

# **Tennessee Cotton Variety Test Results in 2002**

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This report is also available online at the  
University of Tennessee's variety data web site:  
**<http://www.taes.utk.edu/research/varietytrials/variety.html>**

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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 agricultural extension service to assess varietal adaptation to Tennessee field environments.

Five chapters in this report cover the major components of the 2002 cotton variety testing program of the University of Tennessee. Chapter I presents yield and fiber quality data from Advanced Variety Trials (AVTs) of 28 commercial cultivars tested at four Tennessee locations. Chapter II presents yield and fiber quality data from a Preliminary Variety Trial (PVT) of 30 new varieties and experimental strains conducted at Jackson. Chapter III presents detailed information on the growth, development, and other agronomic traits of 32 new and transgenic varieties at Jackson. Chapter IV presents an entomological evaluation of *Bt* cotton varieties. Chapter V compiles the results from 14 standard test demonstrations of cotton varieties in 11 counties of West Tennessee. A glossary is also included at the end of this report to define technical terms and abbreviations used.

### GENERAL PROCEDURES

Planting 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 the Memphis Agricenter and the West Tennessee Experiment Station, while no-tillage methods were used at the 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- or 4-row plots with row widths of 38 inches at Jackson and Memphis and 40 inches at Milan and Ames Plantation. 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 was applied to terminate each experiment following UT recommendations, but no boll opening material was applied in order to let each variety express earliness as the percent of total yield picked at first harvest. Plots in most experiments were picked twice 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 2002 included both conventional and transgenic varieties. County standard tests of conventional varieties were planted in 3 locations with each location containing 9 or 10 varieties. County standard tests of transgenic varieties were planted in 11 locations with each location containing 9 varieties (5 Bollgard/Roundup Ready (BR) and 4 Roundup Ready (RR)). Two additional medium season Bollgard/Roundup Ready varieties were evaluated in two locations but were not used in multi-location comparisons. 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. 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 cover some costs of conducting this research in 2002: Bayer CropScience; Delta and Pine Land Co.; PhytoGen Seed Co.; Jajo Genetics; Stoneville Pedigreed Seed Co.; Syngenta Seeds, Inc.; Texas Originator Cottonseed Co.; UniSouth Genetics, 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., Uniroyal Chemical Co., and Valent USA Corp.

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

- James M. Anderson, Superintendent, Ames Plantation
- Blake A. Brown, Superintendent, Milan Experiment Station
- James F. Brown, Superintendent (retired), West Tennessee Experiment Station
- Robert M. Hayes, Superintendent, West Tennessee Experiment Station

We thank Mr. Bill Harris, farm manager at the Agricenter International in Memphis, for his collaboration in conducting an AVT at that location in 2002.

Early evaluation of new and transgenic cotton varieties was supported in part by Cotton Incorporated State Support Project No. 00-775TN.

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 2002. 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 2002 University of Tennessee cotton variety tests and demonstrations were provided by:

- American Cotton Breeders, Inc., 5210 88<sup>th</sup> St., Lubbock TX 79424
- Bayer CropScience, 311 Poplar View Lane West, Collierville TN 38017
- Delta and Pine Land Co., P.O. Box 157, Scott MS 38772
- Delta Research and Extension Center, P.O. Box 197, Stoneville MS 38776
- Jajo Genetics, 246 Maxine Dr., Baton Rouge LA 70808
- 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
- Texas A&M University, Dept. of Soil & Crop Sciences, College Station TX 77843
- Texas Originator Cottonseed Co., 605 Woodland Dr., Harlingen TX 78550
- UniSouth Genetics, Inc., 2640-C Nolensville Rd., Nashville TN 37211

## Chapter I. ADVANCED VARIETY TRIALS

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Replicated small-plot tests of promising commercial cultivars were conducted at four locations in 2002. Advanced Variety Trials (AVTs) at Milan and Ames Plantation were planted in 40-inch rows with no tillage, while the AVTs at Jackson and Memphis were planted in 38-inch rows with conventional tillage. Supplemental irrigation was applied by travelling sprinkler boom at Jackson, but no irrigation was applied to AVTs at Milan, Ames or Memphis in 2002. The AVTs at Ames and Memphis contained 28 cultivars, while AVTs at Jackson and Milan had 30 entries. Of these, 17 were transgenic, including two *Bt* varieties, four Roundup-Ready entries, and 10 cultivars with both *Bt* and RR genes. One entry had BXN and *Bt* genes. Conventional pest- and weed management was uniformly applied to conventional and transgenic varieties at each location.

Three of the AVTs were successfully planted between 29 April and 6 May 2002 despite abnormally cool conditions, but the Agricenter AVT was replanted on 21 May. Adequate stands were obtained, although the AVT at Milan was skippy and weak. Conditions improved, however, with high mid-season temperatures and above average late-season rainfall. Insect pest pressure was manageably low overall. A few bollworms and budworms were found in July and August, but damage was light. Incidence of wilt diseases was very low at all locations. Above-average seasonal (April-October) heat-unit accumulation ranged from 2528 DD60s at Milan to 2766 DD60s at Memphis. Warm and moist conditions in September and October favored maturation of late-set bolls, but frequent rains limited the number of harvest opportunities and reduced fiber quality. No killing freeze occurred before final harvest at any location.

**Tables 1-1 through 1-4** present yield, earliness and gin turnout data from each of the four AVT locations. Lint yields were very high, with averages ranging from 714 lbs/acre at Milan to 1378 lbs/acre at the Memphis Agricenter. Cotton in the Milan and Jackson tests, both planted on 6 May, remained short-statured throughout the

season. Significant differences in yield and earliness were found among the entries at all locations. First-harvest percentages at Jackson were compressed towards the high end due to a rain delay of first harvest. As in previous years, the highest yielding group at each location included both transgenic and non-transgenic varieties. Relatively late-maturing varieties figured among the highest yielding group at all locations, due in part to abundant heat-unit accumulation and lack of killing freeze.

**Table 1-5** presents mean yields, earliness and gin turnouts for 28 entries across the four AVTs for 2002. Across locations, the three top-yielding entries did not differ significantly in total yield. This group included a conventional experimental, DPL X99X35; a newly released transgenic variety, ST 5599 BR; and a conventional cultivar, PSC 355. This group was closely followed in yield by another newly released transgenic, DP 555 BG/RR; a conventional experimental, PH98M-2983; and a conventional cultivar, FM 966. There was no significant difference in average yields of the transgenics relative to the conventional entries, nor did earliness affect total yield rank. The earliest maturing entries, PH98M-2983 and PM 1199 RR, ranked 5<sup>th</sup> and 20<sup>th</sup> in total yield, respectively. The latest maturing entries, DP 458 B/RR and DP 555 BG/RR, ranked 18<sup>th</sup> and 4<sup>th</sup> in total yield, respectively. Although DP 555 BG/RR ranked 4<sup>th</sup> in total yield, it ranked only 15<sup>th</sup> in lint yield at first harvest.

**Table 1-6** contains yield, earliness, and gin turnout data for 17 varieties tested in all four AVTs in 2001 and 2002. The five top-yielding varieties did not differ significantly in total yield. This group includes two transgenic cultivars, ST 4892 BR and PM 1218 BG/RR, and three conventional cultivars that have shown broad adaptation in previous variety testing in the mid-South. Of the three "RR-only" varieties on this list, ST 4793 R yielded significantly more lint than PM 1199 RR and SG 521 R. The "top-ten" yielding entries on this list includes the most popular cultivars in Tennessee, with PM 1218 BG/RR planted on the most cotton acres in Tennessee in 2002. Except for FM 989,

all 17 varieties showed sufficient earliness of maturity to be adapted to short-season growing conditions that often occur in Tennessee.

**Tables 1-7 through 1-10** present the 2002 HVI fiber quality and leaf grades on AVT entries at each location. These data were supplied by the USDA Cotton Classing Office in Memphis, based on lint samples from the West Tennessee Experiment Station gin. Micronaire was in the high discount range for six entries grown at Milan (**Table 1-7**), but high micronaire was not recorded for these or any other entries at the other locations. Fiber length, strength, and uniformity did not reach the discount range for any variety grown at any location, but were in the premium range in many instances. Fiber length was unusually high at Memphis (**Table 1-10**), reflecting near-ideal growing conditions there in 2002. Very few leaf grades reached the discount range, as a leaf grade of 5 was recorded for just one entry at Jackson (**Table 1-8**), two at Ames (**Table 1-9**), and four entries at Memphis (**Table 1-10**). Color grades were also remarkably free of discounts given the warm, rainy weather during harvest season. Light spotted grades were recorded for four entries at Milan, six at Jackson, four at Ames, and eight entries at Memphis.

**Table 1-11** contains mean HVI fiber properties and leaf grades across four locations for the 2002 AVT entries. Locations were treated as reps for this analysis. Significant differences were found among the entries for all fiber traits measured. Most varieties produced very high quality lint that was unlikely to incur discounts when averaged

across locations. However, average leaf grade exceeded 4.0 for five entries. The average color grade of three entries remained in the light spotted range (42-1), indicating that they would likely incur color discounts due to yellowness. They included ST 457, ST 474, and ST 4892 BR.

**Table 1-12** presents net loan prices for lint of the 28 entries tested in AVTs at four locations in 2002, and the average net loan prices across locations. Data in this table were calculated by a cotton loan valuation program furnished by Cotton Incorporated, based on the national CCC loan schedule for 2002. Base price is assumed to be 51.75 cents/lb lint. The base was adjusted for color, leaf, staple, micronaire, strength, and uniformity premiums and discounts. Results show that premiums raised the average loan value more than discounts lowered the value for all but four varieties. These four were ST 5599 BR, ST 457, ST 474, and PSC 355. Analysis of variance across locations shows that the average net loan prices of the top 19 varieties in **Table 1-12** were statistically similar. Locations were treated as reps for this analysis.

**Table 1-13** presents 2-year average HVI data on 17 varieties tested in 2001 and 2002. Locations were treated as reps for this analysis. Significant differences were found among the entries for all fiber traits measured. Results indicate that all varieties were unlikely to be subject to discount when data are averaged across locations and years. The lack of significant variety-by-year interactions indicates that fiber properties of these varieties were consistent from 2001 to 2002.

**Table 1-1.** Lint yield, earliness, and gin turnout of 30 cotton varieties in the 2002 AVT at Milan TN, listed by yield rank.

Yield Rank	Variety	Lint	Lint	First	Gin
		Yield, Total lb/A	Yield, 1st Hvst. lb/A	Harvest %	Turnout %
1	DPL X99X35	853	690	81.0	41.0
2	PhytoGen PSC 355	823	647	78.1	37.4
3	Stoneville ST 5599 BR †	822	616	74.8	39.0
4	PhytoGen PH98M-2983	810	670	82.8	40.9
5	Deltapine DP 458 B/RR	799	548	68.4	36.7
6	Deltapine DP 451 B/RR	795	597	75.0	34.8
7	Stoneville BXN 49 B	787	585	73.5	38.0
8	Deltapine DP 555 BG/RR	769	486	63.1	39.8
9	Stoneville 474	764	556	72.8	38.9
10	FiberMax FM 966	755	580	76.7	37.8
11	Sure-Grow SG 215 BR	744	515	69.1	36.7
12	FiberMax FM 958 B	742	630	83.9	38.4
13	Stoneville ST 4793 R	736	521	70.7	38.7
14	DeltaPEARL	735	520	70.8	38.8
15	Stoneville ST 4892 BR	734	520	70.5	39.3
16	Sure-Grow SG 501 BR	723	509	70.0	36.6
17	Paymaster PM 1218 BG/RR	722	547	75.4	38.8
18	Sure-Grow 747	705	568	81.0	38.6
19	FiberMax FM 989 BR	702	517	72.5	36.8
20	FiberMax FM 958	695	519	74.6	37.4
21	Stoneville GC 271	689	523	76.1	33.8
22	Deltapine DP 20 B	684	517	75.0	35.0
23	Sure-Grow SG 125 BR	667	483	72.4	37.3
24	Sure-Grow 105	662	463	70.4	36.6
25	Stoneville 457	631	490	77.7	37.7
26	Deltapine DP 436 RR	629	470	74.3	34.7
27	Sure-Grow SG 521 R	622	475	76.5	37.0
28	Americot 4207	597	476	79.6	35.5
29	FiberMax FM 989	513	365	71.5	35.2
30	Paymaster PM 1199 RR	504	421	83.6	38.7
	Mean:	714	534	74.7	37.5
	CV (%)	13.9	16.0	6.2	
	LSD (0.05)	139	120	6.5	

Planted 6 May 2002. Defoliant applied 11 Sept 2002. Harvested 23 Sept and 21 Oct 2002.

Soil: Non-irrigated, no-tilled Collins silt loam. Trial managers: Jason Williams; Don Gibson.

† Tested in 2001 as ST X9905.

Tennessee Agricultural Experiment Station data of Gwathmey et al. (2002).



**Table 1-2.** Lint yield, earliness, and gin turnout of 30 cotton varieties in the 2002 AVT at Jackson TN, listed by yield rank.

Yield Rank	Variety	Lint	Lint	First Harvest	Gin Turnout
		Yield, Total	Yield, 1st Hvst.		
		lb/A	lb/A	%	%
1	PhytoGen PH98M-2983	1415	1256	88.8	39.1
2	DPL X99X35	1413	1253	88.9	42.6
3	Stoneville ST 5599 BR †	1411	1204	85.2	39.6
4	PhytoGen PSC 355	1408	1263	89.8	39.0
5	Deltapine DP 555 BG/RR	1391	1189	85.6	40.9
6	Stoneville ST 4892 BR	1346	1180	87.8	38.9
7	FiberMax FM 958 B	1326	1203	90.9	38.5
8	Sure-Grow SG 215 BR	1315	1118	85.0	37.9
9	FiberMax FM 966	1302	1169	90.0	38.3
10	Sure-Grow 747	1300	1162	89.5	38.3
11	Stoneville BXN 49 B	1299	1111	85.5	38.4
12	DeltaPEARL	1284	1146	89.3	39.1
13	Stoneville 474	1275	1127	88.4	39.8
14	Stoneville 457	1272	1078	84.6	38.2
15	Stoneville ST 4793 R	1269	1086	85.6	39.6
16	Paymaster PM 1218 BG/RR	1266	1164	92.0	39.8
17	Sure-Grow 105	1258	1089	86.4	36.2
18	Sure-Grow SG 501 BR	1237	1064	85.9	38.0
19	Deltapine DP 451 B/RR	1232	1046	84.8	35.1
20	Sure-Grow SG 125 BR	1225	1021	83.6	37.6
21	Deltapine DP 458 B/RR	1212	974	80.3	35.5
22	Paymaster PM 1199 RR	1200	1101	91.8	38.5
23	FiberMax FM 958	1200	1037	86.4	38.2
24	FiberMax FM 989 BR	1179	1030	87.5	37.1
25	Sure-Grow SG 521 R	1174	967	82.2	36.3
26	Americot 4207	1173	1037	88.4	36.1
27	Stoneville GC 271	1157	979	84.7	34.5
28	Deltapine DP 436 RR	1138	962	84.5	34.6
29	Deltapine DP 20 B	1075	922	85.8	34.4
30	FiberMax FM 989	1064	883	83.0	34.7
	Mean:	1261	1094	86.7	37.8
	CV (%)	7.9	8.4	3.9	
	LSD (0.05)	140	129	4.8	

Planted 6 May 2002. Defoliant applied 9 Sept 2002. Harvested 23 Sept and 14 Oct 2002.

