table 2-4** presents HVI fiber properties for the 30 entries in this study. Most varieties had highly satisfactory fiber profiles, unlikely to incur price discounts. Micronaire values of all entries were in the base or premium range. Fiber length exceeded 1.13 in. for ten entries, and UHM lengths of all entries were above the short-staple discount threshold (<1.05 in.). Fiber strength exceeded 30.5 g/tex for four entries, and strength of only two entries (ST 3636B2R and ST 4686R) was below the low-strength discount threshold of 26.5 g/tex. Color grades ranged from 21 to 31, thanks to dry conditions at first harvest. Only one entry (ST 3636B2R) had a trash content greater than 1%.

In general, these results suggest that several new varieties and experimental strains have markedly improved fiber quality profiles, together with high yield potential. Unlike 2002 and 2003, however, the 2004 results show these desirable traits in earlier maturing cultivars. The rainy weather that persisted in Tennessee during the October 2004 harvest season reminded producers and breeders alike of the importance of earliness in a well adapted cultivar.

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**Table 2-1. Seedling vigor, plant stand, and mid-season plant growth data from the 2004 Early Evaluation of new varieties at Jackson TN, listed alphabetically.**

Variety	Seedling Vigor (1 = best)	Plant Stand	Plant Height	First Fruiting Branch	Terminal	Nodes Above W. Flower	Height-to-Node Ratio
	26 DAP scale 1-5	36 DAP plants/ft.	83 DAP in.	83 DAP node	83 DAP node	83 DAP nodes	83 DAP in./node
BCG P0104 BII/R	3.1	3.5	41.5	5.4	17.0	5.1	2.3
BCG P0204 BII/R	2.6	3.3	39.5	4.5	15.5	4.3	2.5
BCG P0304 BII/R	2.0	3.7	37.8	5.1	16.7	4.5	2.2
BCSI E0222-5LL	2.4	4.0	40.3	5.8	17.0	4.9	2.3
Deltapine DP 393 <sup>§</sup>	2.1	3.7	43.2	4.8	15.0	5.1	2.8
Deltapine DP 432 RR	2.2	3.6	43.9	5.4	16.3	4.6	2.6
Deltapine DP 444 BG/RR	1.4	3.7	46.5	5.0	15.9	4.3	2.8
Deltapine DP 445 BG/RR <sup>‡</sup>	2.3	3.6	42.3	5.6	15.9	4.4	2.6
Deltapine DP 455 BG/RR <sup>†</sup>	1.7	4.0	45.2	5.4	16.2	4.5	2.7
Deltapine DP 488 BG/RR	2.5	3.6	44.8	5.7	17.5	5.7	2.5
Deltapine DP 543 BGII/RR <sup>¶</sup>	2.6	4.2	43.3	6.5	17.2	6.4	2.4
Deltapine DP 555 BG/RR	2.6	3.8	46.0	6.5	18.3	6.4	2.4
Deltapine DPLX 02T57R	1.7	3.9	42.3	5.1	15.9	3.9	2.6
FiberMax FM 960B2R	2.3	4.0	38.4	6.1	15.9	4.4	2.3
FiberMax FM 960BR	2.3	3.8	42.0	6.1	17.3	4.9	2.3
FiberMax FM 960RR	2.8	3.7	40.5	6.1	16.2	5.4	2.4
FiberMax FM 966LL	2.6	3.7	39.8	6.0	16.4	5.3	2.3
Paymaster PM 1218BG/RR	2.0	4.0	44.8	5.1	16.1	4.7	2.7
Phytogen PHY 310 R	2.3	4.2	45.7	5.3	16.4	5.1	2.7
Stoneville ST 3636B2R	2.1	4.0	44.8	5.9	16.6	4.5	2.6
Stoneville ST 4575BR	2.1	4.0	43.2	5.8	16.1	4.5	2.6
Stoneville ST 4686R	2.3	3.7	41.8	5.3	16.2	4.6	2.5
Stoneville ST 4793R	2.3	3.7	45.8	5.7	16.8	5.0	2.6
Stoneville ST 5454B2R	2.3	3.4	43.7	5.7	16.6	5.3	2.5
Stoneville ST 5599BR	2.0	3.7	46.9	5.2	16.9	5.4	2.7
Syngenta DX 24119	2.2	3.5	45.8	6.5	18.5	5.9	2.4
Syngenta DX 241203	2.3	3.6	40.1	6.6	17.1	5.0	2.3
Syngenta DX 24706	2.4	3.0	43.8	4.9	16.6	5.4	2.5
Syngenta DX 25105N	2.1	3.7	42.0	5.4	16.7	5.1	2.4
Syngenta DX 99197	2.5	3.0	42.3	5.3	15.9	4.7	2.6
Mean:	2.3	3.7	42.9	5.6	16.5	4.9	2.5
CV (%):	10.7	9.9	4.0	6.8	4.0	9.2	3.8
LSD (0.05):	0.3	0.5	2.4	0.5	0.9	0.6	0.1

<sup>§</sup>tested as DPLX 00W12. <sup>‡</sup>tested as DPLX 01W93BR. <sup>†</sup>tested as DPLX 02X39 BR. <sup>¶</sup>tested as DPLX 03Q301DR. Tennessee Agricultural Experiment Station data of Gwathmey and Michaud (2004).

**Table 2-2. Late season plant growth data and plot notes from the 2004 Early Evaluation of new varieties at Jackson TN, listed alphabetically.**

Variety	Fruiting Branches	Plant Height	Highest Harv'able P1 Boll †	Vertical Fruiting Zone	NACB	P1 Boll † Retention	Plot Notes ‡
	134 DAP	134 DAP	134 DAP	134 DAP	134 DAP	134 DAP	
	no.	in.	fr. br. no.	nodes	nodes	%	
BCG P0104 BII/R	13.3	42.5	9.1	8.9	4.3	57	
BCG P0204 BII/R	12.5	39.8	8.7	8.7	2.3	57	
BCG P0304 BII/R	12.5	37.0	8.3	8.2	1.6	57	
BCSI E0222-5LL	12.8	39.1	7.8	7.8	2.0	53	b, g
Deltapine DP 393	12.4	44.3	8.6	8.5	3.5	52	
Deltapine DP 432 RR	12.5	44.2	8.3	8.3	2.5	56	d
Deltapine DP 444 BG/RR	11.8	47.0	8.1	8.1	1.8	62	f
Deltapine DP 445 BG/RR	11.5	41.9	8.0	8.0	2.8	60	s
Deltapine DP 455 BG/RR	12.6	45.8	8.2	8.2	2.3	59	s
Deltapine DP 488 BG/RR	13.5	44.6	9.6	9.3	3.8	59	
Deltapine DP 543 BGII/RR	13.4	44.8	8.7	8.6	4.1	56	d
Deltapine DP 555 BG/RR	14.0	47.2	8.9	8.7	4.2	51	d, h
Deltapine DPLX 02T57R	12.4	43.2	8.7	8.6	2.3	59	g
FiberMax FM 960B2R	11.5	39.7	7.2	7.1	2.6	55	b
FiberMax FM 960BR	11.8	41.3	7.6	7.6	2.8	58	
FiberMax FM 960RR	11.8	41.4	7.8	7.7	3.5	55	b, h
FiberMax FM 966LL	12.7	41.9	8.3	8.2	2.6	50	b, g
Paymaster PM 1218BG/RR	12.9	45.4	8.7	8.7	2.3	58	d, s
Phytogen PHY 310 R	12.1	45.1	7.8	7.7	2.5	53	
Stoneville ST 3636B2R	11.9	44.3	7.6	7.6	2.6	58	d, h
Stoneville ST 4575BR	12.0	43.4	7.6	7.6	2.2	54	d, h
Stoneville ST 4686R	12.2	43.0	8.7	8.5	3.3	61	h, v
Stoneville ST 4793R	12.5	46.0	8.7	8.4	3.5	56	h
Stoneville ST 5454B2R	12.8	43.7	8.7	8.7	3.6	60	d, v
Stoneville ST 5599BR	12.8	47.1	8.7	8.5	4.5	55	
Syngenta DX 24119	13.4	46.3	8.3	8.0	3.6	49	b, k, r, v
Syngenta DX 241203	12.1	41.1	8.1	7.7	2.7	55	
Syngenta DX 24706	12.7	43.5	8.3	8.3	3.0	54	d, v
Syngenta DX 25105N	12.2	42.1	7.9	7.7	2.3	53	k, v
Syngenta DX 99197	12.7	44.0	8.4	8.4	2.2	59	
Mean:	12.5	43.4	8.3	8.2	2.9	56	
CV (%)	5.0	4.6	7.9	8.4	27.4	7.0	
LSD (0.05)	0.9	2.8	0.9	1.0	1.1	5.5	

† P1 = first position bolls only. ‡ Plot notes: b = large bracts; d = cotton dropped on ground; f = forked main stems; g = late-season regrowth; h = hairy leaves; k = okra-leaf off-types; r = boll rot; s = late-season leaf spot complex; v = verticillium wilt. Plot notes collected by C.O. Gwathmey.

**Table 2-3. Lint yield, earliness, and gin turnout of 30 cotton varieties in the 2004 Early Evaluation study at Jackson TN, listed by yield rank.**

Yield Rank	Variety	Check	Lint Yield, Total lb/A	Lint Yield, 1st Hvst. lb/A	First Harvest %	Gin Turnout %
1	Deltapine DP 444 BG/RR	U	1676	1489	89.0	38.5
2	FiberMax FM 960BR	U	1673	1349	80.6	38.0
3	Deltapine DP 455 BG/RR †		1662	1420	85.4	40.3
4	Deltapine DP 488 BG/RR		1616	1185	73.3	36.9
5	Phytogen PHY 310 R		1602	1375	85.9	39.9
6	BCSI E0222-5LL		1560	1332	85.5	37.2
7	FiberMax FM 960RR		1555	1207	77.6	37.2
8	Stoneville ST 4575BR		1550	1325	85.5	37.8
9	Deltapine DP 555 BG/RR	U	1544	992	64.3	38.6
10	Syngenta DX 25105N		1535	1269	82.7	39.1
11	Paymaster PM 1218 BG/RR	U	1523	1274	83.7	37.6
12	Deltapine DP 432 RR	U	1521	1235	81.1	35.9
13	FiberMax FM 966LL		1515	1245	82.2	36.6
14	Stoneville ST 4686R		1503	1206	80.4	36.5
15	Syngenta DX 99197		1492	1249	83.8	36.7
16	Stoneville ST 5599BR	U	1471	986	67.0	36.6
17	Syngenta DX 24119		1467	1145	78.0	38.7
18	FiberMax FM 960B2R		1461	1106	75.9	35.8
19	Syngenta DX 241203		1457	1153	79.3	37.5
20	Syngenta DX 24706		1451	1216	83.8	37.2
21	BCG P0304 BII/R		1434	1254	87.4	37.9
22	Deltapine DP 445 BG/RR ‡		1413	1177	83.3	38.6
23	Deltapine DPLX 02T57R		1409	1160	82.3	35.0
24	Deltapine DP 393 §		1405	1102	78.4	36.2
25	Stoneville ST 3636B2R		1398	1117	80.1	33.3
26	Stoneville ST 4793R	U	1383	1114	80.5	36.6
27	Stoneville ST 5454B2R		1339	1032	77.0	34.6
28	Deltapine DP 543 BGII/RR ¶		1322	902	67.9	35.1
29	BCG P0204 BII/R		1286	1040	80.8	35.0
30	BCG P0104 BII/R		1222	805	66.0	33.3
	Mean:		1481	1182	79.6	36.9
	CV (%)		4.2	7.3	5.0	
	LSD (0.05)		87.4	120.7	5.6	

Planted 5 May 2004. Defoliant applied 20 Sept 2004. Harvested 27 Sept and 22 Oct 2004.