Soil: Conventionally tilled, irrigated Dexter Loam. Trial Manager: Carl Michaud.

† Tested in 2001 as ST X9905.

Tennessee Agricultural Experiment Station data of Gwathmey et al. (2002).

**Table 1-3.** Lint yield, earliness, and gin turnout of 28 cotton varieties in the 2002 AVT at Ames Plantation, listed by yield rank.

Yield Rank	Variety	Lint	Lint	First	Gin
		Yield, Total lb/A	Yield, 1st Hvst. lb/A	Harvest %	Turnout %
1	Deltapine DP 555 BG/RR	1308	832	63.9	38.5
2	FiberMax FM 966	1305	954	73.4	36.2
3	Stoneville ST 5599 BR †	1302	869	67.7	36.1
4	DPL X99X35	1298	892	69.8	38.9
5	PhytoGen PSC 355	1239	992	80.3	36.9
6	Stoneville ST 4892 BR	1165	778	67.3	36.2
7	DeltaPEARL	1153	822	71.9	36.2
8	Paymaster PM 1218 BG/RR	1119	801	72.9	37.1
9	FiberMax FM 958 B	1118	936	84.5	36.4
10	Paymaster PM 1199 RR	1116	868	77.9	34.8
11	PhytoGen PH98M-2983	1096	897	83.0	36.9
12	FiberMax FM 958	1096	782	73.2	36.0
13	Stoneville 474	1093	802	74.0	35.9
14	Stoneville 457	1090	757	70.4	34.0
15	Stoneville BXN 49 B	1086	774	72.0	34.6
16	Deltapine DP 436 RR	1067	751	70.8	34.1
17	Stoneville ST 4793 R	1058	745	70.8	35.6
18	Sure-Grow SG 501 BR	1036	656	64.3	33.0
19	Deltapine DP 458 B/RR	1029	575	56.7	33.3
20	Deltapine DP 451 B/RR	1015	658	65.5	33.6
21	Deltapine DP 20 B	975	688	70.5	31.5
22	Sure-Grow SG 215 BR	943	654	70.6	35.3
23	Stoneville GC 271	942	683	72.8	34.3
24	Sure-Grow SG 521 R	933	689	74.7	34.7
25	FiberMax FM 989 BR	897	660	73.9	34.8
26	Sure-Grow 105	879	680	78.4	35.4
27	Americot 4207	853	707	83.9	34.0
28	FiberMax FM 989	752	499	68.4	32.8
	Mean:	1070	764	72.3	35.3
	CV (%)	15.3	12.3	10.1	
	LSD (0.05)	230	132	10.3	

Planted 29 Apr 2002. Defoliant applied 9 Sept 2002. Harvested 19 Sept and 8 Oct 2002.

Soil: Non-irrigated, no-tilled Loring silt loam. Trial manager: Marshall Smith

† Tested in 2001 as ST X9905.

Tennessee Agricultural Experiment Station data of Gwathmey et al. (2002).

**Table 1-4.** Lint yield, earliness, and gin turnout of 28 cotton varieties in the 2002 AVT at Memphis Agricenter, listed by yield rank.

Yield Rank	Variety	Lint	Lint	First	Gin
		Yield, Total lb/A	Yield, 1st Hvst. lb/A	Harvest %	Turnout %
1	DPL X99X35	1745	1455	83.4	37.5
2	Stoneville ST 5599 BR †	1706	1308	76.7	36.2
3	PhytoGen PH98M-2983	1594	1359	85.2	35.5
4	Stoneville ST 4892 BR	1519	1222	80.7	33.9
5	FiberMax FM 966	1518	1247	82.2	35.5
6	PhytoGen PSC 355	1502	1274	84.8	33.9
7	Paymaster PM 1218 BG/RR	1494	1227	82.0	36.1
8	Stoneville ST 4793 R	1489	1150	77.3	34.2
9	Deltapine DP 451 B/RR	1471	1100	74.6	32.0
10	Deltapine DP 555 BG/RR	1462	874	59.2	35.3
11	Stoneville BXN 49 B	1462	1148	78.7	32.8
12	FiberMax FM 958 B	1452	1132	77.9	33.6
13	Stoneville 457	1394	1114	80.0	33.7
14	Stoneville GC 271	1387	1146	82.6	32.3
15	Stoneville 474	1360	1056	77.9	34.2
16	Sure-Grow SG 501 BR	1352	1085	80.4	33.2
17	Sure-Grow SG 521 R	1351	1066	78.6	32.5
18	Paymaster PM 1199 RR	1347	1171	86.8	34.7
19	FiberMax FM 989 BR	1312	999	76.2	33.6
20	Americot 4207	1289	1025	79.6	31.3
21	Sure-Grow SG 215 BR	1257	1002	79.5	31.8
22	Sure-Grow 105	1249	997	79.9	31.6
23	Deltapine DP 436 RR	1238	952	76.9	30.5
24	DeltaPEARL	1211	800	66.1	32.5
25	Deltapine DP 20 B	1180	850	72.3	29.5
26	Deltapine DP 458 B/RR	1166	710	60.8	31.5
27	FiberMax FM 958	1132	753	66.5	33.4
28	FiberMax FM 989	945	670	70.7	31.2
	Mean:	1378	1067	77.1	33.4
	CV (%)	6.7	8.9	4.3	
	LSD (0.05)	130	134	4.6	

Replanted 21 May 2002. Defoliant applied 1 Oct 2002. Harvested 9 Oct and 31 Oct 2002.

Soil: Bedded Falaya silt loam, not irrigated in 2002. Trial manager: Bill Harris.

† Tested in 2001 as ST X9905.

Tennessee Agricultural Experiment Station data of Gwathmey et al. (2002).

**Table 1-5.** Lint yield, earliness, and gin turnout of 28 cotton varieties tested in AVTs at four TN locations (Milan, Jackson, Ames Plantation and Memphis Agricenter) in 2002.

Yield Rank	Variety	Lint	Lint	First	Gin
		Yield, Total lb/A	Yield, 1st Hvst. lb/A	Harvest %	Turnout %
1	DPL X99X35	1327	1073	80.8	40.0
2	Stoneville ST 5599 BR †	1310	999	76.1	37.7
3	PhytoGen PSC 355	1243	1044	83.2	36.8
4	Deltapine DP 555 BG/RR	1232	845	68.0	38.6
5	PhytoGen PH98M-2983	1229	1045	85.0	38.1
6	FiberMax FM 966	1220	988	80.6	37.0
7	Stoneville ST 4892 BR	1191	925	76.6	37.1
8	FiberMax FM 958 B	1159	975	84.3	36.7
9	Stoneville BXN 49 B	1158	904	77.4	35.9
10	Paymaster PM 1218 BG/RR	1150	935	80.6	37.9
11	Stoneville ST 4793 R	1138	876	76.1	37.0
12	Deltapine DP 451 B/RR	1128	850	75.0	33.9
13	Stoneville 474	1123	885	78.3	37.2
14	Stoneville 457	1097	860	78.2	35.9
15	DeltaPEARL	1096	822	74.5	36.7
16	Sure-Grow SG 501 BR	1087	828	75.2	35.2
17	Sure-Grow SG 215 BR	1065	822	76.1	35.4
18	Deltapine DP 458 B/RR	1052	702	66.5	34.3
19	Stoneville GC 271	1044	833	79.1	33.7
20	Paymaster PM 1199 RR	1042	890	85.0	36.7
21	FiberMax FM 958	1031	773	75.2	36.3
22	FiberMax FM 989 BR	1023	801	77.5	35.6
23	Sure-Grow SG 521 R	1020	799	78.0	35.1
24	Deltapine DP 436 RR	1018	784	76.6	33.5
25	Sure-Grow 105	1012	807	78.8	35.0
26	Deltapine DP 20 B	979	744	75.9	32.6
27	Americot 4207	978	811	82.9	34.2
28	FiberMax FM 989	819	604	73.4	33.5
	Mean:	1106	865	77.7	36.0
	CV (%)	10.5	10.8	6.8	2.1
	LSD (0.05)	81	66	3.7	1.1
<i>P</i> -values:					
	Variety	<0.01	<0.01	<0.01	<0.01
	Variety-by-location	<0.01	<0.01	<0.01	

† Tested in 2001 as ST X9905.

Tennessee Agricultural Experiment Station data of Gwathmey et al. (2002).

**Table 1-6.** Lint yield, earliness, and gin turnout of 17 cotton varieties tested at 4 locations (Milan, Jackson, Ames Plantation and Memphis Agricenter) over two years (2001-2002).

Yield Rank	Variety	Lint	Lint	First	Gin
		Yield, Total lb/A	Yield, 1st Hvst. lb/A	Harvest %	Turnout %
1	Stoneville ST 4892 BR	1261	1003	78.7	37.4
2	Paymaster PM 1218 BG/RR	1255	1047	82.5	38.1
3	FiberMax FM 966	1253	1024	81.5	36.8
4	PhytoGen PSC 355	1239	1033	83.0	36.6
5	Stoneville 474	1218	991	80.6	37.2
6	Stoneville BXN 49 B	1193	940	78.4	35.4
7	Stoneville ST 4793 R	1178	918	76.9	37.3
8	Sure-Grow SG 501 B/R	1152	902	77.5	35.3
9	Deltapine DP 451 B/RR	1151	902	77.9	33.6
10	Sure-Grow SG 215 B/R	1130	895	77.8	35.8
11	Sure-Grow SG 105	1107	906	81.1	35.6
12	FiberMax FM 958	1106	855	77.1	36.8
13	Paymaster PM 1199 RR	1075	915	84.7	36.5
14	Deltapine DP 436 RR	1050	832	78.9	33.1
15	Sure-Grow SG 521 R	1025	809	78.6	35.3
16	Deltapine DP 20 B	1014	802	78.4	32.7
17	FiberMax FM 989	938	712	75.4	34.0
	Mean:	1138	911	79.3	35.7
	CV (%)	9.8	10.2	6.0	2.5
	LSD (0.05)	55	46	2.3	0.9
P-values:					
	Variety	<0.01	<0.01	<0.01	<0.01
	Variety-by-year	<0.01	<0.01	0.17	0.42
	Variety-by-location	<0.01	<0.01	0.05	
	Variety-by-location-by-year	<0.01	<0.01	0.09	

Tennessee Agricultural Experiment Station data of Gwathmey et al. (2001-2002).

**Table 1-7.** Fiber properties of 30 cotton varieties tested in the 2002 AVT at Milan TN, listed alphabetically.

Variety	Micro- naire	Fiber Length in.	Fiber Strength g/tex	Uni- formity %	HVI Trash %	Leaf Grade	HVI Color	Color Rd %	Color +b
Americot 4207	47	1.12	32.2	83	0.3	4	41-3	73	8.9
DeltaPEARL	48	1.17	34.6	84	0.3	4	41-1	76	7.8
Deltapine DP 20 B	46	1.12	30.5	83	0.3	3	31-2	76	8.6
Deltapine DP 436 RR	47	1.10	30.5	83	0.3	3	41-1	75	7.8
Deltapine DP 451 B/RR	47	1.10	30.7	83	0.3	3	41-1	74	8.3
Deltapine DP 458 B/RR	48	1.13	33.0	83	0.4	3	31-2	76	8.4
Deltapine DP 555 BG/RR	50	1.12	32.8	82	0.5	3	31-2	76	8.5
DPL X99X35	49	1.07	31.4	83	0.5	4	31-4	75	8.8
FiberMax FM 958	49	1.15	35.5	84	0.3	3	31-2	77	8.3
FiberMax FM 958 B	41	1.11	36.3	83	0.4	4	31-2	77	7.7
FiberMax FM 966	46	1.11	38.6	84	0.4	4	31-2	76	8.1
FiberMax FM 989	40	1.14	36.2	84	0.6	4	41-1	74	8.3
FiberMax FM 989 BR	45	1.09	34.8	82	0.3	3	31-2	76	8.2
Paymaster PM 1199 RR	48	1.11	32.0	84	0.4	3	41-3	73	8.8
Paymaster PM 1218 BG/RR	50	1.11	31.8	82	0.4	4	41-3	74	8.9
PhytoGen PH98M-2983	46	1.10	31.8	83	0.5	3	41-1	74	8.2
PhytoGen PSC 355	52	1.12	34.2	84	0.5	4	42-2	71	8.8
Stoneville 457	48	1.12	31.0	83	0.3	4	32-2	74	9.3
Stoneville 474	49	1.07	28.7	82	0.5	4	41-3	73	8.8
Stoneville BXN 49 B	42	1.14	32.9	83	0.6	4	41-3	74	8.7
Stoneville GC 271	44	1.26	37.4	84	0.5	4	41-1	74	8.1
Stoneville ST 4793 R	49	1.09	32.7	83	0.4	4	41-3	74	8.9
Stoneville ST 4892 BR	47	1.10	33.2	84	0.3	4	32-2	73	9.5
Stoneville ST 5599 BR <sup>†</sup>	50	1.08	32.5	82	0.5	4	41-3	73	8.4
Sure-Grow 105	48	1.13	33.9	84	0.4	3	41-3	73	8.9
Sure-Grow SG 215 BR	48	1.06	30.5	84	0.4	3	32-1	75	9.4
Sure-Grow SG 501 BR	50	1.10	32.6	84	0.4	3	31-4	74	9.0
Sure-Grow SG 521 R	48	1.07	29.9	83	0.3	4	41-1	74	8.3
Sure-Grow SG 125 BR	46	1.12	32.6	84	0.2	3	31-2	76	8.4
Sure-Grow 747	50	1.10	30.4	83	0.4	3	41-3	74	8.9
Mean:	47	1.11	32.8	83	0.4	3.5	41-3	74	8.6

HVI and hand-classing data from the USDA Memphis Classing Office, based on lint samples from the WTES gin.

<sup>†</sup> Tested in 2001 as ST X9905.

Tennessee Agricultural Experiment Station data of Gwathmey et al. (2002).

**Table 1-8.** Fiber properties of 30 cotton varieties tested in the 2002 AVT at Jackson TN, listed alphabetically.

Variety	Micro- naire	Fiber Length in.	Fiber Strength g/tex	Uni- formity %	HVI Trash %	Leaf Grade	HVI Color	Color Rd %	Color +b
Americot 4207	45	1.13	31.5	83	0.5	4	41-1	74	8.3
DeltaPEARL	45	1.16	33.4	83	0.5	3	31-1	78	8.0
Deltapine DP 20 B ‡	42	1.14	30.1	83	0.5	4	31-1	77	8.4
Deltapine DP 436 RR	41	1.14	30.2	83	0.4	4	31-2	76	8.4
Deltapine DP 451 B/RR	44	1.13	31.5	83	0.3	4	31-1	77	8.4
Deltapine DP 458 B/RR	39	1.16	30.7	84	0.4	4	31-1	78	8.5
Deltapine DP 555 BG/RR	42	1.13	32.1	82	0.4	4	31-1	78	8.0
DPL X99X35	45	1.11	30.7	83	0.4	3	31-2	76	8.1
FiberMax FM 958	44	1.16	34.9	83	0.5	3	31-1	77	8.5
FiberMax FM 958 B	44	1.12	34.9	83	0.9	4	41-1	76	8.0
FiberMax FM 966	46	1.11	37.8	82	0.4	4	31-2	77	7.8
FiberMax FM 989	40	1.13	33.6	83	0.5	4	41-1	75	8.5
FiberMax FM 989 BR	39	1.11	34.5	83	0.4	3	31-1	77	8.8
Paymaster PM 1199 RR	47	1.13	32.2	84	0.3	4	22-1	77	9.7
Paymaster PM 1218 B/RR ‡	47	1.08	30.9	83	0.4	4	31-4	75	8.9
PhytoGen PH98M-2983	41	1.13	31.0	83	0.5	4	41-1	75	8.4
PhytoGen PSC 355	48	1.11	32.3	83	0.8	5	41-3	72	8.5
Stoneville 457	44	1.12	31.5	84	0.6	4	32-2	73	9.5
Stoneville 474	45	1.10	31.2	83	0.5	4	42-1	73	9.1
Stoneville BXN 49 B	42	1.11	30.0	82	0.7	4	41-3	74	8.7
Stoneville GC 271	47	1.16	34.9	83	0.8	4	41-1	74	8.2
Stoneville ST 4793 R	46	1.09	30.8	83	0.7	4	41-3	74	8.9
Stoneville ST 4892 BR	46	1.11	31.1	84	0.4	4	32-2	74	9.5
Stoneville ST 5599 BR †	47	1.11	31.9	82	0.8	4	32-1	75	9.8
Sure-Grow 105	47	1.16	32.3	84	0.5	4	31-3	76	8.8
Sure-Grow SG 215 BR	44	1.09	27.8	83	0.4	3	31-3	75	9.3
Sure-Grow SG 501 BR	48	1.09	31.0	83	0.4	4	31-4	75	8.8
Sure-Grow SG 521 R	41	1.12	28.8	84	0.5	4	31-4	75	8.9
Sure-Grow SG 125 BR	42	1.11	30.2	83	0.5	4	31-4	75	8.6
Sure-Grow 747	48	1.12	30.0	84	0.5	3	32-2	74	9.4
Mean:	44	1.12	31.8	83	0.5	3.8	31-4	75	8.7

HVI and hand-classing data from the USDA Memphis Classing Office, based on lint samples from the WTES gin.

† Tested in 2001 as ST X9905. ‡ Data derived by least-squares estimation procedures due to loss of samples.

Tennessee Agricultural Experiment Station data of Gwathmey et al. (2002).

**Table 1-9.** Fiber properties of 28 cotton varieties tested in the 2002 AVT at Ames Plantation TN, listed alphabetically.

Variety	Micro- naire	Fiber Length in.	Fiber Strength g/tex	Uni- formity %	HVI Trash %	Leaf Grade	HVI Color	Color Rd	Color +b
Americot 4207	40	1.14	31.2	82	0.4	4	31-2	76	8.4
DeltaPEARL	44	1.19	33.4	82	0.5	4	31-2	77	7.9
Deltapine DP 20 B	41	1.16	32.3	82	0.5	4	31-2	77	8.1
Deltapine DP 436 RR	41	1.15	30.9	82	0.4	3	31-1	77	8.5
Deltapine DP 451 B/RR	42	1.13	30.8	83	0.3	4	31-2	76	8.1
Deltapine DP 458 B/RR	42	1.13	32.7	83	0.5	3	31-1	77	8.8
Deltapine DP 555 BG/RR	46	1.14	33.2	83	0.4	3	31-2	77	8.1
DPL X99X35	45	1.14	32.0	83	0.5	4	41-1	75	8.5
FiberMax FM 958	44	1.16	34.3	82	0.3	4	31-2	77	7.7
FiberMax FM 958 B	37	1.14	32.7	83	0.6	4	31-1	78	8.0
FiberMax FM 966	46	1.14	36.2	84	0.5	3	31-2	77	7.7
FiberMax FM 989	36	1.12	35.3	83	0.5	4	31-2	76	8.3
FiberMax FM 989 BR	37	1.15	35.0	82	0.4	4	31-2	77	7.8
Paymaster PM 1199 RR	42	1.13	31.0	83	0.4	4	31-2	76	8.5
Paymaster PM 1218 BG/RR	46	1.08	31.6	84	0.4	4	31-4	75	8.6
PhytoGen PH98M-2983	36	1.12	32.4	83	0.6	4	41-1	76	8.0
PhytoGen PSC 355	46	1.15	31.7	84	0.8	4	42-1	73	9.0
Stoneville 457	38	1.15	32.4	82	0.6	5	41-3	73	8.9
Stoneville 474	42	1.10	33.2	84	0.6	5	41-3	73	8.7
Stoneville BXN 49 B	43	1.12	30.3	83	0.5	4	32-2	74	9.5
Stoneville GC 271	42	1.16	35.9	83	0.4	4	41-1	75	8.5
Stoneville ST 4793 R	44	1.06	31.4	83	0.5	4	32-2	74	9.4
Stoneville ST 4892 BR	43	1.12	32.0	84	1.0	4	42-1	73	9.2
Stoneville ST 5599 BR <sup>†</sup>	43	1.14	33.0	82	0.7	4	41-3	73	8.8
Sure-Grow 105	38	1.15	33.5	84	0.4	3	31-2	76	8.6
Sure-Grow SG 215 BR	42	1.08	28.4	83	0.3	4	31-3	75	9.3
Sure-Grow SG 501 BR	43	1.12	31.3	83	0.6	4	31-4	75	8.9
Sure-Grow SG 521 R	40	1.10	31.4	83	0.5	4	31-4	75	8.6
Mean:	42	1.13	32.5	83	0.5	4	41-1	75	8.5

HVI and hand-classing data from the USDA Memphis Classing Office, based on lint samples from the WTES gin.

<sup>†</sup> Tested in 2001 as ST X9905.

Tennessee Agricultural Experiment Station data of Gwathmey et al. (2002).



**Table 1-10.** Fiber properties of 28 cotton varieties tested in the 2002 AVT at the Memphis Agricenter, listed alphabetically.

Variety	Micro- naire	Fiber Length in.	Fiber Strength g/tex	Uni- formity %	HVI Trash %	Leaf Grade	HVI Color	Color Rd %	Color +b
Americot 4207	41	1.14	30.8	83	0.7	4	41-1	73	8.0
DeltaPEARL	43	1.23	33.0	82	0.6	4	41-1	75	8.5
Deltapine DP 20 B	37	1.18	29.2	83	0.7	4	41-1	74	8.2
Deltapine DP 436 RR	41	1.17	29.7	83	0.6	4	41-1	75	8.4
Deltapine DP 451 B/RR	39	1.21	30.7	84	0.6	4	41-1	74	8.1
Deltapine DP 458 B/RR	41	1.15	31.6	83	0.5	3	41-3	74	8.7
Deltapine DP 555 BG/RR	44	1.17	32.9	83	0.6	4	31-2	76	8.2
DPL X99X35	44	1.14	30.2	84	0.5	4	31-2	76	8.7
FiberMax FM 958	44	1.19	33.9	83	0.5	4	41-1	75	8.5
FiberMax FM 958 B	41	1.16	34.3	84	0.8	4	41-1	73	8.2
FiberMax FM 966	44	1.15	36.8	83	0.4	4	41-1	76	7.8
FiberMax FM 989	40	1.19	34.7	83	0.5	4	32-2	74	9.6
FiberMax FM 989 BR	39	1.15	35.0	82	0.6	4	41-3	74	8.4
Paymaster PM 1199 RR	42	1.14	31.6	84	0.5	4	41-1	73	8.2
Paymaster PM 1218 BG/RR	44	1.09	30.9	83	0.5	4	31-4	74	9.0
PhytoGen PH98M-2983	40	1.14	30.5	83	0.4	4	41-3	74	8.4
PhytoGen PSC 355	45	1.16	33.3	84	0.9	5	41-3	72	8.5
Stoneville 457	41	1.18	32.5	83	0.7	4	42-1	71	9.4
Stoneville 474	42	1.13	31.7	83	1.2	5	42-2	70	9.2
Stoneville BXN 49 B	38	1.15	30.1	82	0.9	5	42-1	72	8.9
Stoneville GC 271	43	1.21	34.0	83	0.7	4	41-3	73	8.9
Stoneville ST 4793 R	42	1.11	31.9	83	0.9	5	42-1	72	9.1
Stoneville ST 4892 BR	42	1.13	32.6	84	0.6	4	41-3	73	8.8
Stoneville ST 5599 BR †	43	1.15	32.9	82	0.6	4	42-1	73	9.0
Sure-Grow 105	41	1.18	31.7	84	0.5	4	42-1	73	9.0
Sure-Grow SG 215 BR	40	1.09	28.9	83	0.4	3	31-4	75	9.0
Sure-Grow SG 501 BR	43	1.11	30.7	83	0.5	4	31-4	75	8.8
Sure-Grow SG 521 R	41	1.15	28.4	84	0.8	4	42-1	72	8.8
Mean:	42	1.16	31.9	83	0.6	4.1	41-3	74	8.7

HVI and hand-classing data from the USDA Memphis Classing Office, based on lint samples from the WTES gin.

† Tested in 2001 as ST X9905.

Tennessee Agricultural Experiment Station data of Gwathmey et al. (2002).

**Table 1-11.** Fiber properties of 28 cotton varieties tested in the 2002 AVTs at four TN locations, listed alphabetically.

Variety	Micro- naire	Fiber Length in.	Fiber Strength g/tex	Uni- formity %	HVI Trash %	Leaf Grade	HVI Color	Color Rd %	Color +b
Americot 4207	43	1.13	31.4	83	0.5	4.0	41-3	74	8.4
DeltaPEARL	45	1.19	33.6	83	0.5	3.8	31-2	77	8.1
Deltapine DP 20 B	42	1.15	30.5	83	0.5	3.7	31-2	76	8.3
Deltapine DP 436 RR	43	1.14	30.3	83	0.4	3.5	31-2	76	8.3
Deltapine DP 451 B/RR	43	1.14	30.9	83	0.4	3.8	41-1	75	8.2
Deltapine DP 458 B/RR	43	1.14	32.0	83	0.5	3.3	31-2	76	8.6
Deltapine DP 555 BG/RR	46	1.14	32.8	83	0.5	3.5	31-2	77	8.2
DPL X99X35	46	1.12	31.1	83	0.5	3.8	31-2	76	8.5
FiberMax FM 958	45	1.17	34.7	83	0.4	3.5	31-2	77	8.3
FiberMax FM 958 B	41	1.13	34.6	83	0.7	4.0	41-1	76	8.0
FiberMax FM 966	46	1.13	37.4	83	0.4	3.8	31-2	77	7.9
FiberMax FM 989	39	1.15	35.0	83	0.5	4.0	31-4	75	8.7
FiberMax FM 989 BR	40	1.13	34.8	82	0.4	3.5	31-2	76	8.3
Paymaster PM 1199 RR	45	1.13	31.7	84	0.4	3.8	31-4	75	8.8
Paymaster PM 1218 BG/RR	47	1.09	31.3	83	0.4	4.0	31-4	75	8.9
PhytoGen PH98M-2983	41	1.12	31.4	83	0.5	3.8	41-1	75	8.3
PhytoGen PSC 355	48	1.14	32.9	84	0.8	4.5	41-3	72	8.7
Stoneville 457	43	1.14	31.9	83	0.6	4.3	42-1	73	9.3
Stoneville 474	45	1.10	31.2	83	0.7	4.5	42-1	72	9.0
Stoneville BXN 49 B	41	1.13	30.8	83	0.7	4.3	31-4	74	9.0
Stoneville GC 271	44	1.20	35.6	83	0.6	4.0	41-3	74	8.4
Stoneville ST 4793 R	45	1.09	31.7	83	0.6	4.3	31-4	74	9.1
Stoneville ST 4892 BR	45	1.12	32.2	84	0.6	4.0	42-1	73	9.3
Stoneville ST 5599 BR †	46	1.12	32.6	82	0.7	4.0	31-4	74	9.0
Sure-Grow 105	44	1.16	32.9	84	0.5	3.5	31-4	75	8.8
Sure-Grow SG 215 BR	44	1.08	28.9	83	0.4	3.3	31-3	75	9.3
Sure-Grow SG 501 BR	46	1.11	31.4	83	0.5	3.8	31-4	75	8.9
Sure-Grow SG 521 R	43	1.11	29.6	84	0.5	4.0	41-3	74	8.7
Mean:	44	1.13	32.3	83	0.5	3.9	31-4	75	8.6
CV (%)	4.2	1.7	2.7	0.7	25.0	10.6		1.1	3.8
LSD (0.05)	2.6	0.03	1.2	0.8	0.2	0.6		1.2	0.5

HVI and hand-classing data from the USDA Memphis Classing Office, based on lint samples from the WTES gin.