Irrigated, conventionally tilled Calloway Silt Loam. Trial Managers: Carl Michaud & Clint Sharp.

†tested as DPLX 02X39 BR. ‡tested as DPLX 01W93BR. §tested as DPLX 00W12. ¶tested as DPLX 03Q301DR.

Tennessee Agricultural Experiment Station data (2004).

**Table 2-4. HVI fiber properties of 30 cotton varieties tested in the 2004 Early Evaluation study at Jackson TN, listed alphabetically.**

Variety	Ck.	Micro- naire	Fiber Length in.	Fiber Strength g/tex	Uni- formity %	HVI Trash %	HVI Color	Color Rd %	Color +b
BCG P0104 BII/R		42	1.11	29.2	83	0.5	31-1	80	7.7
BCG P0204 BII/R		42	1.12	29.1	82	0.2	21-1	82	7.8
BCG P0304 BII/R		37	1.10	27.5	81	0.5	21-2	81	7.6
BCSI E0222-5LL		40	1.16	31.3	84	0.5	31-1	82	7.1
Deltapine DP 393 <sup>§</sup>		45	1.16	29.8	82	0.5	31-1	79	8.3
Deltapine DP 432 RR	<b>U</b>	42	1.12	26.8	83	0.9	31-1	79	7.7
Deltapine DP 444 BG/RR	<b>U</b>	38	1.13	28.9	83	0.8	31-1	80	7.4
Deltapine DP 445 BG/RR <sup>‡</sup>		42	1.14	28.7	83	0.7	31-1	81	7.5
Deltapine DP 455 BG/RR <sup>†</sup>		41	1.13	29.8	81	0.4	21-2	80	8.4
Deltapine DP 488 BG/RR		46	1.19	30.1	83	0.6	31-1	79	7.9
Deltapine DP 543 BGII/RR <sup>¶</sup>		47	1.11	29.1	81	0.4	21-2	82	7.5
Deltapine DP 555 BG/RR	<b>U</b>	46	1.13	30.3	81	0.4	21-1	82	7.6
Deltapine DPLX 02T57R		40	1.12	27.5	82	0.8	31-1	80	7.2
FiberMax FM 960 B2R		45	1.16	31.2	81	0.8	31-1	81	7.2
FiberMax FM 960 BR	<b>U</b>	44	1.11	30.8	82	0.6	31-1	80	7.6
FiberMax FM 960 RR		40	1.16	30.5	83	0.6	31-1	81	7.3
FiberMax FM 966 LL		43	1.12	31.8	82	0.8	31-1	80	7.2
Paymaster PM 1218 BG/RR	<b>U</b>	47	1.09	27.8	82	0.5	21-1	80	8.6
Phytogen PHY 310 R		45	1.08	28.7	82	0.6	31-1	80	7.8
Stoneville ST 3636B2R		43	1.13	26.3	83	1.6	31-2	78	7.5
Stoneville ST 4575BR		44	1.12	28.6	83	0.8	31-1	79	7.9
Stoneville ST 4686R		42	1.13	25.9	82	0.4	21-1	81	8.3
Stoneville ST 4793R	<b>U</b>	44	1.08	28.0	82	1.0	31-1	78	7.9
Stoneville ST 5454B2R		44	1.12	28.7	82	0.4	21-2	80	8.1
Stoneville ST 5599BR	<b>U</b>	44	1.13	29.8	82	1.0	31-2	78	7.8
Syngenta DX 24119		40	1.15	27.2	81	0.7	31-1	78	8.1
Syngenta DX 241203		44	1.15	28.4	83	0.7	31-1	81	7.5
Syngenta DX 24706		44	1.12	28.4	83	0.4	21-2	80	8.2
Syngenta DX 25105N		44	1.15	27.7	82	1.0	31-1	78	7.9
Syngenta DX 99197		45	1.14	29.5	82	0.6	31-1	80	7.1
Mean:		43	1.13	28.9	82	0.7	31-1	80	7.7

HVI data from the USDA Cotton Classing Office in Memphis TN, based on lint samples from the WTES gin.

<sup>§</sup>tested as DPLX 00W12. <sup>‡</sup>tested as DPLX 01W93BR. <sup>†</sup>tested as DPLX 02X39 BR. <sup>¶</sup>tested as DPLX 03Q301DR.

Tennessee Agricultural Experiment Station data (2004).

## Chapter III. COUNTY STANDARD TEST DEMONSTRATIONS

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Cotton variety, production and defoliation demonstrations were conducted in 16 counties throughout the cotton growing regions of Tennessee. Twenty, transgenic cotton varieties (13 early maturing and 7 later maturing) were evaluated in on-farm strip demonstrations. Cotton demonstration tests of early-season transgenic varieties were planted in 17 locations with each location containing 13 varieties (7 Bollgard/Roundup Ready (BR) and 6 Roundup Ready (RR)). Cotton demonstration tests of medium/full-season transgenic varieties were planted in 11 locations with each location containing 7 varieties (6 Bollgard/Roundup Ready (BR) and 1 Roundup Ready (RR)). Each variety was planted only once at each location and was maintained using the individual grower's production practices. Soil type, tillage practice, previous crop, fertilizer practices as well as planting and harvesting date were documented for each location. Varieties were defoliated for a once over harvest and harvested once using spindle pickers except for UNR tests in Fayette County, which were harvested with a finger-type stripper. Seedcotton weights were determined using wheel scales and a modified boll buggy equipped with load cells. Gin turnout was determined from a seven to ten pound seedcotton sample taken from each variety on the day of picking. These samples were weighed at picking, air dried and ginned at the West Tennessee Experiment Station on a 20-saw gin equipped with a stick machine, two incline cleaners and two lint cleaners. Lint yields were calculated using seedcotton weights, gin turnouts and harvested areas. A sub-sample of lint from each variety was analyzed by HVI procedures at the USDA-AMS Cotton Classing Office in Memphis, TN. Data were subjected to ANOVA using Proc GLM (SAS v8) using locations as replications. Mean separation procedures were conducted using Fisher's Protected LSD ( $p=0.05$ ). Economic data was generated using a cotton loan valuation program furnished by Cotton Incorporated, based on the national CCC loan schedule for 2004.

Cotton variety demonstration yields were excellent and varietal performance mirrored that of the Official Variety Trials conducted at the branch stations. Yields from early season demonstrations averaged 1192 lbs. lint per acre compared to 1175 lbs. lint per acre from the later maturing demonstrations. DP 444 BG/RR, a very early stacked gene variety, led the early season demonstrations with an average yield of 1339 lb/acre. ST 5599BR, a medium/full season variety, led the late season demonstrations with an average yield of 1269 lb/acre. ST 5599BR and DP 444 BG/RR were consistent yielding varieties as they were ranked number 1 in yield 5 and 6 times, respectively. With the exception of color grade, overall fiber quality was excellent. Very few varieties were discounted for high micronaire or short staple values. Color grades from demonstrations harvested in late September or early October were excellent but poor weather experienced in late October and November caused color grades to fall into the 42 or 51 class, thus decreasing loan value. Loan values derived from the CCC loan schedule averaged 51.75 ¢/lb for the early season varieties compared to 51.85 ¢/lb for the later maturing varieties. Although yield was nearly the same, loan values from demonstration plots harvested prior to October 31 averaged 52.88 ¢/lb compared to 50.80 ¢/lb for those plots harvested after October 31. This resulted in an overall decrease of \$25/acre in crop value. Insect pressure was light during 2004 as evidenced by the outstanding performance of the non-bollgard varieties.

**Tables 1 through 28** present data from each county location on yield, gin turnout, fiber quality, loan value and crop value by variety. These tables are sequenced in alphabetical order by county.

**Table 29** summarizes the yield, gin turnouts, fiber quality and economic analysis for the 2004 early-season, county standard tests. DP 444 BG/RR was both the highest yielding and most profitable early-season transgenic variety when averaged

across locations. There were very few varieties at individual locations that were in the discount range for micronaire, and no varieties had overall micronaire values in the high or low discount range. All early-season varieties had average fiber lengths, strengths and uniformities of at least base value. Lower loan values are primarily representative of discounts from color and leaf grade, while higher loan values reflect small color, length, strength and uniformity premiums.

**Table 30** summarizes yield, gin turnouts, fiber quality and economic analysis for the 2004

medium/full-season, county standard tests. The medium/full-season variety, ST 5599BR was the highest yielding variety by 52 lbs. of lint per acre but did not statistically differ from ST 5242BR. As a rule, medium/full-season varieties avoided discounts for micronaire and no varieties had overall micronaire values in the high or low discount range. All medium/full-season varieties had average fiber lengths, strengths and uniformities of at least base value. Lower loan values are representative of discounts from color and leaf grade, while higher loan values reflect small strength and uniformity premiums.



Table 1. Results of the early-season, transgenic cotton variety test, Carroll County, 2004.