† Tested in 2001 as ST X9905.

Tennessee Agricultural Experiment Station data of Gwathmey et al. (2002).

**Table 1-12.** Net loan prices for lint of 28 cotton varieties tested in AVTs at four Tennessee locations in 2002, listed by average price rank.

Price Rank	Variety	Milan	Jackson	Ames	Memphis	Average
		Net Loan Price †	Net Loan Price †	Net Loan Price †	Net Loan Price †	Net Loan Price
----- cents / lb lint -----						
1	Deltapine DP 458 B/RR	55.85	55.00	56.00	54.60	55.36
2	FiberMax FM 958	56.10	56.00	54.65	54.20	55.24
3	FiberMax FM 989 BR	55.30	56.00	54.80	54.10	55.05
4	FiberMax FM 966	54.90	54.55	56.10	54.20	54.94
5	Deltapine DP 20 B	55.70	55.50	54.65	53.60	54.86
6	DeltaPEARL	54.30	56.00	54.65	53.95	54.73
7	FiberMax FM 958 B	54.95	54.15	55.05	54.45	54.65
8	Deltapine DP 436 RR	54.15	54.65	55.75	53.95	54.63
9	Deltapine DP 451 B/RR	54.15	54.65	54.80	54.30	54.48
10	DPL X99X35	53.25	55.70	54.05	54.60	54.40
11	Deltapine DP 555 BG/RR	51.65	54.55	56.00	54.90	54.28
12	Stoneville GC 271	54.30	54.20	54.35	54.20	54.26
13	Americot 4207	54.00	54.00	54.65	54.20	54.21
14	Paymaster PM 1199 RR	54.50	53.00	54.80	54.30	54.15
15	PhytoGen PH98M-2983	54.15	54.15	54.00	54.20	54.13
16	Sure-Grow 105	54.65	54.85	56.25	50.70	54.11
17	FiberMax FM 989	54.45	54.30	54.80	52.65	54.05
18	Sure-Grow SG 215 BR	52.40	54.80	53.95	54.95	54.03
19	Sure-Grow SG 501 BR	51.70	54.40	54.65	54.65	53.85
20	Paymaster PM 1218 BG/RR	49.80	54.15	54.50	54.40	53.21
21	Sure-Grow SG 521 R	52.35	54.30	54.55	50.10	52.83
22	Stoneville ST 4892 BR	52.45	52.45	50.55	54.40	52.46
23	Stoneville BXN 49 B	54.35	53.65	52.10	48.15	52.06
24	Stoneville ST 4793 R	53.95	53.80	51.20	48.65	51.90
25	Stoneville ST 5599 BR	49.75	52.10	53.95	50.35	51.54
26	Stoneville 457	52.35	52.45	50.60	50.75	51.54
27	Stoneville 474	51.75	50.40	51.00	48.65	50.45
28	PhytoGen PSC 355	46.75	50.70	50.55	50.95	49.74
Mean:		53.36	54.09	54.03	52.97	53.61
C.V. (%):						2.50
LSD (0.05):						1.89

† Base price of 51.75 cents/lb lint adjusted for color, leaf, staple, micronaire, strength, and uniformity.

Calculated by 2002 Cotton Loan Valuation Program, based on the national CCC loan schedule for 2002.

Tennessee Agricultural Experiment Station data of Gwathmey et al (2002).

**Table 1-13.** HVI fiber properties of 17 cotton varieties tested in the AVTs at four TN locations over two years (2001-2002), listed alphabetically.

Variety	Micro- naire	Fiber Length in.	Fiber Strength g/tex	Uni- formity %	HVI Trash %	HVI Color	Color Rd %	Color +b
Deltapine DP 20 B	42	1.14	30.0	83	0.6	31-2	77	8.0
Deltapine DP 436 RR	44	1.13	29.2	83	0.5	31-2	77	8.1
Deltapine DP 451 B/RR	43	1.13	30.2	83	0.5	31-2	77	8.1
FiberMax FM 958	46	1.15	34.2	83	0.5	31-2	77	7.9
FiberMax FM 966	45	1.13	35.7	83	0.6	31-2	77	7.8
FiberMax FM 989	41	1.13	33.7	83	0.6	31-2	76	8.3
Paymaster PM 1199 RR	46	1.11	30.8	83	0.5	31-2	76	8.4
Paymaster PM 1218 BG/RR	48	1.08	29.8	83	0.5	31-2	76	8.6
PhytoGen PSC 355	48	1.12	31.7	84	0.9	41-3	73	8.5
Stoneville 474	46	1.09	30.2	83	0.8	41-3	74	8.7
Stoneville BXN 49 B	43	1.13	30.0	82	0.9	41-3	74	8.6
Stoneville ST 4793 R	46	1.08	30.3	83	0.8	41-3	74	8.7
Stoneville ST 4892 BR	45	1.10	30.9	83	0.8	41-3	74	8.9
Sure-Grow SG 105	45	1.13	31.6	84	0.5	31-2	76	8.5
Sure-Grow SG 215 B/R	45	1.08	27.7	83	0.4	31-3	76	8.8
Sure-Grow SG 501 B/R	47	1.09	30.3	83	0.5	31-2	76	8.6
Sure-Grow SG 521 R	43	1.09	28.9	83	0.7	41-1	75	8.5
Mean:	45	1.11	30.9	83	0.6	31-2	76	8.4
CV (%)	3.4	1.4	2.7	0.7	26.4		0.9	3.3
LSD (0.05)	1.4	0.02	0.8	0.6	0.2		0.6	0.3
----- Variety-by-Year Interaction -----								
Interaction P-value:	0.27	0.24	0.19	>0.50	0.21		>0.50	0.21

HVI data from the USDA Memphis Classing Office, based on lint samples from the WTES gin.  
Tennessee Agricultural Experiment Station data of Gwathmey et al. (2001-02).

## Chapter II. PRELIMINARY VARIETY TRIALS

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Thirty new varieties and promising experimental strains were tested in a Preliminary Variety Trial (PVT) at the West Tennessee Experiment Station in Jackson. Entries included 12 transgenic varieties, nine of which were Roundup-Ready only. This test also included two conventional check varieties, PSC 355 and ST 474, and two transgenic checks, DP 436 RR and PM 1218 BG/RR. The 2002 PVT was conducted alongside the AVT at Jackson and was managed similarly. Both tests were planted on 6 May 2002 in a conventionally tilled Dexter loam that had been planted to corn in 2001.

The growing season started with unseasonably cool weather, as daily low temperatures averaged 53 F for 16 days after planting. Emergence was therefore slow, but stands were satisfactory. Conditions improved as the season progressed, with high mid-season temperatures and above average late-season rainfall. Conventional UT-recommended weed- and pest-control measures were uniformly applied to all plots, and a total of 16 oz/acre Pix<sup>®</sup> was applied during the flowering stage to control plant growth. Insect pest pressure was moderately low overall, and late-season bollworm/budworm damage was light. A total of 2,540 DD60s accumulated between planting and second harvest, so nearly all bolls matured and were picked even from later maturing varieties. Excessive rain fell in September and October, which limited the number of harvest opportunities and reduced fiber quality somewhat. First harvest was delayed several days due to rainy weather. No killing freeze occurred before final harvest on October 14.

**Table 2-1** presents yield, earliness, and gin turnout data from the 2002 PVT at Jackson. The highest yielding entry was a conventional check, PSC 355, but the top 16 entries were statistically equivalent in total lint yield. This top-yielding group included PM 1218 BG/RR, which was the most widely

planted cultivar in Tennessee in 2002. Early maturing entries, including PM 1218 BG/RR, produced more than 90% of their yield by first harvest, due in part to a rain delay of first harvest. This procedural artifact compressed the range of first harvest percentages compared to a similar test in 2001. Unlike the 2001 test, there was no tendency for early maturity to accompany high yields in 2002. The earliest maturing entry, DES 810, produced 94% of its total lint at first harvest, but ranked 26<sup>th</sup> in total yield. The latest maturing entry, TAM 96WD-22, produced 78% of its lint at first harvest. The highest yielding "RR-only" entry, Texas 28 R, yielded significantly more total lint than the RR check, DP 436 RR. Texas 28 R produced a slightly larger plant than DP 436 RR in this test, and had a higher gin turnout.

**Table 2-2** contains fiber quality data on lint samples from the 30 entries in the 2002 PVT. These data were furnished by the USDA Cotton Classing Office in Memphis, based on samples from the WTES gin. Lint samples of most varieties were unlikely to incur discounts, and several varieties had highly satisfactory fiber profiles. Micronaire was in the high discount range for four entries, PH98M-1495, PSC 355, ST 474, and USG 710. Three of these entries also produced lint with 1% trash or more. The highest trash reading was recorded for NX 99574C at 1.3%. Most entries produced relatively long and strong fibers in this study. Staple length exceeded 36 (1.13 in.) for 12 entries in this study, and fiber strength exceeded 33 g/tex for six entries. Three entries met both of these quality criteria: DP 491, DP 493, and XTX 512 R. Color grades were generally satisfactory except for a light spotted grade recorded for Jajo 8185.

These results suggest that several new varieties and experimental strains may have markedly improved fiber quality profiles, together with high yield potential.

**Table 2-1.** Lint yield, earliness, and gin turnout of 30 cotton varieties in the 2002 PVT at Jackson TN, listed by yield rank.

Yield Rank	Variety	Check	Lint	Lint	First Harvest	Gin Turnout
			Yield, Total	Yield, 1st Hvst.		
			lb/A	lb/A	%	%
1	PhytoGen PSC 355	U	1370	1258	91.9	40.1
2	Deltapine 491		1368	1244	90.8	40.5
3	Deltapine 493		1368	1222	89.3	40.1
4	Texas 28 R		1342	1223	91.2	39.8
5	Stoneville 474	U	1335	1192	89.3	40.6
6	Syngenta NX 2429		1326	1201	90.6	37.6
7	USG Exp. 710		1323	1172	88.6	39.0
8	Syngenta NX 99574c		1318	1181	89.5	37.4
9	PhytoGen PH99M-1495		1311	1162	88.8	38.6
10	Jajo 8098		1292	1077	83.3	41.8
11	Paymaster PM 1218 BG/RR	U	1291	1205	93.4	40.8
12	Texas XTX 2463 R		1286	1165	90.4	40.0
13	Texas XTX 951 R		1275	1148	90.0	39.7
14	Jajo 8185		1262	1079	85.4	40.6
15	Texas XTX 4524 R		1221	1073	87.9	38.6
16	TAM 96WD-22		1216	951	78.2	39.9
17	DES 816		1207	1093	90.6	37.7
18	PhytoGen PH98M-3196		1195	1062	89.0	38.8
19	Texas XTX 512 R		1191	1084	91.0	37.0
20	Deltapine DP 449 BG/RR		1190	1060	89.3	37.3
21	Syngenta NX 99577c		1181	1087	92.0	39.3
22	USG Exp. 555		1129	1049	92.9	36.1
23	Stoneville X0003		1122	989	88.1	37.9
24	Texas 24 R		1113	968	86.9	38.7
25	Texas 295		1102	1021	92.7	38.0
26	DES 810		1097	1031	94.1	35.8
27	Deltapine DP 444 BG/RR †		1096	1012	92.3	40.3
28	Deltapine DP 436 RR	U	1095	974	89.0	35.9
29	Texas 30 R		1065	952	89.4	36.8
30	USG Exp. 650		1064	968	91.1	35.7
Mean:			1225	1097	89.6	38.7
CV (%)			9.4	9.3	1.6	
LSD (0.05)			161	144	2.0	

Planted 6 May 2002. Defoliant applied 9 Sept 2002. Harvested 24 Sept and 14 Oct 2002.

Soil: Conventionally tilled, irrigated Dexter Loam. Trial Manager: Carl Michaud.

† Tested as DPL X00S13 BR.

Tennessee Agricultural Experiment Station data of Gwathmey and Michaud (2002).

**Table 2-2.** HVI fiber properties of 30 cotton varieties and strains tested in the 2002 PVT at Jackson TN, listed alphabetically.

Variety	Check	Micro- naire	Fiber Length in.	Fiber Strength g/tex	Uni- formity %	HVI Trash %	HVI Color Color	Color Rd %	Color +b
Deltapine 491		44	1.20	33.9	82	1.0	31-1	77	8.8
Deltapine 493		47	1.14	34.0	83	0.7	31-2	78	7.7
Deltapine DP 436 RR	U	46	1.14	28.7	82	0.3	41-1	76	8.0
Deltapine DP 444 BG/RR †		43	1.08	29.6	82	0.6	41-1	75	8.3
Deltapine DP 449 BG/RR		42	1.13	32.1	82	0.6	31-1	78	8.0
DES 810		45	1.11	31.6	82	0.9	41-1	74	8.2
DES 816		48	1.13	33.2	82	1.0	41-1	74	8.0
Jajo 8098		46	1.08	30.4	82	0.3	31-3	76	9.4
Jajo 8185		47	1.12	31.4	83	0.3	32-1	75	9.4
Paymaster PM 1218 BG/RR	U	49	1.08	30.4	83	0.4	41-1	75	8.5
PhytoGen PH98M-3196		42	1.13	31.9	83	0.6	31-4	75	8.9
PhytoGen PH99M-1495		51	1.16	31.7	83	1.0	41-3	72	8.7
PhytoGen PSC 355	U	52	1.12	30.6	83	1.1	41-3	72	8.7
Stoneville 474	U	56	1.09	28.0	81	0.6	31-4	74	9.1
Stoneville ST 5303 R ‡		47	1.09	34.2	83	0.3	31-1	77	8.5
Syngenta NX 2429		49	1.13	32.2	84	0.7	41-3	73	8.8
Syngenta NX 99574c		44	1.16	31.8	81	1.3	41-1	76	7.9
Syngenta NX 99577c		47	1.09	31.3	83	0.5	31-2	77	8.2
TAM 96WD-22		42	1.14	28.2	81	0.5	31-3	77	9.1
Texas 24 R		44	1.11	31.2	82	0.4	31-1	78	8.1
Texas 28 R		49	1.15	31.3	82	0.4	31-2	76	8.7
Texas 295		42	1.18	31.7	82	0.4	31-2	77	7.8
Texas 30 R		41	1.15	30.3	82	0.8	41-1	76	7.8
Texas XTX 2463 R		47	1.06	30.9	82	0.4	31-2	77	7.9
Texas XTX 4524 R		44	1.14	32.2	82	0.7	31-1	77	8.6
Texas XTX 512 R		47	1.16	33.5	82	0.4	31-2	77	8.2
Texas XTX 951 R		49	1.11	31.6	82	0.5	31-3	76	9.3
USG Exp. 555		47	1.15	30.8	81	0.8	41-1	75	8.3
USG Exp. 650		30	1.13	33.6	82	0.3	41-1	75	8.3
USG Exp. 710		50	1.09	29.3	82	1.0	41-1	74	8.1
Mean:		46	1.13	31.4	82	0.6	31-2	76	8.4

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

† Tested as DPL X00S13 BR. ‡ Tested as ST X0003.

Tennessee Agricultural Experiment Station data of Gwathmey and Michaud (2002).

## Notes



## Chapter III. EARLY EVALUATION OF NEW VARIETIES

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Objectives of this research are to evaluate the growth, development, and agronomic traits of newly introduced varieties and strains, relative to several popular cultivars grown in Tennessee. Thirty-two entries were evaluated in 2002, including 17 transgenic cultivars. The transgenic group included four Roundup-Ready varieties, one Bollgard variety, 11 stacked-gene (BG/RR) varieties, and one BXN variety that also carried *Bt* genes. Entries were planted in a RCB arrangement in the AVT or PVT at the West Tennessee Experiment Station. These tests were planted on the same day (6 May 2002) and were managed similarly thereafter (see Chapters I and II of this report).

Seedling vigor was rated at 32 days after planting (DAP), and plant stands were counted at 38 DAP. At 72 DAP, data were collected on plant height, node of the first fruiting branch and terminal, and the highest first-position white flower. These data were used to calculate the number of fruiting branches, nodes above white flower (NAWF), and height:node ratio (HNR). At 107 DAP, incidence of bronze wilt, cavitation, lodging and other abnormalities of plants was rated or counted in each plot. At 128 DAP, data were collected on plant height, fruiting branch number, boll number, and harvestable boll positions. These data were used for growth, vertical fruiting zone and boll retention calculations. Plots were rated at 115 DAP for late-season leaf spot complex and premature leaf senescence, and again at 147 DAP for regrowth of leaves and cotton dropped on the ground. Regrowth and dropped cotton were rated again after second harvest.

**Table 3-1** presents plant stand, seedling vigor, and mid-season plant mapping data. All entries produced adequate stands, ranging from 2.3 to 3.8 plants/ft row. However, cool weather after planting limited seedling vigor, and may have affected subsequent plant growth. On a scale of 1-5 with 1 best, seedling vigor ranged from 2.6 for FM 989 BR to 3.9 for FM 958 and DP 555 BG/RR. Plant size at bloom was associated with seedling vigor. Plants were generally short-statured, with several FiberMax entries exhibiting very compact

internodes. During mid-bloom, entries differed significantly in such earliness predictors as node of first fruiting branch and NAWF. First fruiting branch ranged from node 6.0 for PM 1218 BG/RR, to node 8.1 for FM 958 and DP 555 BG/RR. Earliness was also associated with few NAWF, which ranged from 3.9 for ST 5303 R to 6.0 NAWF for DP 555 BG/RR at 72 DAP.

**Table 3-2** presents late-season plant mapping data for the 32 entries. Traits mapped at 128 DAP showed that all varieties remained relatively short-statured in this study. However, several varieties produced more vegetative growth during boll filling than others, and they were classified as relatively indeterminate in growth habit. Examples of indeterminate varieties include DP 458 B/RR, DP 555 BG/RR, FM 989, and PH98M-2983. These varieties increased in plant height by more than 25% during boll development. By contrast, varieties with a more determinate growth habit, such as PM 1218 BG/RR, DP 444 BG/RR, and DP 493, increased in plant height by less than 15% during this time. Continued vegetative growth during reproductive development increased the vertical fruiting zone and thus extended the boll set. Thus, first harvest percent was lower when last boll set relatively high on the plant, as in DP 458 B/RR, DP 555 BG/RR, and SG 501 BR. It is noteworthy that first-position boll retention of these varieties averaged about 63%, indicating that their continued vegetative growth did not impair their boll retention relative to more determinate varieties. By contrast, boll retention of PM 1218 BG/RR, DP 444 BG/RR, and DP 493 averaged about 56%.

**Table 3-2** also contains notes from plot observations of bronze wilt, cavitation, lodging, leaf spot, late-season regrowth, dropped cotton, and other abnormalities. With the possible exception of dropped cotton, none of these problems appeared to be sufficiently severe to have a major impact on yields in this study. There was insufficient incidence of *Verticillium* wilt and boll rot, and too few green bolls left after second harvest, to evaluate varietal differences in the 2002 study.

**Table 3-1.** Plant stand, seedling vigor, and mid-season mapping data from the 2002 Early Evaluation of 32 varieties at Jackson TN, listed alphabetically.

Variety	Plant Stand 13-Jun plants/ft.	Seedling Vigor 1 = Best 7-Jun scale 1-5	Plant Height 17-Jul in.	First Fruiting Branch 17-Jul node	Terminal 17-Jul node	Nodes Above W. Flower 17-Jul nodes	Height: Node Ratio 17-Jul in./node
DeltaPEARL	3.1	3.5	21.5	7.7	14.5	5.6	1.4
Deltapine 491	2.6	3.7	21.8	7.5	13.4	5.2	1.5
Deltapine 493	3.0	3.4	22.2	7.7	14.0	5.5	1.5
Deltapine DP 444 BG/RR †	3.1	2.7	23.6	6.3	12.1	4.4	1.8
Deltapine DP 449 BG/RR	3.2	3.4	19.6	7.0	13.1	4.8	1.4
Deltapine DP 451 B/RR	3.4	2.9	20.3	6.8	12.6	4.6	1.5
Deltapine DP 458 B/RR	2.9	3.5	19.9	7.3	13.2	5.1	1.4
Deltapine DP 555 BG/RR	3.3	3.9	21.8	8.1	14.5	6.0	1.4
DPL X99X35	3.4	3.0	22.9	7.5	13.1	5.2	1.6
FiberMax FM 958	3.4	3.9	17.9	8.1	13.9	4.9	1.2
FiberMax FM 958 B	3.3	3.3	19.1	7.6	13.6	5.1	1.3
FiberMax FM 966	3.0	3.2	18.6	7.4	13.3	4.7	1.3
FiberMax FM 989	2.9	3.6	19.0	8.0	14.3	5.4	1.2
FiberMax FM 989 BR	3.3	2.6	19.8	7.1	12.6	4.4	1.4
Paymaster PM 1199 RR	3.1	3.3	21.0	7.1	12.8	4.7	1.5
Paymaster PM 1218 BG/RR	3.3	3.0	23.9	6.0	12.9	4.8	1.7
PhytoGen PH98M-2983	3.2	3.1	22.0	7.5	13.2	5.3	1.5
PhytoGen PH98M-3196	3.4	2.9	20.6	6.8	12.0	4.5	1.6
PhytoGen PH99M-1495	3.8	3.1	22.6	6.8	12.9	5.0	1.6
PhytoGen PSC 355	3.5	2.9	22.9	7.0	12.9	4.9	1.6
Stoneville 457	3.3	3.1	19.9	6.6	12.1	4.8	1.5
Stoneville 474	3.5	3.3	22.3	7.4	13.4	5.1	1.5
Stoneville BXN 49 B	2.6	3.2	22.8	7.9	13.9	5.3	1.5
Stoneville GC 271	3.2	3.2	20.8	6.0	11.6	4.5	1.6
Stoneville ST 4793 R	2.8	3.3	22.0	7.8	13.1	4.7	1.6
Stoneville ST 4892 BR	3.3	2.9	23.2	7.2	12.7	4.5	1.7
Stoneville ST 5303 R ‡	2.9	3.3	21.0	6.8	11.8	3.9	1.6
Stoneville ST 5599 BR	3.1	2.8	23.7	6.9	13.0	5.4	1.7
Sure-Grow 105	3.0	3.2	19.8	7.5	13.0	4.5	1.4
Sure-Grow SG 215 BR	3.1	3.4	21.3	7.3	12.0	4.5	1.6
Sure-Grow SG 501 BR	2.3	3.3	22.1	6.9	12.1	4.4	1.7
Sure-Grow SG 521 R	3.1	3.1	20.4	6.5	12.2	4.8	1.5
Mean:	3.1	3.2	21.3	7.2	13.0	4.9	1.5
CV (%):	11.8	9.4	5.9	6.0	4.4	10.9	5.3
LSD (0.05%):	0.5	0.4	1.8	0.6	0.8	0.7	0.1

† Tested as DPL X00S13 BR. ‡ Tested as ST X0003.

Tennessee Agricultural Experiment Station data of Gwathmey and Michaud (2002).

**Table 3-2.** Late-season plant map data and plot notes from the 2002 Early Evaluation of varieties at Jackson TN, listed alphabetically.

Variety	Fruiting	Plant	Lowest	Highest	Vertical	Boll	Plot
	Branches	Height	Harv'able	Harv'able	Fruiting	Retention	
	11-13 Sep	11-13 Sep	P1 Boll †	P1 Boll †	Zone	at P1 †	Notes ‡
	no.	in.	fr. br. no.	fr. br. no.	nodes	%	
DeltaPEARL	10.1	25.6	1.2	7.1	7.0	53.7	
Deltapine 491	9.6	25.2	1.1	7.5	7.3	58.9	
Deltapine 493	9.6	25.3	1.3	7.3	7.0	53.7	
Deltapine DP 444 BG/RR	8.4	26.5	1.0	5.5	5.5	57.9	f
Deltapine DP 449 BG/RR	9.1	22.5	1.2	6.2	6.0	55.6	s
Deltapine DP 451 B/RR	9.3	23.6	1.1	7.4	7.3	64.2	
Deltapine DP 458 B/RR	10.5	26.3	1.0	8.5	8.5	61.4	
Deltapine DP 555 BG/RR	10.1	27.6	1.2	7.6	7.5	61.4	
DPL X99X35	9.4	26.6	1.4	6.9	6.6	51.3	d
FiberMax FM 958	9.7	22.9	1.2	7.0	6.8	51.7	c
FiberMax FM 958 B	9.5	23.0	1.1	6.5	6.4	55.5	
FiberMax FM 966	9.1	22.8	1.2	6.4	6.3	53.6	
FiberMax FM 989	9.5	24.8	1.1	6.8	6.7	58.4	
FiberMax FM 989 BR	8.9	24.6	1.1	5.9	5.8	61.2	s
Paymaster PM 1199 RR	9.4	25.7	1.3	7.4	7.1	59.8	
Paymaster PM 1218 BG/RR	9.9	26.5	1.2	6.9	6.6	57.1	b, p
PhytoGen PH98M-2983	9.3	27.8	1.2	7.2	7.0	60.0	
PhytoGen PH98M-3196	8.7	24.4	1.1	6.2	6.1	54.5	
PhytoGen PH99M-1495	9.6	26.5	1.2	7.1	6.8	54.6	
PhytoGen PSC 355	8.8	27.0	1.1	5.8	5.7	53.6	c, r, s
Stoneville 457	9.1	24.7	1.3	6.8	6.5	55.6	d
Stoneville 474	9.2	26.5	1.4	7.2	6.8	54.2	
Stoneville BXN 49 B	9.6	27.3	1.1	7.4	7.3	64.2	
Stoneville GC 271	8.9	25.3	1.2	6.7	6.5	60.3	
Stoneville ST 4793 R	8.6	26.7	1.3	6.9	6.6	58.8	
Stoneville ST 4892 BR	8.7	26.5	1.1	6.7	6.6	62.3	
Stoneville ST 5303 R	8.4	24.7	1.5	6.0	5.5	49.9	r
Stoneville ST 5599 BR	8.5	28.5	1.1	6.6	6.6	56.5	
Sure-Grow 105	9.0	23.8	1.1	6.6	6.5	59.5	c
Sure-Grow SG 215 BR	8.4	24.9	1.1	6.4	6.4	62.9	
Sure-Grow SG 501 BR	9.0	27.7	1.1	7.3	7.2	65.5	
Sure-Grow SG 521 R	9.5	25.6	1.4	7.2	6.8	53.4	l
Mean:	9.2	25.5	1.2	6.8	6.7	57.5	
CV (%):	7.1	7.5	19.4	12.2	13.1	7.9	
LSD (0.05%):	0.9	2.7	n.s.	1.2	1.2	6.4	

† P1 = first-position bolls only. ‡ Plot Notes: b = bronze wilt symptoms; c = cavitation scars; d = cotton dropped on ground; f = forked main stems; l = lodging of plants; p = premature leaf senescence; r = late-season leaf regrowth; s = late-season leaf spot complex. Tennessee Agric. Experiment Station data of Gwathmey and Michaud (2002).

## Chapter IV. AN ENTOMOLOGICAL EVALUATION OF BT COTTONS

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Nine cotton varieties containing a *Bt* (*Bacillus thuringiensis*) gene for resistance to selected caterpillars (referred to as Bollgard cottons) were tested at three locations in West Tennessee for efficacy and yield potential. The trials also included four check varieties, which were parents to some of the *Bt* varieties. Trials were located at the Milan Experiment Station in Gibson County, the West Tennessee Experiment Station in Jackson and at the Ames Plantation near Grand Junction. The test at Milan was planted with no tillage on 7 May, at Jackson with tillage on 7 May and at the Ames Plantation with no tillage on 15 May. Plots were two rows x 30 ft and were replicated five times.

If bollworm/tobacco budworm populations reached threshold levels in the non-*Bt* check varieties, both *Bt* and non-*Bt* varieties were to receive insecticide treatment. Bollworm/tobacco budworm pressure was light at Milan and Jackson and no insecticide sprays were required. The test at the Ames Plantation was a sprayed/unsprayed comparison planted in a split-plot design. Main plots were spray treatments and sub-plots were varieties. The purpose of this test was to measure the benefit of sprays to *Bt* cotton yield potential. When bollworm/tobacco budworms reached threshold levels in the conventional non-*Bt* varieties, the entire 'sprayed' main plot was treated with an insecticide to control the pest population while the unsprayed portion of the main plot was not treated. A single application of Karate Z at 2.5 oz/acre was made on 14 August.