Yield Rank	Variety	Gin	Lint		Length	Strength	Uni-formity	HVI Color	Leaf Grade	Net Loan Value
		Turnout	Yield	Mike						
		%	lb./acre	units	in.	g/tex	%			¢/lb.
1	DP 432 RR	39.7	1556	46	1.07	26.2	82	21-1	4	52.75
2	DP 444 BG/RR	39.9	1544	37	1.10	28.7	83	21-2	4	54.50
3	DP 434 RR	39.9	1467	43	1.15	26.1	83	21-2	3	56.60
4	ST 4793R	39.5	1418	48	1.06	27.8	83	21-2	4	53.00
5	ST 4646B2R	38.4	1416	48	1.07	26.3	83	31-1	4	52.85
6	PM 1218 BG/RR	39.7	1378	46	1.05	26.3	82	21-1	3	53.90
7	ST 4892BR	40.3	1342	49	1.06	27.0	83	21-2	4	53.00
8	PHY 410 R	38.2	1300	46	1.09	27.0	83	31-1	4	53.95
9	BCG 28R	38.6	1185	45	1.10	26.1	82	21-2	4	54.00
10	DP 424 BGII/RR	34.6	1175	46	1.06	26.1	82	21-1	3	53.90
11	FM 960RR	38.5	1162	43	1.10	28.3	82	31-1	4	53.70
12	FM 960B2R	37.6	1099	44	1.11	30.4	83	31-1	4	54.65
13	FM 960BR	35.0	916	45	1.16	30.8	83	31-1	4	55.00
<b>Mean</b>		<b>38.5</b>	<b>1304</b>	<b>45</b>	<b>1.09</b>	<b>27.5</b>	<b>83</b>	<b>3.8</b>		<b>53.98</b>

Agent	Steve Burgess	Soil Type	Grenada silt loam
Producer	David Renfro	Tillage	No-Till
Planting Date	5/8/2004	Previous Crop	Cotton
Defoliation Date	9/24/2004	Fertilizer	50-80-80, 60 N sidedress
Harvest Date	10/4/2004	Row Spacing	30" solid

Table 2. Results of the early-season, transgenic cotton variety test, Chester County, 2004.

Yield Rank	Variety	Gin	Lint		Length	Strength	Uni-formity	HVI Color	Leaf Grade	Net Loan Value
		Turnout	Yield	Mike						
		%	lb./acre	units	in.	g/tex	%			¢/lb.
1	ST 4793R	37.7	1509	45	1.05	26.3	82	31-1	4	52.60
2	DP 432 RR	37.5	1468	45	1.08	25.2	83	31-1	4	52.85
3	FM 960RR	38.7	1448	43	1.09	28.9	81	31-1	3	55.25
4	DP 434 RR	36.9	1421	41	1.14	26.6	82	31-1	3	56.20
5	DP 444 BG/RR	39.5	1416	38	1.09	27.6	82	31-1	5	51.15
6	FM 960BR	38.1	1377	45	1.06	29.7	81	31-2	4	52.90
7	BCG 28R	37.7	1371	48	1.08	26.3	81	31-1	3	55.25
8	PHY 410 R	35.9	1369	45	1.08	26.8	83	41-1	5	50.20
9	ST 4892BR	37.4	1325	46	1.03	26.9	81	31-2	5	48.95
10	ST 4646B2R	35.4	1225	44	1.07	26.6	81	31-1	5	49.80
11	PM 1218 BG/RR	37.6	1220	49	1.05	25.7	81	31-1	3	53.50
12	FM 960B2R	35.6	1216	46	1.10	30.0	82	31-1	4	54.00
13	DP 424 BGII/RR	33.1	1206	46	1.07	24.7	82	21-2	3	52.80
<b>Mean</b>		<b>37.0</b>	<b>1352</b>	<b>45</b>	<b>1.08</b>	<b>27.0</b>	<b>82</b>	<b>3.9</b>		<b>52.73</b>

Agent	Brian Signaigo	Soil Type	Deanburg silt loam
Producer	Tim and Tommy Colbert	Tillage	No-Till
Planting Date	5/6/2004	Previous Crop	Cotton
Defoliation Date	9/18/2004	Fertilizer	90-60-80
Harvest Date	10/7/2004	Row Spacing	38" solid

Table 3. Results of the early-season, transgenic cotton variety test, Crockett County, 2004.

Yield Rank	Variety	Gin	Lint		Length	Strength	Uni-formity	HVI Color	Leaf Grade	Net Loan Value
		Turnout	Yield	Mike						
		%	lb./acre	units	in.	g/tex	%			¢/lb.
1	DP 444 BG/RR	39.7	1284	43	1.11	29.2	82	31-1	4	54.10
2	ST 4646B2R	36.8	1180	49	1.09	28.0	83	31-1	5	51.15
3	FM 960B2R	37.2	1147	48	1.16	32.1	82	31-1	4	54.75
4	FM 960BR	38.1	1130	45	1.11	32.5	82	31-1	4	54.70
5	PHY 410 R	38.5	1119	46	1.10	28.6	83	31-1	4	53.95
6	DP 432 RR	40.8	1112	43	1.09	28.5	82	31-1	4	53.70
7	PM 1218 BG/RR	39.5	1091	52	1.06	26.4	82	31-1	3	49.85
8	ST 4892BR	38.8	1077	49	1.10	28.7	83	31-1	4	53.95
9	DP 434 RR	39.8	1058	46	1.13	27.2	82	31-1	3	55.75
10	FM 960RR	36.8	1051	43	1.11	30.6	83	31-1	4	54.85
11	ST 4793R	38.3	1042	53	1.07	27.5	83	21-1	4	48.30
12	BCG 28R	37.1	872	48	1.10	27.5	82	31-1	4	53.70
13	DP 424 BGII/RR	33.1	831	47	1.08	27.8	82	31-1	3	55.25
<b>Mean</b>		<b>38.0</b>	<b>1077</b>	<b>47</b>	<b>1.10</b>	<b>28.8</b>	<b>82</b>	<b>3.8</b>		<b>53.38</b>

Agent	Richard Buntin	Soil Type	Grenada silt loam
Producer	Dwayne Dove	Tillage	No-Till
Planting Date	5/7/2004	Previous Crop	Cotton
Defoliation Date	9/20/2004	Fertilizer	30-60-100 at planting, 60 N
Harvest Date	9/29/2004	Row Spacing	38" Solid

Table 4. Results of the early-season, transgenic cotton variety test, Dyer County, 2004.

Yield Rank	Variety	Gin	Lint		Length	Strength	Uni-formity	HVI Color	Leaf Grade	Net Loan Value
		Turnout	Yield	Mike						
		%	lb./acre	units	in.	g/tex	%			¢/lb.
1	DP 444 BG/RR	33.6	1592	35	1.12	28.1	82	41-4	5	50.05
2	DP 432 RR	36.1	1557	42	1.12	27.8	83	41-2	4	53.95
3	ST 4892BR	35.2	1525	40	1.11	27.5	83	41-2	4	53.95
4	DP 434 RR	38.7	1484	35	1.16	27.5	81	41-1	4	53.50
5	ST 4793R	35.5	1480	43	1.10	26.3	82	41-2	4	53.15
6	FM 960BR	33.1	1409	35	1.15	30.7	82	41-2	5	50.60
7	PM 1218 BG/RR	33.8	1376	45	1.10	27.1	83	41-4	4	53.40
8	PHY 410 R	34.1	1371	41	1.15	28.8	83	41-2	4	54.00
9	BCG 28R	36.2	1354	44	1.14	27.6	83	41-2	4	53.75
10	DP 424 BGII/RR	32.3	1338	41	1.09	26.4	82	41-1	4	53.40
11	ST 4646B2R	32.0	1307	38	1.13	29.1	82	41-2	4	53.70
12	FM 960RR	34.6	1266	34	1.11	29.4	83	41-1	5	48.35
13	FM 960B2R	33.1	1215	39	1.19	30.3	82	41-2	4	52.35
<b>Mean</b>		<b>34.5</b>	<b>1406</b>	<b>39</b>	<b>1.13</b>	<b>28.2</b>	<b>82</b>	<b>4.2</b>		<b>52.63</b>

Agent	Tim Campbell	Soil Type	Falaya silt loam
Producer	Glen and Tom Davis	Tillage	No-Till
Planting Date	5/7/2004	Previous Crop	Cotton
Defoliation Date	10/7/2004	Fertilizer	100-37-90-10(S)-1(B)
Harvest Date	10/29/2004	Row Spacing	38" Solid

Table 5. Results of the full-season, transgenic cotton variety test, Dyer County, 2004.

Yield Rank	Variety	Gin	Lint		Length	Strength	Uni-formity	HVI Color	Leaf Grade	Net Loan Value
		Turnout	Yield	Mike						
		%	lb./acre	units	in.	g/tex	%			¢/lb.
1	ST 5599BR	37.4	1514	38	1.13	30.2	82	41-1	4	54.00
2	ST 5242BR	36.9	1509	41	1.09	27.7	83	41-1	4	53.65
3	DP 555 BG/RR	37.8	1283	38	1.10	28.5	80	41-1	4	53.40
4	DP 494 RR	36.3	1229	40	1.15	31.4	82	41-1	4	54.25
5	DP 488 BG/RR	36.6	1222	39	1.14	29.4	82	41-2	4	53.75
6	FM 800BR	34.6	1159	34	1.16	30.2	83	41-1	4	52.10
7	DP 449 BG/RR	35.4	1127	37	1.07	27.9	83	41-1	4	52.20
<b>Mean</b>		<b>36.4</b>	<b>1292</b>	<b>38</b>	<b>1.12</b>	<b>29.3</b>	<b>82</b>	<b>4.0</b>		<b>53.34</b>

Agent	Tim Campbell	Soil Type	Falaya silt loam
Producer	Glen and Tom Davis	Tillage	No-Till
Planting Date	5/7/2004	Previous Crop	Cotton
Defoliation Date	10/7/2004	Fertilizer	100-37-90-10(S)-1(B)
Harvest Date	10/29/2004	Row Spacing	38" Solid

Table 6. Results of the early-season, transgenic cotton variety test, Fayette County, 2004.

Yield Rank	Variety	Gin	Lint		Length	Strength	Uni-formity	HVI Color	Leaf Grade	Net Loan Value
		Turnout	Yield	Mike						
		%	lb./acre	units	in.	g/tex	%			¢/lb.
1	ST 4892BR	41.0	1199	45	1.05	26.0	82	51-1	4	48.55
2	FM 960BR	37.8	1082	43	1.09	30.2	81	51-1	4	49.55
3	FM 960B2R	38.1	1041	45	1.12	28.0	81	51-1	5	48.10
4	PHY 410 R	38.0	1024	44	1.10	26.4	83	51-2	5	48.35
5	DP 432 RR	37.5	998	46	1.06	26.3	82	51-2	5	47.45
6	PM 1218 BG/RR	37.3	985	43	1.05	26.4	81	51-1	4	48.55
7	ST 4646B2R	36.1	982	44	1.07	26.5	81	51-2	4	48.55
8	ST 4793R	39.6	951	47	1.04	25.6	81	51-1	4	47.85
9	BCG 28R	37.6	944	47	1.08	25.8	81	51-1	4	49.25
10	DP 434 RR	38.9	896	42	1.12	25.9	82	51-1	4	49.55
11	FM 960RR	36.7	818	39	1.11	29.3	81	51-1	6	46.80
<b>Mean</b>		<b>38.1</b>	<b>993</b>	<b>44</b>	<b>1.08</b>	<b>26.9</b>	<b>81</b>	<b>4.5</b>		<b>48.41</b>

DP 444 BG/RR and DP 424 BGII/RR are not included due to harvesting problems

Agent	Jamie Jenkins and Jim Castellaw	Soil Type	Falaya silt loam
Producer	Alex Armour	Tillage	No-Till
Planting Date	5/11/2004	Previous Crop	Corn
Defoliation Date	9/27/2004	Fertilizer	30-35-130-10(S)-0.5(B), 50 N
Harvest Date	11/17/2004	Row Spacing	38" Solid

Table 7. Results of the full-season, transgenic cotton variety test, Fayette County, 2004.

Yield Rank	Variety	Gin	Lint		Length	Strength	Uni-formity	HVI Color	Leaf Grade	Net Loan Value
		Turnout	Yield	Mike						
		%	lb./acre	units	in.	g/tex	%			¢/lb.
1	DP 488 BG/RR	38.5	1424	47	1.11	28.5	83	51-1	5	48.35
2	ST 5599BR	38.8	1377	44	1.09	27.0	82	51-1	5	48.10
3	DP 494 RR	37.6	1374	48	1.04	26.5	82	51-1	4	47.85
4	ST 5242BR	38.9	1322	43	1.04	26.2	82	51-1	4	47.85
5	DP 449 BG/RR	37.3	1290	47	1.09	28.9	82	51-1	4	49.25
6	FM 800BR	38.6	1264	39	1.11	30.1	82	51-1	4	49.85
7	DP 555 BG/RR	41.1	1182	46	1.06	25.9	81	51-1	4	48.55
<b>Mean</b>		<b>38.7</b>	<b>1319</b>	<b>45</b>	<b>1.08</b>	<b>27.6</b>	<b>82</b>	<b>4.3</b>		<b>48.54</b>

Agent	Craig Massey	Soil Type	Memphis silt loam
Producer	Sammy Rhea	Tillage	No-Till
Planting Date	5/5/2004	Previous Crop	Cotton
Defoliation Date	11/2/2004	Fertilizer	80-60-120
Harvest Date	11/16/2004	Row Spacing	38" Solid

Table 8. Results of the ultra narrow row, early-season, transgenic cotton variety test, Fayette County, 2004.

Yield Rank	Variety	Gin	Lint		Length	Strength	Uni-formity	HVI Color	Leaf Grade	Net Loan Value
		Turnout	Yield	Mike						
		%	lb./acre	units	in.	g/tex	%			¢/lb.
1	FM 960B2R	34.2	1523	39	1.10	30.2	82	31-1	4	54.25
2	ST 4793R	34.6	1370	43	1.07	28.3	82	31-1	5	49.80
3	DP 432 RR	36.2	1311	44	1.08	27.2	83	31-2	6	49.10
4	DP 434 RR	36.0	1268	43	1.09	27.5	82	31-1	6	48.85
5	PM 1218 BG/RR	35.6	1191	44	1.08	27.8	83	21-2	4	54.25
6	PHY 410 R	32.8	1162	43	1.08	27.5	82	21-2	5	51.20
7	DP 424 BGII/RR	33.2	1131	43	1.08	28.3	81	21-1	5	51.20
8	FM 960RR	32.8	1113	42	1.11	28.1	82	21-2	4	54.75
9	BCG 28R	35.7	1111	44	1.08	27.9	83	31-1	5	51.15
10	FM 960BR	32.4	1077	38	1.10	30.0	82	31-2	4	54.25
11	ST 4892BR	34.0	1012	43	1.06	28.8	81	31-1	5	49.80
12	ST 4646B2R	36.3	875	43	1.07	28.7	82	31-1	6	48.05
13	DP 444 BG/RR	34.9	.	41	1.09	28.6	83	21-2	4	54.50
<b>Mean</b>		<b>34.5</b>	<b>1179</b>	<b>42</b>	<b>1.08</b>	<b>28.4</b>	<b>82</b>	<b>4.9</b>		<b>51.39</b>

No lint yield was obtained for DP 444 BG/RR due to problems encountered during harvest.

Agent	Craig Massey	Soil Type	Memphis silt loam
Producer	Mark and Joseph McNabb	Tillage	Conventional
Planting Date	5/12/2004	Previous Crop	Cotton
Defoliation Date	10/12/2004	Fertilizer	90-40-80
Harvest Date	11/3/2004	Row Spacing	10" UNR

Table 9. Results of the ultra narrow row, full-season, transgenic cotton variety test, Fayette County, 2004.

Yield Rank	Variety	Gin	Lint		Length	Strength	Uni-formity	HVI Color	Leaf Grade	Net Loan Value
		Turnout	Yield	Mike						
		%	lb./acre	units	in.	g/tex	%			¢/lb.
1	DP 494 RR	34.5	1195	43	1.11	28.5	82	31-1	5	51.15
2	DP 488 BG/RR	34.9	1128	43	1.10	28.9	82	21-2	4	54.00
3	ST 5599BR	36.7	1074	45	1.07	28.4	82	21-1	4	52.75
4	ST 5242BR	36.2	1061	44	1.05	27.6	82	21-2	4	52.75
5	DP 449 BG/RR	34.9	1004	42	1.07	29.0	82	21-2	4	53.00
6	DP 555 BG/RR	36.0	846	46	1.07	28.6	82	21-1	4	52.75
<b>Mean</b>		<b>35.5</b>	<b>1051</b>	<b>44</b>	<b>1.08</b>	<b>28.5</b>	<b>82</b>	<b>4.2</b>		<b>52.73</b>

FM 800BR was not harvested due to planting problems

Agent	Craig Massey	Soil Type	Memphis silt loam
Producer	Mark and Joseph McNabb	Tillage	Conventional
Planting Date	5/12/2004	Previous Crop	Cotton
Defoliation Date	10/12/2004	Fertilizer	90-40-80
Harvest Date	11/3/2004	Row Spacing	10" UNR

Table 10. Results of the early-season, transgenic cotton variety test, Gibson County, 2004.

Yield Rank	Variety	Gin	Lint		Length	Strength	Uni-formity	HVI Color	Leaf Grade	Net Loan Value
		Turnout	Yield	Mike						
		%	lb./acre	units	in.	g/tex	%			¢/lb.
1	FM 960RR	39.3	1244	43	1.12	31.3	83	41-1	4	54.20
2	ST 4793R	41.3	1237	52	1.03	26.0	82	51-1	4	44.20
3	PM 1218 BG/RR	42.3	1232	51	1.06	26.2	83	41-2	3	48.95
4	DP 434 RR	41.1	1221	48	1.13	27.0	82	51-1	3	49.75
5	DP 444 BG/RR	42.0	1200	41	1.07	26.2	83	51-1	4	49.05
6	FM 960BR	39.1	1154	44	1.08	31.5	83	41-2	4	53.90
7	BCG 28R	39.5	1150	50	1.08	27.2	81	51-1	4	45.60
8	ST 4646B2R	38.5	1139	50	1.09	27.3	82	51-1	4	45.60
9	DP 432 RR	39.3	1135	49	1.06	26.8	82	51-1	4	48.55
10	ST 4892BR	40.6	1105	51	1.06	26.7	83	51-1	4	45.15
11	FM 960B2R	38.4	1081	46	1.13	30.0	82	51-1	4	49.60
12	DP 424 BGII/RR	36.6	1072	51	1.07	25.8	81	51-1	3	45.40
13	PHY 410 R	37.1	1022	49	1.08	27.8	83	51-1	4	49.50
<b>Mean</b>		<b>39.6</b>	<b>1153</b>	<b>48</b>	<b>1.08</b>	<b>27.7</b>	<b>82</b>	<b>3.8</b>		<b>48.42</b>

Agent	Philip Shelby	Soil Type	Grenada silt loam
Producer	Griggs Farms	Tillage	No-Till
Planting Date	5/6/2004	Previous Crop	Cotton
Defoliation Date	10/5/2004	Fertilizer	90-0-100-0.5(B)-3(ZN)
Harvest Date	11/6/2004	Row Spacing	38" Solid

Table 11. Results of the full-season, transgenic cotton variety test, Gibson County, 2004.

Yield Rank	Variety	Gin	Lint		Length	Strength	Uni-formity	HVI Color	Leaf Grade	Net Loan Value
		Turnout	Yield	Mike						
		%	lb./acre	units	in.	g/tex	%			¢/lb.
1	ST 5599BR	37.4	1381	48	1.09	27.4	82	41-4	4	53.15
2	ST 5242BR	36.9	1347	46	1.06	26.1	82	41-4	4	51.70
3	DP 449 BG/RR	36.2	1337	47	1.09	27.3	82	41-2	3	53.65
4	DP 488 BG/RR	36.7	1310	45	1.14	27.7	83	42-2	4	49.90
5	DP 555 BG/RR	39.4	1257	45	1.07	26.2	80	41-2	4	51.70
6	DP 494 RR	38.0	1241	45	1.12	28.2	82	41-4	4	53.45
7	FM 800BR	36.1	1106	41	1.13	28.9	83	41-1	4	53.95
<b>Mean</b>		<b>37.3</b>	<b>1283</b>	<b>45</b>	<b>1.10</b>	<b>27.4</b>	<b>82</b>	<b>3.9</b>		<b>52.50</b>

Agent	Philip Shelby	Soil Type	Loring/Grenada silt loam
Producer	Rege Luckey and Sons	Tillage	No-Till
Planting Date	5/7/2004	Previous Crop	Soybeans
Defoliation Date	9/30/2004	Fertilizer	27-69-90, 80 N sidedress
Harvest Date	10/25/2004	Row Spacing	38" solid

Table 12. Results of the early-season, transgenic cotton variety test, Hardeman County, 2004.