In two separate tests, one at the Milan Experiment Station and one at the Ames Plantation, a cotton line (DPLX 01W97DR) containing two *Bt* genes (producing Cry2Ab endotoxin and Cry1Ac endotoxin) was compared to SG 125 BR and SG 521 R for efficacy and yield potential. Two *Bt*-gene cottons are commonly referred to as Bollgard II cottons. The test at Milan was planted on 7 May with treatment plots consisting of 8 rows x 30 ft with five replications. At the Ames Plantation, plots were 8 rows x 45 ft and were planted on 15 May with three replications. Both trials were planted in a randomized complete block design. Neither location required any sprays for bollworm or

tobacco budworm.

**Table 4-1** presents yield and gin turnout of the Milan Bollgard test. Three Bollgard cottons produced yields higher than the highest yielding conventional cotton, FM 958. FM 958 B yielded 129 lbs more than its recurrent parent; BXN 49 B yielded 307 lbs more than its parent; SG 501 BR yielded 108 lbs more than its parent and DP 451 BR yielded 125 lbs more than its parent. The top 4 entries were statistically equivalent in total yield.

**Table 4-2** presents yield, earliness and gin turnout of the Jackson Bollgard test. DP 555 BR Bollgard cotton produced yields higher than the conventional FM 958. FM 958 B yielded 145 lbs more than its recurrent parent; DP 451 BR yielded 189 lbs more than its parent; SG 501 BR yielded 73 lbs more than its parent and BXN 49 B yielded 171 lbs more than its parent. The top 5 entries were statistically equivalent in total yield. The earliest maturing entry in the test was FM 958 B which produced 88.5% of its lint at first harvest.

**Table 4-3** presents yield, earliness and gin turnout of the Ames Plantation sprayed-unsprayed Bollgard test. In the sprayed portion of the test, the yield leader was FM 958 B. Its non-transgenic parent had a higher yield rank than three of the nine Bollgard entries. Lint yield changes based on the single insecticide application ranged from +114 lbs to -96 lbs. Spraying did not significantly affect yield. Across the 13 varieties, the increase averaged only 32 lbs. In the unsprayed portion, FM 958 B was the yield leader. Its non-transgenic parent had a higher yield rank than only one of the Bollgard entries. The earliest maturing entry in the test was FM 958 B.

**Table 4-4** presents seed cotton yield and earliness for the Bollgard II test at Milan. Bollworm/tobacco budworm pressure was light and no insecticide had to be applied to any of the plots for caterpillar control. Although more seed cotton was produced by SG 125 BR compared to the Bollgard II line, DPLX 01W97DR, the difference was not significant. Earliness values were not different.

**Table 4-5** presents seed cotton yield and earliness data for the Ames Plantation Bollgard II test. The highest yield was produced by SG 125 BR, but this was not significantly different from DPLX 01W97DR or SG 521 R varieties. Due to rank growth and delayed maturity, earliness values were quite low compared to those at the Milan location.

Results to date do not indicate that there is added value with the introduction of Bollgard II technology under West Tennessee conditions. Pest pressure has not been severe and conventional Bollgard cottons have been able to produce superior yields compared to non-*Bt* cottons under the current pest situation. Bollgard cotton varieties have been shown to significantly increase yields over their recurrent parents or the best conventional varieties available. They have significant value against pyrethroid-resistant tobacco budworms

**Table 4-1.** Total lint yield and gin turnout of 13 cotton varieties in the Bt cotton efficacy trial at Milan TN, listed by yield rank.

Yield Rank	Variety	Lint Yield, Total lb/A	Gin Turnout %
1	Paymaster PM 1218 BG/RR	1253	38.1
2	Deltapine DP 555 BR	1250	41.1
3	FiberMax FM 958 B	1188	37.1
4	Stoneville BXN 49 B	1157	38.5
5	Sure-Grow SG 501 BR	1123	36.3
6	Stoneville 4892 BR	1115	38.1
7	Sure-Grow 215 BR	1100	35.7
8	Deltapine DP 451 BR	1093	34.4
9	FiberMax FM 958	1059	37.8
10	Deltapine DP 448 B	1018	35.1
11	Sure-Grow SG 501	1015	37.9
12	Deltapine DP 51	968	35.3
13	Stoneville BXN 47	850	31.3
	Mean:	1092	36.7
	CV (%)	8.8	
	LSD (0.05)	123.2	

Planted 07 May 02. Defoliant applied 23 Sep. Harvested 9 Oct. Sprinkler irrigated. Trial manager: Don Gibson. Tennessee Agricultural Experiment Station data of Lentz et al. (2002).

**Table 4-2.** Lint yield, earliness and gin turnout of 13 cotton varieties in the Bt cotton efficacy trial at Jackson TN, listed by yield rank.

Yield Rank	Variety	Lint	Lint	First	Gin
		Yield, Total lb/A	Yield, 1 <sup>st</sup> Harv. lb/A	Harvest %	Turnout %
1	Deltapine DP 555 BR	1208	851	70.4	40.0
2	FiberMax FM 958 B	1138	1007	88.5	36.8
3	Stoneville 4892 BR	1128	923	82.0	40.4
4	Deltapine DP 448 B	1101	959	87.2	37.8
5	Deltapine DP 451 BR	1044	857	82.5	34.9
6	Sure-Grow 215 BR	1019	809	79.5	39.0
7	Sure-Grow SG 501 BR	1013	845	83.5	37.6
8	Stoneville BXN 49 B	994	805	81.1	38.6
9	FiberMax FM 958	993	793	79.8	38.7
10	Paymaster PM 1218 BG/RR	943	796	84.4	39.6
11	Sure-Grow SG 501	940	782	83.7	38.3
12	Deltapine DP 51	855	681	80.1	40.0
13	Stoneville BXN 47	823	632	77.6	36.8
	Mean:	1015	826	81.6	38.3
	CV (%)	14.5	15.2	3.0	
	LSD (0.05)	188.3	160.5	3.1	

Planted 07 May 02. Defoliant applied 10 Sep. Harvested 23 Sep and 13 Oct. Trial manager: Van Tol. Tennessee Agricultural Experiment Station data of Lentz et al (2002).

**Table 4-3.** Lint yield, earliness and gin turnout of 13 sprayed and unsprayed cotton varieties in the Bt cotton efficacy trial at Ames Plantation TN, listed alphabetically.

	Lint Yield, Total	Lint Yield, 1 <sup>st</sup> Harv.	First Harvest	Gin Turnout
<b>Variety - Sprayed</b>	lb/A	lb/A	%	%
Stoneville BXN 47	767	476	61.1	35.5
Stoneville BXN 49 B	862	514	59.3	33.7
Deltapine DP 51	605	377	61.3	33.6
Deltapine DP 448 B	839	578	68.7	34.0
Deltapine DP 451 BR	894	579	63.8	32.1
Deltapine DP 555 BR	782	466	56.1	38.5
FiberMax FM 958	866	592	67.9	37.8
FiberMax FM 958 B	1268	997	78.8	37.2
Paymaster PM 1218 BG/RR	1080	840	77.7	38.2
Sure-Grow SG 215 BR	993	714	72.1	35.1
Sure-Grow SG 501	750	489	64.9	34.1
Sure-Grow SG 501 BR	890	664	74.5	35.1
Stoneville 4892 BR	997	763	76.8	37.0
Mean:	892	619	67.9	35.5
<b>Variety - Unsprayed</b>				
Stoneville BXN 47	744	515	67.8	35.7
Stoneville BXN 49 B	958	627	65.7	34.8
Deltapine DP 51	586	370	62.3	33.5
Deltapine DP 448 B	725	471	64.6	33.3
Deltapine DP 451 BR	836	528	63.0	32.6
Deltapine DP 555 BR	790	479	59.9	37.2
FiberMax FM 958	756	567	73.8	37.3
FiberMax FM 958 B	1227	988	80.9	38.8
Paymaster PM 1218 BG/RR	1055	803	75.9	37.9
Sure-Grow SG 215 BR	1020	778	76.2	36.3
Sure-Grow SG 501	678	455	66.7	36.3
Sure-Grow SG 501 BR	882	622	70.7	35.2
Stoneville 4892 BR	917	639	69.1	36.1
Mean:	860	603	69.0	35.8
Mean (sprayed and unsprayed):	876	611	68.4	35.7
CV (%)	13.7	19.5	10.1	
LSD (0.05)	149.7	149.5	8.7	

Planted 15 May 02. 'Sprayed' plots treated with Karate Z 2.5 oz/Acre on 14 Aug. Defoliant applied 24 Sep. Harvested 08 and 22 Oct. Trial manager: Marshall Smith. Tennessee Agricultural Experiment Station data of Lentz et al. (2002).

**Table 4-4.** Seed cotton yield and earliness of Bollgard II, Bollgard and a non-Bt variety at Milan TN, listed by yield rank.

Yield Rank	Variety	Seed Cotton Yield			First Harvest %
		Total lb/A	1 <sup>st</sup> Harv. lb/A	2 <sup>nd</sup> Harv. lb/A	
1	SG 125 BR	2789	2047	742	73.1
2	DPLX 01W97DR	2456	1722	734	70.1
3	SG 521R	2185	1608	577	73.4
	Mean:	2477	1792	684	72.2
	CV (%)	9.4	11.2	11.9	4.3
	LSD (0.05)	340.9	293.6	118.9	4.5

Planted 07 May 02. Defoliant applied 09 Sep. Harvested 18 Sep and 9 Oct. Trial manager: Don Gibson. Tennessee Agricultural Experiment Station data of Lentz et al (2002).

**Table 4-5.** Seed Cotton yield and earliness of Bollgard II, Bollgard and a non-Bt variety at Ames Plantation TN, listed by yield rank.

Yield Rank	Variety	Seed Cotton Yield			First Harvest %
		Total lb/A	1 <sup>st</sup> Harv. lb/A	2 <sup>nd</sup> Harv. lb/A	
1	SG 125 BR	3005	1880	1125	62.6
2	DPLX 01W97DR	2970	1660	1310	55.6
3	SG 521 R	2716	1689	1027	62.2
	Mean:	2897	1743	1154	60.1
	CV (%)	6.4	5.5	15.7	7.5
	LSD (0.05)	416.6	217.7	409.7	10.2

Planted 15 May 02. Defoliant applied 30 Sep. Harvested 8 and 22 Oct. Trial manager: Marshall Smith. Tennessee Agricultural Experiment Station data of Lentz et al (2002).



## Chapter V. COUNTY STANDARD TEST DEMONSTRATIONS

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County standard tests of conventional and transgenic cotton varieties were conducted in West Tennessee in 2002. Conventional variety tests were planted in three locations with each location containing 9 or 10 varieties. Transgenic variety tests were planted in 11 locations with each location containing 9 varieties (5 Bollgard/Roundup Ready (BR) and 4 Roundup Ready (RR)). Two additional medium season Bollgard/Roundup Ready varieties were evaluated in two locations but were not used in multi-location comparisons. The Lauderdale and Obion county demonstrations were abandoned due to flooding. However, a substitute location was found in Lauderdale county and is presented here. 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 have been reported for each location. Varieties were defoliated for a once over harvest and harvested once using spindle pickers. Seedcotton weights were determined using wheel scales. 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 2002. A classer's leaf grade of 4 was assigned to all varieties.

**Table 5-15** summarizes gin turnouts, lint yields, fiber quality and economic analysis for the 2002 county standard tests of conventional varieties. Yields and fiber quality varied with location in 2002. FM 966 was both the highest yielding and most profitable conventional variety when averaged across locations. Although varieties at individual locations may have been in the discount range for micronaire, only ST 474 and SG 747 had overall micronaire values in the discount range. All conventional varieties had fiber lengths, strengths and uniformities of at least base value. Lower loan values are representative of discounts from high micronaire values, while higher loan values reflect small strength and uniformity premiums.

**Table 5-16** summarizes gin turnouts, lint yields, fiber quality and economic analysis for the 2002 county standard tests of transgenic varieties. SG 215 BR was the highest yielding and most profitable variety in 2002 although it did not have the highest loan value. Micronaire values varied with location but only PM 1218 BR had an overall micronaire value in the discount range. Overall fiber lengths, strengths and uniformities were in the base range or higher. Stacked gene (BR) varieties performed better than RR varieties, possibly due to insect control strategies used for bollgard varieties. Loan values reflect the small premiums for strength and uniformity and the potential for discounts due to high micronaire.

**Table 5-1.** Results of the 2002 county standard test of transgenic varieties in Chester Co.

Rank	Variety	Lint		Mic.	Length	Strength	Uni-formity	HVI Trash	HVI		+b	Net Loan Value	Gross Profit
		GTO	Yield						Color	Rd			
		%	lb/a	in.		g/tex	%	%	%		¢/lb.	\$/A	
1	SG 521 RR	36.3	505	48	1.09	28.6	82	0.4	41-4	72	8.2	52.95	267
2	PM 1199 RR	39.5	488	39	1.12	30.8	81	0.2	31-1	77	8.4	54.55	266
3	ST 4892 BR	37.6	464	49	1.12	30.7	82	0.4	41-1	73	8.2	53.80	250
4	DPL 451 BR	33.4	464	48	1.15	30.6	82	0.4	41-2	74	7.5	53.75	249
5	ST 4793 RR	35.7	450	48	1.11	31.0	82	0.4	41-1	73	8.2	53.75	242
6	SG 501 BR	35.7	441	49	1.10	30.6	83	0.4	41-1	74	7.8	53.80	237
7	PM 1218 BR	38.8	329	52	1.07	29.2	81	0.4	41-1	74	8.1	47.80	157
Mean		36.7	449	48	1.11	30.2	82	0.37	74		8.1	52.91	238

County: Chester

Soil Type: Providence silt loam

Agent: Tommy Patterson

Tillage: No-Till

Producer: Tommy and Tim Colbert

Previous Crop: Cotton

Planting Date: 5/17/02

Fertilizer: 80-60-60

Harvest Date: 11/21/02

Row Spacing: 38" solid

**Comments**

DPL 436 RR was harvested but is not presented here due to a malfunction during ginning. SG 215 BR was included in the test but is not presented here due problems encountered during harvest.

**Table 5-2.** Results of the 2002 county standard test of transgenic varieties in Crockett Co.

Rank	Variety	Lint		Mic.	Length	Strength	Uni-formity	HVI Trash	HVI		+b	Net Loan Value	Gross Profit
		GTO	Yield						Color	Rd			
		%	lb/a	in.		g/tex	%	%	%		¢/lb.	\$/A	
1	ST 4793 RR	40.6	687	54	1.02	29.9	81	0.6	32-2	73	9.5	42.90	295
2	ST 4892 BR	38.7	670	53	1.04	30.4	82	0.5	32-2	74	9.4	42.90	287
3	DPL 451 BR	34.9	623	49	1.10	29.7	82	0.4	31-4	75	8.8	53.90	336
4	DPL 436 RR	35.9	621	51	1.14	30.4	82	0.3	31-1	77	8.9	50.30	312
5	SG 215 BR	40.4	619	53	1.04	27.1	82	0.2	31-3	75	9.2	44.00	272
6	SG 521 RR	38.2	585	52	1.04	30.4	83	0.8	32-2	74	9.4	44.75	262
7	PM 1199 RR	38.4	537	54	1.08	33.0	81	0.4	32-2	74	9.3	46.55	250
8	PM 1218 BR	39.4	531	53	1.07	29.4	82	0.3	32-1	76	9.7	44.80	238
9	SG 501 BR	35.9	530	52	1.06	30.8	82	0.3	32-2	74	9.5	47.00	249
Mean		38.0	600	52	1.07	30.1	82	0.42	75		9.3	46.34	278

County: Crockett

Soil Type: Grenada silt loam

Agent: Richard Buntin

Tillage: No-Till

Producer: Dwayne Dove

Previous Crop: Cotton

Planting Date: 4/26/02

Fertilizer: 90-60-110-10(S)-0.5(B) at planting

Harvest Date: 9/18/02

Row Spacing: 38" solid

**Table 5-3.** Results of the 2002 county standard test of conventional varieties in Crockett Co.

Rank	Variety	GTO	Lint		Length	Strength	Uni- formity	HVI Trash	HVI Color	Rd	+b	Net	
			Yield	Mic.								Loan Value	Gross Profit
		%	lb/a		in.	g/tex	%	%	%			¢/lb.	\$/A
1	ST 474	40.9	965	54	1.10	30.9	82	0.4	41-4	71	8.1	48.00	463
2	DPL 565	41.3	897	51	1.16	31.4	83	0.2	41-1	76	7.6	50.10	449
3	DPL 491	40.6	829	47	1.20	32.6	83	0.3	41-1	75	7.8	54.20	449
4	FM 966	38.0	749	48	1.16	34.8	82	0.9	41-1	75	8.1	53.95	404
5	SG 747	40.3	746	51	1.13	28.8	83	0.4	41-4	72	8.2	49.45	369
6	PSC 355	38.8	743	52	1.12	31.7	83	0.7	41-2	72	7.7	50.05	372
7	SG 105	39.1	731	51	1.15	31.0	83	0.4	41-1	74	7.8	50.10	366
8	DeltaPearl	40.8	714	51	1.14	31.9	82	0.4	41-1	76	7.2	49.85	356
9	FM 958	39.0	693	49	1.16	33.5	82	0.4	41-1	74	8.0	53.95	374
10	PSC PH98M-2983	40.9	688	52	1.10	31.1	82	0.3	41-2	73	7.9	49.60	341
Mean		40.0	776	51	1.14	31.8	83	0.44		74	7.8	50.93	394
County: Crockett							Soil Type: Adler silt loam						
Agent: Richard Buntin							Tillage: No-Till						
Producer: Dwayne Dove							Previous Crop: Cotton						
Planting Date: 5/8/02							Fertilizer: No fertilization occurred						
Harvest Date: 10/16/02							Row Spacing: 38" solid						

**Table 5-4.** Results of the 2002 county standard test of transgenic varieties in Dyer Co.

Rank	Variety	GTO	Lint		Length	Strength	Uni- formity	HVI Trash	HVI Color	Rd	+b	Net	
			Yield	Mic.								Loan Value	Gross Profit
		%	lb/a		in.	g/tex	%	%	%			¢/lb.	\$/A
1	ST 4892 BR	40.8	1186	49	1.10	31.1	82	0.4	41-3	73	8.7	53.55	635
2	SG 215 BR	38.5	1175	49	1.08	28.8	82	0.3	31-4	75	8.7	53.55	629
3	SG 501 BR	38.3	1132	50	1.11	32.4	83	0.3	41-1	74	8.3	50.05	567
4	DPL 451 BR	36.0	1120	48	1.13	28.9	82	0.4	41-1	76	8.0	53.15	595
5	PM 1218 BR	39.1	1099	51	1.08	29.7	82	0.3	41-3	74	8.6	49.35	542
6	ST 4793 RR	39.0	1086	48	1.10	29.7	83	0.4	41-3	73	8.9	53.55	582
7	SG 521 RR	38.5	998	48	1.11	29.9	82	0.4	41-1	74	8.3	53.50	534
8	PM 1199 RR	37.7	941	50	1.12	31.6	83	0.5	41-3	74	8.7	50.05	471
9	DPL 436 RR	33.2	854	48	1.13	29.7	82	0.3	41-1	75	8.0	53.50	457
Mean		37.9	1066	49	1.11	30.2	82	0.37		74	8.5	52.25	557
County: Dyer							Soil Type: Falaya/Waverly/Dekoven silt loam						
Agent: Tim Campbell, Gene Miles							Tillage: No-Till						
Producer: Glen and Thomas Davis							Previous Crop: Corn						
Planting Date: 4/29/02							Fertilizer: 100-37-92-15(S)-1(B) at planting						
Harvest Date: 10/17/02							Row Spacing: 38" solid						

**Table 5-5.** Results of the 2002 county standard test of conventional varieties in Dyer Co.

Rank	Variety	GTO	Lint		Mic.	Length	Strength	Uni- formity	HVI Trash	HVI Color	Rd	+b	Net	Gross Profit
			%	lb/a									Loan Value	
1	FM 966	39.0	1161	46	1.18	34.3	84	0.5	41-1	74	8.0	54.30	630	
2	ST 474	38.9	1026	48	1.11	30.0	82	0.5	42-1	73	9.1	49.95	512	
3	SG 105	36.2	1000	45	1.18	31.8	83	0.5	41-1	75	8.3	54.05	541	
4	SG 747	37.4	969	50	1.14	27.9	82	0.4	42-1	71	9.1	45.65	442	
5	PSC 355	35.1	968	49	1.16	31.5	83	0.7	41-3	72	8.6	54.05	523	
6	DPL 491	38.1	945	47	1.15	31.1	83	0.6	41-1	74	8.3	54.05	511	
7	DeltaPearl	36.1	935	45	1.20	32.4	82	0.3	31-4	75	8.9	54.50	510	
8	FM 958	37.7	894	48	1.16	33.8	82	0.3	31-2	76	8.3	54.65	489	
9	DPL 565	36.5	889	44	1.16	32.6	81	0.4	41-1	76	8.0	53.95	480	
Mean		37.2	976	47	1.16	31.7	82	0.47		74	8.5	52.79	515	

County: Dyer

Agent: Tim Campbell, Gene Miles

Producer: Glen and Thomas Davis

Planting Date: 4/29/02

Harvest Date: 10/17/02

Soil Type: Falaya/Waverly/Dekoven silt loam

Tillage: No-Till

Previous Crop: Corn

Fertilizer: 100-37-92-15(S)-1(B) at planting

Row Spacing: 38" solid

**Table 5-6.** Results of the 2002 county standard test of transgenic varieties in Fayette Co.

Rank	Variety	GTO	Lint		Mic.	Length	Strength	Uni- formity	HVI Trash	HVI Color	Rd	+b	Net	Gross Profit
			%	lb/a									Loan Value	
1	SG 215 BR	38.1	1427	47	1.13	28.9	82	0.4	41-1	75	8.4	53.15	758	
2	PM 1218 BR	38.3	1315	51	1.09	29.9	82	0.4	41-3	74	8.5	49.35	649	
3	PM 1199 RR	35.9	1126	47	1.12	32.6	83	0.5	41-3	72	8.7	54.15	610	
4	ST 4892 BR	38.4	1125	47	1.12	29.8	83	0.5	31-4	75	8.7	54.40	612	
5	SG 521 RR	38.7	1121	46	1.12	29.4	83	0.4	41-1	75	8.5	53.40	599	
6	DPL 436 RR	33.9	1098	45	1.17	29.7	83	0.3	41-1	76	8.0	53.80	591	
7	DPL 451 BR	37.4	1049	46	1.16	29.6	82	0.4	41-1	76	7.7	53.55	562	
8	DPL 555 BR	40.3	1048	43	1.12	32.6	82	0.4	31-1	79	7.9	54.55	572	
9	ST 4793 RR	38.7	1044	46	1.09	30.3	82	0.6	41-3	74	8.4	53.30	556	
10	FM 989 BR	36.2	1020	44	1.15	33.4	82	0.7	31-2	76	8.2	54.65	557	
11	SG 501 BR	37.2	1015	47	1.11	29.4	83	0.8	41-3	74	8.6	53.40	542	
Mean		37.5	1126	46	1.13	30.5	82	0.49		75	8.3	53.43	601	

County: Fayette

Agent: Craig Massey

Producer: McNabb Brothers Farms

Planting Date: 4/25/02

Harvest Date: 10/1/02

Soil Type: Memphis silt loam

Tillage: No-Till

Previous Crop: Cotton

Fertilizer: 80-80-100 at planting

Row Spacing: 38" solid

**Table 5-7.** Results of the 2002 county standard test of transgenic varieties in Fayette Co.

Rank	Variety	GTO	Lint		Mic.	Length	Strength	Uni- formity	HVI Trash	HVI Color	Rd	+b	Net	Gross
			Yield										Loan	
		%	lb/a		in.	g/tex	%	%		%		¢/lb.	\$/A	
1	ST 4892 BR	40.2	757	48	1.05	29.6	81	0.3	41-3	73	8.8	52.10	394	
2	SG 501 BR	38.7	741	47	1.03	30.3	82	0.3	41-3	73	8.8	49.35	366	
3	PM 1199 RR	39.5	722	47	1.07	30.0	82	0.2	42-1	72	8.8	49.20	355	
4	SG 215 BR	39.0	719	46	1.05	28.7	82	0.3	42-1	73	9.1	48.85	351	
5	ST 4793 RR	39.8	686	48	1.04	29.1	82	0.3	42-1	70	9.5	47.25	324	
6	DPL 436 RR	36.1	674	46	1.10	27.9	82	0.3	41-1	74	8.1	52.95	357	
7	SG 521 RR	38.1	652	44	1.04	29.8	81	0.4	41-3	73	8.8	49.35	322	
8	PM 1218 BR	40.4	648	50	1.06	30.5	81	0.3	41-3	73	8.8	48.40	314	
9	DPL 451 BR	36.3	639	46	1.10	27.3	81	0.4	41-1	75	8.4	52.95	338	
Mean		38.7	693	47	1.06	29.2	82	0.31		73	8.8	50.04	347	

County: Fayette  
Agent: Jamie Jenkins  
Producer: Alex Armour  
Planting Date: 5/7/02  
Harvest Date: 9/30/02

Soil Type: Collins silt loam  
Tillage: No-Till  
Previous Crop: Cotton  
Fertilizer: 65-30-60 at planting  
Row Spacing: 38" solid

**Table 5-8.** Results of the 2002 county standard test of conventional varieties in Gibson Co.

Rank	Variety	GTO	Lint		Mic.	Length	Strength	Uni- formity	HVI Trash	HVI Color	Rd	+b	Net	Gross
			Yield										Loan	
		%	lb/a		in.	g/tex	%	%		%		¢/lb.	\$/A	
1	FM 966	37.8	1215	46	1.18	37.5	83	0.4	31-1	80	7.9	54.90	667	
2	DeltaPearl	37.1	1130	48	1.16	33.0	82	0.3	31-1	80	7.1	54.65	618	
3	SG 105	35.8	1115	50	1.15	32.2	82	0.4	31-1	78	8.4	50.55	564	
4	DPL 565	34.9	1094	45	1.16	30.8	83	0.3	31-1	78	8.0	54.75	599	
5	SG 747	36.6	966	48	1.16	29.5	83	0.4	31-1	77	8.8	54.50	526	
6	ST 474	38.0	937	48	1.13	29.8	82	0.4	31-1	77	8.5	54.15	507	
7	PSC 355	36.3	914	52	1.10	31.6	83	0.6	41-1	75	8.3	49.85	456	
Mean		36.6	1053	48	1.15	32.1	83	0.4		78	8.1	53.34	562	

County: Gibson  
Agent: Philip Shelby  
Producer: Carlton Brothers Farms  
Planting Date: 5/16/02  
Harvest Date: 10/15/02

Soil Type: Routon/Center silt loam  
Tillage: No-Till  
Previous Crop: Cotton  
Fertilizer: 82-0-0 injected as anhydrous ammonia  
followed by 36-92-120 at planting  
Row Spacing: 38" solid

**Comments**

FM 958 and DPL 491 were entered in the test but data are not presented due to problems encountered during picking.