Yield Rank	Variety	Gin	Lint		Length	Strength	Uni-formity	HVI Color	Leaf Grade	Net Loan Value
		Turnout	Yield	Mike						
		%	lb./acre	units	in.	g/tex	%			¢/lb.
1	ST 4646B2R	38.2	1366	48	1.07	28.1	82	31-1	4	52.60
2	BCG 28R	39.1	1351	45	1.08	26.5	82	31-1	4	53.70
3	PM 1218 BG/RR	40.0	1317	45	1.04	25.8	81	21-2	3	50.95
4	DP 432 RR	39.6	1265	45	1.04	27.4	81	31-1	4	50.20
5	ST 4892BR	40.1	1257	47	1.06	26.7	81	31-1	4	52.60
6	DP 434 RR	39.9	1241	41	1.12	25.6	82	21-2	4	54.75
7	DP 444 BG/RR	40.6	1241	38	1.08	27.2	82	31-1	4	53.95
8	ST 4793R	41.3	1205	48	1.05	27.3	82	31-1	4	52.60
9	FM 960BR	38.2	1161	41	1.07	31.6	82	21-2	4	53.50
10	FM 960RR	37.5	1151	39	1.08	28.7	81	21-2	4	54.25
11	PHY 410 R	37.6	1148	45	1.10	27.0	82	31-1	5	50.90
12	FM 960B2R	36.6	1134	44	1.09	28.5	81	31-1	4	53.70
13	DP 424 BGII/RR	35.9	1084	45	1.07	26.5	83	21-2	3	54.15
<b>Mean</b>		<b>38.8</b>	<b>1225</b>	<b>44</b>	<b>1.07</b>	<b>27.5</b>	<b>82</b>	<b>3.9</b>		<b>52.91</b>

Agent	Bob Vickers	Soil Type	Lexington silt loam
Producer	Gem Mitchell	Tillage	No-Till
Planting Date	5/7/2004	Previous Crop	Cotton
Defoliation Date	9/22/2004	Fertilizer	40-60-80, 50 N Sidedress
Harvest Date	10/6/2004	Row Spacing	38" Solid

Table 13. Results of the full-season, transgenic cotton variety test, Hardeman County, 2004.

Yield Rank	Variety	Gin	Lint		Length	Strength	Uni-formity	HVI Color	Leaf Grade	Net Loan Value
		Turnout	Yield	Mike						
		%	lb./acre	units	in.	g/tex	%			¢/lb.
1	DP 449 BG/RR	40.0	1381	44	1.07	28.4	82	21-2	3	53.90
2	ST 5599BR	39.3	1356	42	1.11	29.3	82	31-2	4	54.35
3	DP 494 RR	39.5	1351	45	1.05	27.3	80	31-1	4	52.60
4	ST 5242BR	40.8	1305	44	1.02	26.0	81	11-2	3	50.95
5	DP 488 BG/RR	39.4	1297	42	1.12	29.4	82	31-1	4	54.35
6	DP 555 BG/RR	40.3	1232	43	1.07	27.1	81	31-1	4	52.60
7	FM 800BR	37.6	1151	37	1.12	29.6	82	31-1	5	51.70
<b>Mean</b>		<b>39.6</b>	<b>1296</b>	<b>42</b>	<b>1.08</b>	<b>28.2</b>	<b>81</b>	<b>3.9</b>		<b>52.92</b>

Agent	Bob Vickers	Soil Type	Lexington silt loam
Producer	Gem Mitchell	Tillage	No-Till
Planting Date	5/7/2004	Previous Crop	Cotton
Defoliation Date	9/22/2004	Fertilizer	40-60-80, 50 N Sidedress
Harvest Date	10/6/2004	Row Spacing	38" Solid

Table 14. Results of the early-season, transgenic cotton variety test, Haywood County, 2004.

Yield Rank	Variety	Gin	Lint		Length	Strength	Uni-formity	HVI Color	Leaf Grade	Net Loan Value
		Turnout	Yield	Mike						
		%	lb./acre	units	in.	g/tex	%			¢/lb.
1	BCG 28R	39.1	1146	49	1.10	26.3	81	41-1	3	53.65
2	FM 960B2R	39.2	1129	48	1.13	31.0	83	41-2	4	54.20
3	DP 424 BGII/RR	34.5	1122	47	1.09	26.7	83	41-1	3	53.90
4	ST 4793R	41.1	1087	49	1.05	26.5	83	41-2	3	52.60
5	ST 4892BR	38.1	1020	47	1.07	28.1	82	41-2	4	51.70
6	FM 960BR	38.2	1017	46	1.11	32.4	82	41-1	4	53.95
7	DP 434 RR	38.5	1006	45	1.12	26.9	81	41-1	4	53.45
8	FM 960RR	39.0	992	42	1.10	30.8	81	41-1	4	53.90
9	DP 432 RR	36.1	982	49	1.07	26.6	82	51-1	4	48.55
10	PHY 410 R	35.1	977	47	1.10	27.7	85	41-2	4	53.60
11	DP 444 BG/RR	36.7	960	44	1.08	28.1	82	41-2	4	53.15
12	ST 4646B2R	33.7	893	47	1.07	28.0	83	51-1	4	47.10
13	PM 1218 BG/RR	37.3	817	50	1.03	27.0	82	41-2	4	46.00
<b>Mean</b>		<b>37.4</b>	<b>1011</b>	<b>47</b>	<b>1.09</b>	<b>28.2</b>	<b>82</b>	<b>3.8</b>		<b>51.98</b>

Agent	Tracey Sullivan	Soil Type	Memphis silt loam
Producer	Taylor Sullivan	Tillage	Conventional
Planting Date	5/10/2004	Previous Crop	Cotton
Defoliation Date	9/20/2004	Fertilizer	80-50-90-1(B)
Harvest Date	10/28/2004	Row Spacing	38" Solid

Table 15. Results of the full-season, transgenic cotton variety test, Haywood County, 2004.

Yield Rank	Variety	Gin	Lint		Length	Strength	Uni-formity	HVI Color	Leaf Grade	Net Loan Value
		Turnout	Yield	Mike						
		%	lb./acre	units	in.	g/tex	%			¢/lb.
1	ST 5599BR	38.5	1226	48	1.08	28.6	81	41-2	4	53.15
2	DP 449 BG/RR	38.1	1185	50	1.10	30.1	83	41-2	3	50.55
3	DP 555 BG/RR	38.7	1182	50	1.08	27.6	81	41-1	3	50.00
4	DP 488 BG/RR	40.5	1175	49	1.11	29.1	81	41-1	4	53.45
5	ST 5242BR	38.1	1116	47	1.04	26.8	82	41-1	3	49.95
6	DP 494 RR	39.2	1038	48	1.11	28.8	82	41-2	3	53.90
7	FM 800BR	37.0	963	41	1.17	31.0	83	41-1	4	54.50
<b>Mean</b>		<b>38.6</b>	<b>1126</b>	<b>48</b>	<b>1.10</b>	<b>28.9</b>	<b>82</b>	<b>3.4</b>		<b>52.21</b>

Agent	Tracey Sullivan	Soil Type	Memphis silt loam
Producer	Taylor Sullivan	Tillage	Conventional
Planting Date	5/10/2004	Previous Crop	Cotton
Defoliation Date	9/20/2004	Fertilizer	80-50-90-1(B)
Harvest Date	10/28/2004	Row Spacing	38" Solid

Table 16. Results of the early-season, transgenic cotton variety test, Lake County, 2004.

Yield Rank	Variety	Gin	Lint		Length	Strength	Uni-formity	HVI Color	Leaf Grade	Net Loan Value
		Turnout	Yield	Mike						
		%	lb./acre	units	in.	g/tex	%			¢/lb.
1	ST 4646B2R	36.3	1259	39	1.09	25.7	82	42-1	4	49.75
2	PHY 410 R	35.1	1233	40	1.09	25.1	83	41-2	5	49.35
3	DP 434 RR	38.8	1151	39	1.12	26.0	82	41-3	4	53.70
4	ST 4793R	37.9	1150	43	1.09	26.3	82	41-4	4	53.15
5	FM 960BR	37.0	1139	38	1.09	26.7	82	41-2	4	53.40
6	DP 444 BG/RR	38.8	1122	37	1.08	27.7	82	41-2	4	53.40
7	DP 432 RR	36.9	1114	39	1.12	26.0	83	41-4	5	50.55
8	BCG 28R	36.8	1082	40	1.12	24.9	83	41-4	4	52.85
9	ST 4892BR	36.8	1072	42	1.09	26.9	83	41-4	5	50.45
10	DP 424 BGII/RR	34.4	1015	38	1.10	25.7	82	41-3	4	53.40
11	FM 960RR	37.7	1004	36	1.15	27.8	82	41-1	5	50.10
12	FM 960B2R	37.5	893	41	1.12	27.6	82	41-1	5	50.30
13	PM 1218 BG/RR	39.3	834	46	1.08	24.5	83	42-1	4	48.65
<b>Mean</b>		<b>37.2</b>	<b>1082</b>	<b>40</b>	<b>1.10</b>	<b>26.2</b>	<b>82</b>	<b>4.4</b>		<b>51.47</b>

Agent	Greg Allen	Soil Type	Worthen silt loam
Producer	John Lindamood	Tillage	No-Till
Planting Date	5/23/2004	Previous Crop	Corn
Defoliation Date	10/17/2004	Fertilizer	54-0-80-21(S)-1(B)-2(ZN), 49 N sidedress
Harvest Date	11/6/2004	Row Spacing	38" solid



Table 17. Results of the early-season, transgenic cotton variety test, Lauderdale County, 2004.

Yield Rank	Variety	Gin	Lint		Length	Strength	Uni-formity	HVI Color	Leaf Grade	Net Loan Value
		Turnout	Yield	Mike						
		%	lb./acre	units	in.	g/tex	%			¢/lb.
1	ST 4892BR	39.0	1370	47	1.10	26.3	83	51-1	4	49.50
2	DP 432 RR	38.6	1356	48	1.09	26.2	82	51-2	4	49.25
3	ST 4793R	38.3	1344	49	1.07	25.5	83	51-1	4	48.80
4	DP 434 RR	39.1	1324	44	1.14	25.9	82	51-1	4	49.30
5	DP 444 BG/RR	39.2	1308	43	1.13	27.3	83	51-2	4	49.55
6	PM 1218 BG/RR	38.9	1301	51	1.07	25.9	82	51-1	3	45.40
7	FM 960B2R	36.5	1272	48	1.16	28.8	82	51-1	5	48.10
8	DP 424 BGII/RR	37.2	1246	47	1.09	25.8	83	51-1	4	49.50
9	FM 960RR	38.4	1236	41	1.13	29.1	83	51-1	4	49.80
10	BCG 28R	39.1	1223	49	1.09	25.6	82	51-1	4	49.25
11	FM 960BR	37.3	1223	45	1.11	29.1	83	51-1	4	49.55
12	PHY 410 R	37.1	1177	47	1.12	26.7	83	51-2	4	49.55
13	ST 4646B2R	34.5	1148	45	1.10	26.4	82	51-1	4	49.25
<b>Mean</b>		<b>37.9</b>	<b>1272</b>	<b>46</b>	<b>1.11</b>	<b>26.8</b>	<b>83</b>	<b>4.0</b>		<b>48.98</b>

Agent	Jerry Parker	Soil Type	Commerce silt loam
Producer	Leslie Crook	Tillage	Conventional
Planting Date	5/11/2004	Previous Crop	Cotton
Defoliation Date	10/15/2004	Fertilizer	100-0-120-10(S)-0.5(B)
Harvest Date	11/17/2004	Row Spacing	38" solid

Table 18. Results of the full-season, transgenic cotton variety test, Lauderdale County, 2004.