**Table 5-9.** Results of the 2002 county standard test of transgenic varieties in Hardeman Co.

Rank	Variety	Lint		Mic.	Length	Strength	Uni- formity	HVI Trash	HVI Color	Rd	+b	Net	Gross Profit	
		GTO	Yield									Loan Value		
		%	lb/a			g/tex	%	%			%	¢/lb.	\$/A	
1	PM 1218 BR	34.6	1357	45	1.10	28.5	82	0.5	42-1	72	8.9	49.55	672	
2	SG 215 BR	36.3	1253	50	1.08	27.9	83	0.6	42-1	72	9.3	45.85	575	
3	SG 501 BR	31.9	1252	46	1.09	28.6	82	0.5	43-4	65	11.2	44.75	560	
4	PM 1199 RR	36.8	1250	50	1.07	29.8	82	0.5	41-3	72	8.7	48.15	602	
5	ST 4892 BR	32.2	1216	47	1.07	27.4	82	0.4	43-1	69	10.2	44.55	542	
6	SG 521 RR	37.0	1208	49	1.08	29.4	82	0.4	42-2	70	9.1	49.55	599	
7	DPL 436 RR	34.1	1131	48	1.10	31.4	83	0.8	42-2	70	8.7	50.40	570	
8	ST 4793 RR	32.1	1105	45	1.15	29.3	82	0.7	41-3	72	8.5	53.20	588	
9	DPL 451 BR	29.8	1090	48	1.08	30.3	82	0.4	43-2	68	10.2	45.10	492	
Mean		33.9	1207	48	1.09	29.2	82	0.53			70	9.4	47.90	578

County: Hardeman

Agent: Bob Vickers, Craig Massey, Finis Stribling

Producer: Gem and George Mitchell

Planting Date: 4/30/02

Harvest Date: 10/8/02

Soil Type: Lexington silt loam

Tillage: No-Till

Previous Crop: Cotton

Fertilizer: 40-60-80 at planting, 50-0-0 sidedress

Row Spacing: 38"solid

**Table 5-10.** Results of the 2002 county standard test of transgenic varieties in Haywood Co.

Rank	Variety	Lint		Mic.	Length	Strength	Uni- formity	HVI Trash	HVI Color	Rd	+b	Net	Gross Profit	
		GTO	Yield									Loan Value		
		%	lb/a			g/tex	%	%			%	¢/lb.	\$/A	
1	FM 989 BR	35.7	885	48	1.09	33.3	81	0.8	42-1	72	9.0	50.30	445	
2	DPL 555 BR	38.6	846	46	1.10	30.2	80	0.3	31-2	76	8.7	53.90	456	
3	SG 501 BR	34.5	826	50	1.12	33.0	83	0.7	42-1	72	9.3	46.65	385	
4	SG 521 RR	36.2	799	49	1.08	30.7	83	0.6	42-1	73	9.1	50.40	403	
5	ST 4793 RR	36.8	794	49	1.09	29.6	82	0.5	42-2	69	9.4	49.90	396	
6	PM 1218 BR	36.2	775	51	1.06	28.8	81	0.6	42-1	71	9.5	44.90	348	
7	SG 215 BR	35.4	766	52	1.08	27.9	82	0.4	42-1	70	10.2	45.60	349	
8	ST 4892 BR	35.2	728	54	1.07	30.9	83	0.6	43-1	68	10.3	39.85	290	
9	DPL 436 RR	34.0	707	47	1.12	28.6	82	0.4	41-1	73	8.1	53.15	376	
10	DPL 451 BR	30.7	697	50	1.13	28.7	82	0.5	42-1	70	10.1	45.65	318	
11	PM 1199 RR	35.8	650	51	1.12	31.8	83	0.5	42-2	71	8.8	46.50	302	
Mean		35.4	770	50	1.10	30.3	82	0.54			71	9.3	47.89	370

County: Haywood

Agent: Tracey Sullivan

Producer: Gerald Woods, Jr.

Planting Date: 4/25/02

Harvest Date: 10/2/02

Soil Type: Collins silt loam

Tillage: No-Till

Previous Crop: Cotton

Fertilizer: 100-80-60 at planting

Row Spacing: 38"solid

**Table 5-11.** Results of the 2002 county standard test of transgenic varieties in Lake Co.

Rank	Variety	GTO	Lint		Mic.	Length	Strength	Uni- formity	HVI Trash	HVI Color	Rd	+b	Net Loan Value	Gross Profit
			%	lb/a										
1	SG 215 BR	38.0	1104	49	1.10	27.5	83	0.6	32-2	74	9.5	51.60	570	
2	ST 4793 RR	37.9	979	47	1.13	30.2	82	0.6	42-1	73	9.2	49.95	489	
3	DPL 451 BR	34.8	915	47	1.18	28.5	83	0.5	31-4	75	8.6	54.15	495	
4	SG 501 BR	35.6	904	47	1.14	30.0	84	0.4	41-3	74	8.8	53.90	487	
5	PM 1218 BR	37.4	887	52	1.10	29.8	82	0.5	42-1	73	9.1	45.95	408	
6	DPL 436 RR	34.8	849	47	1.14	28.9	82	0.7	41-1	74	8.1	53.20	452	
7	ST 4892 BR	37.2	843	46	1.15	30.6	83	0.9	41-3	73	8.9	54.05	456	
8	SG 521 RR	34.3	797	46	1.12	28.1	83	1.1	42-1	71	9.2	49.85	397	
9	PM 1199 RR	37.4	706	48	1.14	30.6	82	0.6	42-1	72	8.8	50.20	354	
Mean		36.4	887	48	1.13	29.4	83	0.66		73	8.9	51.43	456	

County: Lake

Agent: Greg Allen

Producer: Lindamood Planting Company

Planting Date: 4/22/02

Harvest Date: 9/25/02

Soil Type: Worthen silt loam

Tillage: No-Till

Previous Crop: Cotton

Fertilizer: 34-0-60-10(S)-0.1(B) at planting, 60-0-0

sidedress, 0.2 lb Foliar B., 9 lb. Foliar N

Row Spacing: 2 x 1 30" skip row

† Yields calculated per land acre basis.

**Table 5-12.** Results of the 2002 county standard test of transgenic varieties in Lauderdale Co.

Rank	Variety	GTO	Lint		Mic.	Length	Strength	Uni- formity	HVI Trash	HVI color	Rd	+b	Net Loan Value	Gross Profit
			%	lb/a										
1	DPL 555 BR	39.3	1310	46	1.13	30.4	81	0.4	41-1	76	7.6	53.50	701	
2	PM 1218 BR	37.5	1245	51	1.10	28.4	83	0.5	41-1	75	8.4	49.25	613	
3	SG 215 BR	36.5	1193	49	1.08	27.1	82	0.3	31-2	76	8.4	53.55	639	
4	SG 501 BR	35.1	1183	50	1.10	31.8	82	0.5	31-2	76	8.2	50.20	594	
5	PM 1218 BR†	34.6	1116	41	1.08	29.4	82	0.3	41-1	75	8.2	53.10	593	
6	PM 1199 RR	36.1	1106	49	1.15	31.6	83	0.6	41-1	74	8.2	54.05	598	
7	SG 521 RR	36.1	1095	46	1.12	28.7	83	0.5	31-4	75	8.7	54.05	592	
8	DPL 451 BR	33.5	1094	40	1.10	29.5	81	0.6	41-1	74	8.0	53.45	585	
9	DPL 436 RR	33.9	1008	47	1.17	29.5	83	0.3	31-2	77	7.8	54.50	549	
Mean		35.8	1150	47	1.11	29.6	82	0.44		75	8.2	52.85	607	

County: Lauderdale

Agent: Jerry Parker

Producer: Larry Olds

Planting Date: 5/12/02

Harvest Date: 10/19/02

Soil Type: Grenada silt loam

Tillage: No-till

Previous Crop: Cotton

Fertilizer: 90-30-100-10(S) at planting

Row Spacing: 38" solid

† This plot of PM 1218 BR was defoliated at 20% open bolls. All other cotton was defoliated at 60% open bolls.

Comments

Special thanks to Tim Sumrow and Todd Rankin with Tipton Farmer's Co-op for helping obtain this location.

**Table 5-13.** Results of the 2002 county standard test of transgenic varieties in Madison Co.

Rank	Variety	Lint		Mic.	Length	Strength	Uni- formity	HVI Trash	HVI Color	Rd	+b	Net Loan Value	Gross Profit
		GTO	Yield										
1	SG 215 BR	38.3	1125	50	1.10	27.8	83	0.4	41-1	75	7.9	49.25	554
2	SG 501 BR	37.3	1081	50	1.12	30.3	83	0.3	41-1	75	7.9	49.80	538
3	ST 4892 BR	38.4	1025	52	1.11	30.0	82	0.6	41-3	73	8.3	49.55	508
4	PM 1218 BR	39.3	997	55	1.08	29.3	81	0.2	41-3	73	8.3	47.40	473
5	SG 521 RR	37.0	941	50	1.14	29.4	83	0.4	41-1	76	7.8	49.50	466
6	PM 1199 RR	37.7	893	52	1.14	32.2	84	0.4	41-1	74	7.9	50.20	448
7	DPL 451 BR	34.4	889	50	1.15	30.8	83	0.7	41-1	76	7.4	50.10	445
8	ST 4793 RR	38.7	840	52	1.09	31.3	83	0.5	41-1	75	8.1	49.85	419
9	DPL 436 RR	33.0	827	49	1.15	29.1	83	0.5	41-1	76	7.7	53.45	442
Mean		37.1	957	51	1.12	30.0	83	0.44		75	7.9	49.90	477

County: Madison  
Agent: Bill Wyatt  
Producer: Couch Brothers Farms  
Planting Date: 5/15/02  
Harvest Date: 11/12/02

Soil Type: Memphis/Grenada silt loam  
Tillage: No-Till  
Previous Crop: Cotton  
Fertilizer: 40-60-90 at planting, 45-0-0 sidedress  
Row Spacing: 38" solid

**Table 5-14.** Results of the 2002 county standard test of transgenic varieties in Tipton Co.

Rank	Variety	Lint		Mic.	Length	Strength	Uni- formity	HVI Trash	HVI Color	Rd	+b	Net Loan Value	Gross Profit
		GTO	Yield										
1	SG 215 BR	37.7	1295	49	1.08	27.7	82	0.3	31-4	75	8.7	53.55	693
2	DPL 451 BR	36.4	1234	49	1.12	28.6	82	0.3	41-1	76	7.6	53.15	656
3	PM 1218 BR	41.3	1190	52	1.08	29.9	82	0.2	41-1	75	8.3	49.35	587
4	SG 501 BR	35.2	1177	50	1.10	30.2	83	0.6	41-1	74	8.3	49.60	584
5	ST 4892 BR	39.2	1116	49	1.09	31.1	82	0.4	41-3	73	8.7	53.55	598
6	ST 4793 RR	38.1	1027	51	1.09	30.8	82	0.6	41-3	73	8.5	49.60	509
7	DPL 436 RR	35.6	1006	49	1.09	28.5	82	0.3	41-1	74	7.8	52.95	533
8	SG 521 RR	37.9	962	48	1.09	29.4	82	0.4	41-3	74	8.5	52.95	509
9	PM 1199 RR	37.6	911	50	1.13	32.5	83	0.4	41-3	73	8.4	50.20	457
Mean		37.7	1102	50	1.10	29.9	82	0.39		74	8.3	51.66	570

County: Tipton  
Agent: Michelle Rankin  
Producer: Troy Hopkins and Sons Farms  
Planting Date: 5/2/02  
Harvest Date: 10/8/02

Soil Type: Dubbs silt loam  
Tillage: Conventional tillage, bedded  
Previous Crop: Cotton  
Fertilizer: 80-0-80-8(S)-1(B)-2(Zn) at planting  
Row Spacing: 38" solid



**Table 5-15.** Lint yield, gin turnout and fiber quality in the county standard tests of conventional cotton varieties in Tennessee, 2002.

Rank	Variety	N	GTO	Lint		Mic.	Length	Strength	Uni- formity	HVI Trash	HVI Color	Rd	+b	Net Loan Value	Gross Profit
				%	lb/a										
1	FM 966	3	38.3	1042	47	1.17	35.5	83	0.6	41-1	76	8.0	54.38	567	
2	ST 474	3	39.3	976	50	1.11	30.2	82	0.4	41-3	74	8.6	50.70	495	
3	DPL 565	3	37.5	960	47	1.16	31.6	82	0.3	31-2	77	7.9	52.93	508	
4	SG 105	3	37.0	949	49	1.16	31.7	83	0.4	31-2	76	8.2	51.57	489	
5	DeltaPearl	3	38.0	926	48	1.17	32.4	82	0.3	31-2	77	7.7	53.00	491	
6	SG 747	3	38.1	894	50	1.14	28.7	83	0.4	41-3	73	8.7	49.87	446	
7	PSC 355	3	36.7	875	51	1.12	31.6	83	0.7	41-1	73	8.2	51.32	449	
Mean			37.8	946	49	1.1	31.7	83	0.4	41-1	75	8.2	51.97	492	
CV (%)			3.1	10.8	3.4	1.5	2.8	0.9	25.3		1.3	4.6	4.7	10.7	
LSD (0.05)			NS	NS	3.0	0.03	1.6	NS	0.2		2	NS	NS	NS	
Additional Entries (Not comparable to those above)															
	DPL 491	2	39.0	887	47	1.18	31.9	83	0.5	41-1	75	8.1	54.13	480	
	FM 958	1	38.0	693	48	1.16	33.7	82	0.4	41-1	75	8.2	53.95	374	
	PSC PH98M-2983	1	41.0	688	52	1.10	31.1	82	0.3	41-2	73	7.9	49.60	341	

**Table 5-16.** Lint yield, gin turnout and fiber quality in the county standard tests of transgenic cotton varieties in Tennessee, 2002.

Rank	Variety	N	GTO	Lint		Mic.	Length	Strength	Uni- formity	HVI Trash	HVI Color	Rd	+b	Net Loan Value	Gross Profit
				%	lb/a										
1	SG 215 BR	10	37.8	1068	49	1.08	27.9	82	0.4	41-3	74	8.9	50.93	544	
2	PM 1218 BR	11	38.4	943	51	1.08	29.4	82	0.4	41-3	74	8.8	47.83	451	
3	SG 501 BR	11	35.9	935	49	1.10	30.7	83	0.5	41-3	73	8.8	49.86	466	
4	ST 4892 BR	10	37.8	913	49	1.09	30.2	82	0.5	42-1	72	9.0	49.83	455	
5	DPL 451 BR	11	34.3	892	47	1.13	29.3	82	0.5	41-3	74	8.4	51.72	461	
6	DPL 436 RR	10	34.5	878	48	1.13	29.4	82	0.4	41-1	75	8.1	52.82	464	
7	SG 521 RR	11	37.1	878	48	1.09	29.4	83	0.5	41-3	73	8.7	50.93	447	
8	ST 4793 RR	10	37.3	870	49	1.09	30.1	82	0.5	41-3	73	8.8	50.33	438	
9	PM 1199 RR	11	37.5	848	49	1.11	31.5	83	0.4	41-3	73	8.6	50.35	427	
Mean			36.7	914	49	1.10	29.8	82	0.5	41-3	73	8.7	50.51	461	
CV (%)			3.4	8.8	3.8	2.3	3.2	0.8	30.2		1.9	4.7	4.6	17.0	
LSD (0.05)			1.1	70	1.6	0.02	0.8	0.5	NS		1.2	0.4	2.0	NS	
Additional Entries (Not comparable to those above)															
	DPL 555 BR	3	39.4	1068	45	1.12	31.1	81	0.4	31-2	77	8.1	53.98	577	
	FM 989 BR	2	36.0	953	46	1.12	33.4	82	0.8	41-3	74	8.6	52.48	500	

## GLOSSARY OF TERMS

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

**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.

**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.

**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)

**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.

**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).

**PVT:** Preliminary variety trial. A replicated small-plot test designed to screen new entries and experimental strains in the University of Tennessee cotton variety testing program.

**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.

**Stability variance:** A measure of varietal yield stability that shows the contribution of a variety to the total genotype-by-environment (GxE) interaction in a set of field trials. A variety with low stability variance contributes relatively little to this interaction, and is thus considered relatively stable. Abbreviated  $\sigma^2_{GE}$ .

**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

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