Yield Rank	Variety	Gin	Lint		Length	Strength	Uni-formity	HVI Color	Leaf Grade	Net Loan Value
		Turnout	Yield	Mike						
		%	lb./acre	units	in.	g/tex	%			¢/lb.
1	ST 5599BR	36.3	1474	47	1.14	28.8	82	51-3	5	48.10
2	DP 488 BG/RR	36.1	1441	48	1.14	28.4	83	51-1	4	47.85
3	ST 5242BR	37.1	1437	46	1.09	26.2	82	51-1	4	49.25
4	DP 449 BG/RR	34.6	1427	47	1.12	29.0	82	51-1	4	47.60
5	DP 494 RR	36.9	1395	48	1.17	28.2	83	51-1	4	49.55
6	DP 555 BG/RR	37.8	1330	45	1.15	26.7	82	51-1	4	49.30
7	FM 800BR	36.7	1260	42	1.15	27.4	83	41-2	4	54.00
<b>Mean</b>		<b>36.5</b>	<b>1395</b>	<b>46</b>	<b>1.14</b>	<b>27.8</b>	<b>82</b>	<b>4.1</b>		<b>49.38</b>

Agent	Jerry Parker	Soil Type	Robinsville silt loam
Producer	Leslie Crook	Tillage	Conventional
Planting Date	5/11/2004	Previous Crop	Cotton
Defoliation Date	10/15/2004	Fertilizer	100-0-120-10(S)-0.5(B)
Harvest Date	11/17/2004	Row Spacing	38" solid

Table 19. Results of the early-season, transgenic cotton variety test, Lincoln County, 2004.

Yield Rank	Variety	Gin	Lint		Length	Strength	Uni-formity	HVI Color	Leaf Grade	Net Loan Value
		Turnout	Yield	Mike						
		%	lb./acre	units	in.	g/tex	%			¢/lb.
1	DP 444 BG/RR	38.6	1537	33	1.08	26.5	82	41-1	4	52.20
2	FM 960BR	37.8	1485	37	1.08	28.6	82	41-2	4	54.40
3	PHY 410 R	36.6	1426	40	1.09	25.1	82	51-1	5	48.25
4	PM 1218 BG/RR	40.0	1361	45	1.05	24.8	81	41-2	3	52.25
5	BCG 28R	38.7	1330	43	1.09	24.7	82	41-2	4	53.05
6	FM 960B2R	36.4	1319	40	1.14	28.9	83	41-1	4	55.00
7	ST 4892BR	38.4	1278	38	1.03	24.2	80	41-2	4	49.60
8	DP 432 RR	36.6	1275	38	1.07	24.5	81	41-2	4	51.85
9	FM 960RR	38.9	1246	35	1.13	27.3	81	41-3	4	54.45
10	ST 4793R	37.9	1197	40	1.04	25.3	82	41-3	4	49.80
11	DP 434 RR	36.9	1160	35	1.09	24.2	81	41-1	4	52.85
12	DP 424 BGII/RR	32.7	1076	37	1.04	24.8	80	41-2	4	49.80
13	ST 4646B2R	35.2	1044	39	1.03	24.7	80	51-3	4	46.30
<b>Mean</b>		<b>37.3</b>	<b>1287</b>	<b>38</b>	<b>1.07</b>	<b>25.7</b>	<b>81</b>	<b>4.0</b>		<b>51.52</b>

Agent	David Qualls	Soil Type	Taft silt loam
Producer	JBH Farms	Tillage	No-Till
Planting Date	4/30/2004	Previous Crop	Cotton
Defoliation Date	10/5/2004	Fertilizer	30-60-100, 100 N sidedress
Harvest Date	11/8/2004	Row Spacing	38" solid

Table 20. Results of the early-season, transgenic cotton variety test, Madison County, 2004.

Yield Rank	Variety	Gin	Lint		Length	Strength	Uni-formity	HVI Color	Leaf Grade	Net Loan Value
		Turnout	Yield	Mike						
		%	lb./acre	units	in.	g/tex	%			¢/lb.
1	FM 960RR	39.1	1250	52	1.08	26.3	81	31-1	4	50.05
2	ST 4646B2R	38.8	1225	44	1.11	27.7	82	31-1	4	54.10
3	ST 4793R	40.6	1213	54	1.06	27.7	82	31-1	3	48.80
4	PM 1218 BG/RR	41.0	1204	49	1.05	26.8	82	21-2	3	53.90
5	FM 960B2R	39.0	1190	45	1.15	31.5	82	31-1	3	56.45
6	FM 960BR	37.3	1185	44	1.11	32.2	82	31-1	3	56.25
7	DP 432 RR	37.8	1169	47	1.10	24.9	84	31-1	4	52.95
8	DP 434 RR	39.9	1163	47	1.17	26.4	83	21-2	3	56.60
9	DP 444 BG/RR	38.8	1145	39	1.09	27.3	82	31-1	4	53.95
10	ST 4892BR	39.6	1142	43	1.08	27.8	82	31-1	4	53.70
11	DP 424 BGII/RR	37.7	1080	46	1.12	27.3	83	21-1	3	56.45
12	PHY 410 R	37.1	1062	48	1.10	27.6	82	31-2	4	53.70
13	BCG 28R	37.8	1045	46	1.10	26.6	81	31-1	3	55.25
<b>Mean</b>		<b>38.8</b>	<b>1160</b>	<b>46</b>	<b>1.10</b>	<b>27.7</b>	<b>82</b>	<b>3.5</b>		<b>54.01</b>

Agent	Bill Wyatt	Soil Type	Lexington silt loam
Producer	Mark Smith	Tillage	No-Till
Planting Date	5/7/2004	Previous Crop	Cotton
Defoliation Date	9/22/2004	Fertilizer	70-60-90-1(B)
Harvest Date	10/5/2004	Row Spacing	38" solid

Table 21. Results of the early-season, transgenic cotton variety test, Madison County, 2004.

Test	Variety	Gin	Lint		Length	Strength	Uni- formity	HVI Color	Leaf Grade	Net Loan Value
		Turnout	Yield	Mike						
		%	lb./acre	units	in.	g/tex	%			¢/lb.
1	DP 488 BG/RR	37.6	918	44	1.18	29.8	83	51-1	4	49.85
2	ST 5242BR	38.7	839	47	1.07	26.3	82	51-1	4	48.55
3	ST 5599BR	39.2	833	45	1.11	29.0	82	51-1	4	49.30
4	DP 555 BG/RR	41.8	803	47	1.10	27.9	81	51-1	4	49.25
5	DP 449 BG/RR	38.3	799	43	1.10	30.9	82	51-1	3	50.25
6	FM 800BR	37.7	733	42	1.17	30.5	83	41-2	4	54.50
<b>Mean</b>		<b>38.9</b>	<b>821</b>	<b>45</b>	<b>1.12</b>	<b>29.1</b>	<b>82</b>	<b>3.8</b>		<b>50.28</b>

DP 494 RR was not harvested due to problems encountered at harvest

Agent	Bill Wyatt	Soil Type	Lexington silt loam
Producer	Mark Smith	Tillage	No-Till
Planting Date	5/7/2004	Previous Crop	Cotton
Defoliation Date	10/1/2004	Fertilizer	70-60-90-1(B)
Harvest Date	11/15/2004	Row Spacing	38" solid

Table 22. Results of the early-season, transgenic cotton variety test, Obion County, 2004.

Yield Rank	Variety	Gin	Lint		Length	Strength	Uni- formity	HVI Color	Leaf Grade	Net Loan Value
		Turnout	Yield	Mike						
		%	lb./acre	units	in.	g/tex	%			¢/lb.
1	DP 444 BG/RR	40.5	1502	35	1.07	27.2	83	41-1	4	51.95
2	ST 4892BR	39.7	1401	40	1.06	26.9	82	41-1	4	51.95
3	DP 432 RR	38.1	1375	38	1.06	25.0	83	41-2	5	48.55
4	ST 4793R	39.3	1339	43	1.04	25.5	82	41-1	4	49.65
5	FM 960BR	36.5	1309	36	1.10	29.5	82	41-2	6	48.15
6	PM 1218 BG/RR	39.7	1266	43	1.06	25.9	82	41-1	3	52.35
7	FM 960RR	39.8	1246	34	1.10	28.4	82	41-1	4	51.20
8	ST 4646B2R	36.3	1241	38	1.06	26.2	82	41-1	4	51.95
9	DP 424 BGII/RR	34.3	1203	37	1.07	24.5	81	41-1	4	50.85
10	PHY 410 R	36.7	1181	41	1.09	26.6	83	41-2	5	50.45
11	BCG 28R	38.4	1168	42	1.08	26.1	82	41-1	3	53.90
12	FM 960B2R	37.0	1110	38	1.11	27.5	81	41-2	5	50.30
13	DP 434 RR	38.3	1096	34	1.11	25.3	82	41-1	4	50.40
<b>Mean</b>		<b>38.0</b>	<b>1264</b>	<b>38</b>	<b>1.08</b>	<b>26.5</b>	<b>82</b>	<b>4.2</b>		<b>50.90</b>

Agent	Tim Smith	Soil Type	Falaya silt loam
Producer	Rance Barnes	Tillage	Conventional till
Planting Date	5/21/2004	Previous Crop	Cotton
Defoliation Date	10/17/2004	Fertilizer	50-40-150-15(S), 50 N sidedress
Harvest Date	11/16/2004	Row Spacing	30" solid

Table 23. Results of the early-season, transgenic cotton variety test, Shelby County, 2004.

Yield Rank	Variety	Gin	Lint		Length	Strength	Uni-formity	HVI Color	Leaf Grade	Net Loan Value
		Turnout	Yield	Mike						
		%	lb./acre	units	in.	g/tex	%			¢/lb.
1	DP 444 BG/RR	40.5	1049	41	1.07	29.4	82	31-1	3	53.75
2	ST 4892BR	40.0	1036	47	1.08	27.7	82	31-1	4	53.70
3	PM 1218 BG/RR	41.7	1013	51	1.03	25.5	82	31-1	3	47.05
4	ST 4793R	40.7	920	48	1.06	27.4	82	31-1	4	52.60
5	PHY 410 R	37.5	914	48	1.08	27.2	82	31-2	4	53.70
6	DP 432 RR	38.6	886	49	1.07	27.1	82	31-1	4	52.60
7	DP 424 BGII/RR	36.2	858	46	1.09	27.3	83	31-1	3	55.50
8	ST 4646B2R	36.4	856	44	1.07	27.6	81	31-1	4	52.60
9	DP 434 RR	34.0	807	42	1.12	26.3	81	21-1	3	56.45
10	BCG 28R	40.2	727	51	1.09	26.2	81	31-1	3	51.60
11	FM 960RR	36.7	681	42	1.08	30.3	81	31-2	5	51.45
12	FM 960BR	39.7	574	48	1.09	31.4	82	21-2	3	56.10
13	FM 960B2R	36.5	515	50	1.13	29.0	81	21-1	3	52.55
<b>Mean</b>		<b>38.4</b>	<b>833</b>	<b>47</b>	<b>1.08</b>	<b>27.9</b>	<b>82</b>	<b>3.5</b>		<b>53.05</b>

Agent	Michelle Rankin and Jeff Via	Soil Type	Memphis silt loam
Producer	Sneed Brothers Farms	Tillage	Conventional
Planting Date	5/5/2004	Previous Crop	Cotton
Defoliation Date	9/11/2004	Fertilizer	0-30-90, 90 N sidedress
Harvest Date	9/20/2004	Row Spacing	30" solid

Table 24. Results of the full-season, transgenic cotton variety test, Shelby County, 2004.

Yield Rank	Variety	Gin	Lint		Length	Strength	Uni-formity	HVI Color	Leaf Grade	Net Loan Value
		Turnout	Yield	Mike						
		%	lb./acre	units	in.	g/tex	%			¢/lb.
1	ST 5599BR	40.2	998	44	1.08	27.9	81	31-1	5	50.90
2	DP 449 BG/RR	38.3	880	47	1.07	28.9	82	21-2	3	53.90
3	ST 5242BR	39.0	828	47	1.08	26.4	82	21-1	3	55.60
4	DP 555 BG/RR	41.7	812	47	1.05	27.5	80	21-2	3	53.90
5	DP 488 BG/RR	37.9	796	47	1.10	28.4	82	31-1	4	53.70
6	DP 494 RR	36.6	745	53	1.10	28.1	81	31-1	4	49.00
7	FM 800BR	37.3	689	47	1.12	28.7	82	31-1	4	54.10
<b>Mean</b>		<b>38.7</b>	<b>821</b>	<b>47</b>	<b>1.09</b>	<b>28.0</b>	<b>81</b>	<b>3.7</b>		<b>53.01</b>

Agent	Michelle Rankin and Jeff Via	Soil Type	Memphis silt loam
Producer	Sneed Brothers Farms	Tillage	Conventional
Planting Date	5/5/2004	Previous Crop	Cotton
Defoliation Date	9/11/2004	Fertilizer	0-30-90, 90 N sidedress
Harvest Date	9/20/2004	Row Spacing	30" solid

Table 25. Results of the early-season, transgenic cotton variety test, Tipton County, 2004.

Yield Rank	Variety	Gin	Lint		Length	Strength	Uni-formity	HVI Color	Leaf Grade	Net Loan Value
		Turnout	Yield	Mike						
		%	lb./acre	units	in.	g/tex	%			¢/lb.
1	DP 432 RR	39.1	1391	45	1.08	25.6	83	31-2	5	51.15
2	DP 434 RR	41.4	1292	42	1.11	26.2	82	31-1	4	54.35
3	ST 4892BR	40.6	1252	47	1.06	27.5	82	31-1	4	52.60
4	FM 960BR	40.5	1187	45	1.08	27.3	83	31-1	5	51.15
5	FM 960B2R	40.9	1152	45	1.07	27.1	82	31-1	5	49.80
6	PHY 410 R	39.7	1136	46	1.08	27.2	83	31-2	5	51.15
7	BCG 28R	39.4	1101	46	1.11	26.1	81	31-1	4	54.10
8	FM 960RR	40.6	1089	39	1.11	29.6	81	31-1	4	54.65
9	DP 444 BG/RR	40.6	1077	40	1.09	26.6	82	21-2	4	54.25
10	ST 4793R	38.4	1030	48	1.06	27.4	83	31-1	4	52.85
11	PM 1218 BG/RR	39.2	994	48	1.04	25.5	82	31-1	4	50.20
12	ST 4646B2R	34.7	991	47	1.07	26.6	82	31-1	4	52.60
13	DP 424 BGII/RR	36.6	981	46	1.07	24.6	81	21-2	3	52.80
<b>Mean</b>		<b>39.4</b>	<b>1129</b>	<b>45</b>	<b>1.08</b>	<b>26.7</b>	<b>82</b>	<b>4.2</b>		<b>52.43</b>

Agent	Michelle Rankin	Soil Type	Grenada silt loam
Producer	Troy Hopkins and Sons	Tillage	No-Till
Planting Date	5/7/2004	Previous Crop	Corn
Defoliation Date	9/17/2004	Fertilizer	80-0-80-2(ZN)-0.5(B)
Harvest Date	10/5/2004	Row Spacing	38" solid

Table 26. Results of the early-season, transgenic cotton variety test, Tipton County, 2004.

Yield Rank	Variety	Gin	Lint		Length	Strength	Uni-formity	HVI Color	Leaf Grade	Net Loan Value
		Turnout	Yield	Mike						
		%	lb./acre	units	in.	g/tex	%			¢/lb.
1	ST 5242BR	40.5	1196	48	1.06	27.2	81	21-2	3	53.90
2	DP 555 BG/RR	44.8	1143	49	1.09	28.7	81	21-2	3	55.60
3	DP 449 BG/RR	40.6	1140	52	1.11	29.7	83	21-1	3	53.10
4	DP 488 BG/RR	40.0	1022	49	1.10	28.3	83	31-1	3	55.50
5	DP 494 RR	41.0	997	51	1.12	28.1	82	31-1	4	50.45
6	FM 800BR	38.1	986	46	1.15	29.5	83	31-1	4	54.80
<b>Mean</b>		<b>40.8</b>	<b>1081</b>	<b>49</b>	<b>1.11</b>	<b>28.6</b>	<b>82</b>	<b>3.3</b>		<b>53.89</b>

ST 5599BR was not harvested due to problems encountered at harvest

Agent	Michelle Rankin	Soil Type	Memphis silt loam
Producer	Templeton Farms	Tillage	Conventional
Planting Date	5/7/2004	Previous Crop	Cotton
Defoliation Date	9/14/2004	Fertilizer	40-30-110, 60 N sidedress
Harvest Date	10/5/2004	Row Spacing	38" solid

Table 27. Results of the early-season, transgenic cotton variety test, W. TN Exp. Station, 2004.

Yield Rank	Variety	Gin	Lint		Length	Strength	Uni-formity	HVI Color	Leaf Grade	Net Loan Value
		Turnout	Yield	Mike						
		%	lb./acre	units	in.	g/tex	%			¢/lb.
1	DP 444 BG/RR	39.3	2108	34	1.12	27.8	83	41-1	5	48.35
2	DP 424 BGII/RR	34.7	1609	36	1.09	27.0	82	31-1	4	53.70
3	DP 432 RR	37.0	1586	37	1.11	27.7	83	31-2	5	51.65
4	PHY 410 R	35.9	1578	39	1.11	28.2	83	41-1	5	48.85
5	ST 4793R	38.5	1540	39	1.09	28.9	82	31-2	5	51.15
6	ST 4892BR	37.5	1508	35	1.12	28.7	83	31-2	6	49.25
7	BCG 28R	37.6	1505	43	1.11	26.4	81	31-1	4	54.10
8	FM 960BR	36.9	1476	33	1.11	32.5	83	31-1	5	50.05
9	DP 434 RR	37.7	1447	34	1.18	26.5	83	31-1	4	52.55
10	PM 1218 BG/RR	37.9	1425	41	1.08	26.7	83	31-1	3	55.75
11	FM 960RR	36.4	1252	29	1.15	30.6	81	31-2	5	45.10
12	FM 960B2R	32.2	1209	32	1.16	30.9	82	31-1	4	51.05
13	ST 4646B2R	35.2	1182	35	1.09	28.1	82	41-1	6	47.85
<b>Mean</b>		<b>36.7</b>	<b>1494</b>	<b>36</b>	<b>1.12</b>	<b>28.5</b>	<b>82</b>	<b>4.7</b>		<b>50.72</b>

Agent	Chism Craig	Soil Type	Vicksburg silt loam
Producer	WTES	Tillage	No-Till
Planting Date	5/6/2004	Previous Crop	Corn
Defoliation Date	9/17/2004	Fertilizer	80-60-90
Harvest Date	10/1/2004	Row Spacing	38" solid

Table 28. Results of the full-season, transgenic cotton variety test, W. TN Exp. Station, 2004.

Yield Rank	Variety	Gin	Lint		Length	Strength	Uni-formity	HVI Color	Leaf Grade	Net Loan Value
		Turnout	Yield	Mike						
		%	lb./acre	units	in.	g/tex	%			¢/lb.
1	DP 555 BG/RR	38.3	1533	34	1.10	31.7	81	31-1	4	52.25
2	DP 449 BG/RR	37.3	1519	39	1.13	31.2	83	31-1	4	55.10
3	ST 5599BR	36.5	1461	43	1.13	29.4	82	31-1	5	51.15
4	ST 5242BR	33.2	1432	36	1.09	28.0	83	31-1	5	51.15
5	DP 494 RR	39.5	1420	40	1.15	31.9	83	31-1	5	52.30
6	DP 488 BG/RR	35.4	1104	41	1.16	31.2	82	31-1	5	52.05
7	FM 800BR	34.1	1091	31	1.18	31.8	82	31-1	5	48.10
<b>Mean</b>		<b>36.3</b>	<b>1366</b>	<b>38</b>	<b>1.13</b>	<b>30.7</b>	<b>82</b>	<b>4.7</b>		<b>51.73</b>

Agent	Chism Craig	Soil Type	Vicksburg silt loam
Producer	WTES	Tillage	No-Till
Planting Date	5/6/2004	Previous Crop	Corn
Defoliation Date	9/17/2004	Fertilizer	80-60-90
Harvest Date	10/1/2004	Row Spacing	38" solid

Table 29. Results of the early-season, transgenic cotton variety test, all locations, 2004.

Yield Rank	Variety	Gin	Lint		Length	Strength	Uni-formity	Leaf Grade	HVI Color	Net Loan Value
		Turnout	Yield	Mike						
		%	lb./acre	units	in.		%			¢/lb.
1	DP 444 BG/RR	39.0	1339	39	1.09	27.7	82	4.1	41-1	52.37
2	DP 432 RR	38.0	1267	44	1.08	26.4	82	4.4	41-1	50.92
3	ST 4793R	38.9	1237	47	1.06	26.8	82	4.0	41-1	50.64
4	ST 4892BR	38.6	1231	44	1.07	27.2	82	4.3	41-1	51.08
5	DP 434 RR	38.6	1206	41	1.13	26.3	82	3.8	41-1	53.21
6	PHY 410 R	36.6	1188	44	1.10	27.1	83	4.5	41-1	51.21
7	PM 1218 BG/RR	38.9	1177	47	1.06	26.1	82	3.4	31-2	50.88
8	FM 960BR	37.2	1171	42	1.10	30.4	82	4.2	41-1	52.79
9	BCG 28R	38.2	1157	46	1.10	26.3	82	3.8	41-1	52.60
10	ST 4646B2R	36.1	1137	44	1.08	27.2	82	4.4	41-1	50.22
11	FM 960RR	37.7	1132	40	1.11	29.1	82	4.3	41-1	51.93
12	FM 960B2R	36.8	1132	43	1.13	29.5	82	4.2	41-1	52.30
13	DP 424 BGII/RR	34.8	1127	44	1.08	26.2	82	3.5	31-2	52.63
<b>Mean</b>		<b>37.6</b>	<b>1192</b>	<b>43</b>	<b>1.09</b>	<b>27.4</b>	<b>82</b>	<b>4.1</b>	<b>41-1</b>	<b>51.75</b>
<b>CV (%)</b>		<b>3.3</b>	<b>10.1</b>	<b>4.4</b>	<b>1.4</b>	<b>2.9</b>	<b>0.8</b>	<b>12.4</b>		<b>3.9</b>
<b>LSD (0.05)</b>		<b>0.9</b>	<b>82</b>	<b>1.3</b>	<b>0.01</b>	<b>0.5</b>	<b>0.5</b>	<b>0.3</b>		<b>1.35</b>

Table 30. Results of the full-season, transgenic cotton variety test, all locations, 2004.

Yield Rank	Variety	Gin	Lint		Length	Strength	Uni-formity	Leaf Grade	HVI Color	Net Loan Value
		Turnout	Yield	Mike						
		%	lb./acre	units	in.		%			¢/lb.
1	ST 5599BR	38.0	1269	44	1.10	28.6	82	4.4	41-1	51.50
2	ST 5242BR	37.9	1217	44	1.06	26.8	82	3.7	41-1	51.39
3	DP 494 RR	37.9	1198	46	1.11	28.7	82	4.1	41-1	51.45
4	DP 449 BG/RR	37.4	1190	45	1.09	29.2	82	3.5	41-1	52.05
5	DP 488 BG/RR	37.6	1167	45	1.13	29.0	82	4.1	41-1	52.07
6	DP 555 BG/RR	39.8	1146	45	1.09	27.9	81	3.7	41-1	51.75
7	FM 800BR	36.8	1040	40	1.15	29.8	83	4.2	41-1	52.76
<b>Mean</b>		<b>37.9</b>	<b>1175</b>	<b>44</b>	<b>1.10</b>	<b>28.6</b>	<b>82</b>	<b>4.0</b>	<b>41-1</b>	<b>51.85</b>
<b>CV (%)</b>		<b>2.9</b>	<b>7.5</b>	<b>4.4</b>	<b>1.7</b>	<b>2.9</b>	<b>0.7</b>	<b>10.1</b>		<b>3.3</b>
<b>LSD (0.05)</b>		<b>1.0</b>	<b>77</b>	<b>1.7</b>	<b>0.2</b>	<b>0.7</b>	<b>0.5</b>	<b>0.3</b>		<b>1.50</b>

## GLOSSARY OF TERMS

**Bronze wilt:** A disorder of cotton plants in which upper canopy leaves turn a bronze color, have a higher leaf temperature, and wilt more than normal under drought stress. Plants with this disorder may redden and shed more fruit than others, and some may die prematurely. The cause of bronze wilt is not yet proven, but it occurs more often in some varieties than others.

**Bt cotton:** A variety containing genes from the bacterium, *Bacillus thuringiensis*, that confer resistance to certain lepidopterous insect pests such as tobacco budworm. Sometimes abbreviated **B** or **BG** in a variety name. B11 or B2 indicates that the variety carries a second *Bt* gene.

**BXN:** A designation in a variety name that indicates resistance to bromoxynil herbicide.

**CCC:** Commodity Credit Corporation, an entity administered by the Farm Services Agency of the USDA.

**Color:** See *HVI Color Grade*.

**Conventional tillage:** Systems in which the entire surface layer of soil is mixed or inverted by plowing, power tilling, or multiple disking before planting. Conventional tillage systems may also involve inter-row cultivation after planting.

**CV:** Coefficient of variation. It is a statistical estimate of experimental variability, calculated as the standard deviation divided by the mean, and expressed as a percentage. A relatively low CV indicates greater experimental precision.

**DAP:** Days after planting.

**Earliness:** A measure of how rapidly a cotton crop reaches maturity. Relative earliness of varieties is measured by the percentage of total cotton yield that is picked at first harvest. Earliness is under genetic control but is strongly influenced by crop management.

**Gin turnout:** Weight of lint as a percent of seedcotton weight, which is composed of lint, seed, trash, and excess moisture.

**Heat Units:** A measure of thermal time used in describing crop growth and development. Also abbreviated as **GDD** (growing degree days) or **DD60s** (degree-days above a threshold of 60 F).

**HVI:** High Volume Instrument measurement of fiber length, strength, Micronaire, length uniformity, trash, and color.

**HVI Color Grade:** Cotton color grade is a function of white reflectance (Rd) and yellowness (+b) of the lint sample. The HVI color code identifies the quadrant of the Nickerson-Hunter cotton colorimeter diagram in which Rd and +b values intersect (USDA, 1999). Color may be affected by moisture and temperature after boll opening, during harvest, ginning or storage.

**HNR:** Height-to-node ratio of the main stem, a measure of vegetative vigor.

**Leaf Grade:** The classer's leaf grade is a visual estimate of the amount of cotton plant leaf particles in a sample of lint. There are seven leaf grades represented by physical standards, plus a below grade designation. See *Trash*.



**Length:** Average fiber length of the longer one-half of the fibers sampled, in hundredths of an inch. Fiber length is under strong genetic control, but may be reduced by environmental stress, nutrient deficiency, or fiber breakage. Staple expresses fiber length in 32nds of an inch.

**Lint yield:** Weight of lint harvested per unit ground area.

**LL:** Designation in a variety name that indicates resistance to glufosinate herbicide.

**LSD:** Least significant difference. It is a statistical estimate of the smallest difference between two means that are significantly different at a fixed *P*-value (usually 0.05).

**Micronaire:** A measure of fiber fineness or maturity. An airflow instrument measures the air permeability of a given mass of cotton lint compressed to a fixed volume. Low "mike" values indicate finer or less mature fibers. Mike is strongly influenced by boll load, leaf retention and environmental conditions (especially moisture supply) during boll maturation. Abbreviated **Mike** or **Mic**.

Market Value	HVI Micronaire
Low discount range	34 and below
Base range	35 – 36
Premium range	37 – 42
Base range	43 – 49
High discount range	50 and above

Source: USDA (1999)

**NACB:** Nodes above cracked boll. A measure of plant maturity measured by the number of nodes from the highest first-position cracked boll to the node of the highest harvestable boll.

**NAWF:** Nodes above white flower. A measure of the number of main-stem nodes above the uppermost white flower at first position, indicating relative crop maturity. An average NAWF count of 5 is used as a reference point of physiological cutout or last effective boll population.

**No-till:** A system in which a crop is planted directly into a seedbed not tilled since the previous crop, and only the immediate seed zone is disturbed during planting. Other surface residues are not moved, and weed control is accomplished primarily with herbicides.

**OVT:** Official variety trial. A replicated small-plot test conducted at several locations to evaluate the adaptation of the most promising commercial cultivars for Tennessee.

**P-value:** Observed significance level in an analysis of variance. It estimates the probability of error in concluding that differences truly exist among treatments (varieties).

**RCB:** Randomized complete block. An experimental design in which all treatments (varieties) are randomly assigned to plots in separate blocks (replications) in the field.

**Rd and +b:** Measures of white reflectance (%) and of yellow pigmentation (Hunter's scale), respectively, in a sample of lint. Lower Rd values indicate grayer samples, while higher +b values indicate yellower samples. Field weathering can decrease reflectance, while excess moisture in storage can cause yellowing.

**Roundup Ready®:** A variety containing genes that confer resistance to glyphosate herbicide. Usually abbreviated **R** or **RR** in a variety name.

**Seedcotton:** Lint plus seed, trash and excess moisture.

**Strength:** Force required to break a bundle of fibers one tex unit in size. A tex is the weight in grams of 1,000 meters of fiber. HVI clamp jaw spacing is  $\frac{1}{8}$  inch. Fiber strength is under strong genetic control, but may be reduced by nutrient deficiency or stress.

Strength category	HVI Strength (grams per tex)
Very strong	31 and above
Strong	29 – 30
Intermediate	26 – 28
Weak	24 – 25
Very weak	23 and below

Source: USDA (1999)

**Transgenic variety:** A variety containing genes from dissimilar species or other foreign sources that confer desirable traits such as insect or herbicide resistance.

**Trash:** Percentage of the sample surface area covered by non-lint materials, as determined by a video scanner. Typical sources of trash include leaf fragments and bark. HVI trash measurement is correlated to a hand classer's leaf grade:

Classer's leaf grade	HVI Trash Measurement	
	4-year avg <sup>1</sup> %	1996 crop <sup>2</sup> reading
1	0.12	01
2	0.20	02
3	0.33	03
4	0.50	05
5	0.68	06
6	0.92	08
7	1.21	10
8	--	13

Sources: <sup>1</sup> (USDA, 1999). <sup>2</sup> (USDA, 1997).

**Uniformity:** Length uniformity is the ratio between the mean length and the upper-half mean length of the fibers, expressed as a percentage. Also referred to as the length uniformity index.

Uniformity group	Length uniformity index
Very high	86 and above
High	83 – 85
Intermediate	80 – 82
Low	77 – 79
Very low	76 and below

Source: USDA (1999)

**Verticillium Wilt:** A disease of cotton and numerous other plant species in which the *Verticillium dahliae* fungus causes plugging of the water-conducting tissues and produces toxic substances which result in mottling of leaves, wilting, defoliation, and possibly death of infected plants. Second growth frequently occurs in plants that are defoliated but not killed.

## REFERENCES CITED

USDA. 1997. Cotton Classification Results -- Understanding the Data. Agricultural Marketing Service, Cotton Div. Rev. 5/97. 12 pp.

USDA. 1999. The Classification of Cotton. Agricultural Marketing Service, Agric. Handbook 566. Rev. 1/99. Washington, DC. 23 pp.