

Tennessee Cotton Variety Trial Results | 2019

Tyson B. Raper, Cotton and Small Grains Specialist
Department of Plant Sciences

Contributing Authors

Ryan H. Blair	Extension Area Specialist	UT Extension
Dalton McCurley	Research Specialist	Department of Plant Sciences
Cheyenne Williams	Research Specialist	Department of Plant Sciences
Freeman Brown	Extension Assistant	UT Extension
Philip W. Shelby	Ext Agent III, Gibson Co	UT Extension
Jake Mallard	Extension Agent III, Madison Co	UT Extension
Lindsay Stephenson	Extension Agent II, Haywood Co	UT Extension
Savana Denton	PhD Student	Department of Plant Sciences

February 2020

Department of Plant Sciences
UT Extension
UT AgResearch
The University of Tennessee Knoxville,
Tennessee

This report is also available online at:
<http://www.news.UTcrops.com>
and
<http://search.UTcrops.com>

Introduction



The University of Tennessee Cotton Agronomy Program provides an unbiased evaluation of experimental and commercial varieties available for production in Tennessee each year. The 2019 program consisted of two types of trials: the Official Variety Trials (OVTs) and the County Standard Trials (CSTs). The OVTs are small plot, replicated variety trials composed of experimental and commercial varieties. The CSTs are large plot variety strip trials located throughout the Western and Central regions of Tennessee and are only composed of major commercial cultivars. Five OVTs, 9 XtendFlex CSTs and 5 Enlist, GlyTol/LibertyLink and XtendFlex CSTs were conducted during the 2019 season. Subsequently, the CST data has been summarized in two separate tables. One set includes all 18 varieties (XF, GL and FE) and the second set includes 14 XF varieties.

This publication is intended to help cotton producers identify varieties that are high yielding, are stable in yield performance across years, and produce high quality fiber; therein, included information should provide those in the seed industry, crop consultants, and the UT Extension service insight into varietal adaptation of all tested varieties to Tennessee field environments.

General Procedures

Official Variety Trials

Five OVTs were planted in the 2019 growing season. These included three locations on University of Tennessee Research and Education Centers and two locations on producer farms. Seed of commercial cultivars and experimental lines was provided by respective companies. In all, 48 varieties were evaluated. Each variety was randomly assigned to four plots at each location and each plot was arranged in a randomized complete block design. Individual plots consisted of two 30 ft rows. Soil samples were collected prior to planting and fertilizer and lime were applied according to test results and UT recommendations.

Weed and pest control measures were uniformly applied to all plots per UT-recommendations. Seed cotton was harvested from each plot by either a two row picker outfitted with an in-basket, catch-and-weigh system or a catch-system. Each plot was subsequently harvested and weighed. With the exception of the Milan location, a minimum of one plot per location was subsampled for turnout and fiber quality. Subsamples from each location were then air-dried, bulked by varietal entry and weighed prior to ginning.

Large Plot Variety Trials

Nine CSTs were harvested in the 2019 growing season. Seed of commercial varieties was provided by each respective company. In all, 18 varieties were submitted. Each variety was planted in a single plot at each location and was maintained per the individual producer's production practices. Plot size ranged from two to eight rows wide and 125 to 2500 ft+ in length, depending on producer equipment and field size.

At harvest, plots were picked with the producer's equipment. If using a basket-style picker, weights were collected by catching harvested plots from the picker with a weighing boll buggy prior to dumping into the module builder. If using an on-board round module picker, modules were wrapped at the end of each plot and weighed on a set of transportable scales. Regardless of picker type, an 8-12 lb sub-sample was collected after the picked plot weight was determined. These samples were then air dried and weighed prior to ginning.

Ginning

Samples were ginned at the University of Tennessee Cotton MicroGin located at the West Tennessee Research and Education Center in Jackson, TN. This is a 20-saw gin equipped with a stick machine, incline cleaners, and two lint cleaners. No heat was applied at ginning. Lint yields on a per-plot basis were then calculated from gin turnouts and harvested plot areas. A subsample of lint from each ginned sample was submitted to the USDA Cotton Classing Office in Memphis, TN for HVI analysis.

Statistical analysis

For OVT locations, mean separation of fiber quality was calculated for the combined dataset including all analyzed locations by considering location as replication. Mean separation of OVT variety yield by location was calculated by a PROC MIXED model (JMP, SAS Institute, Inc., Cary, NC) considering replication to be random. Combined analysis was also calculated by a PROC GLM model, with location and replication nested in location. Mean separation of fiber quality and lint yield for the CST combined dataset was calculated by considering location as replication. This analysis was calculated by a PROC GLM model.

Seed Sources

Companies which participated in the 2019 University of Tennessee Cotton Variety Testing Program and their entry abbreviations are listed below:

- American Cotton Breeders, Inc. 5210 88th Street, Lubbock, TX 79424
 - Abbreviated as NG (NexGen) or AMX (experimental)
- BASF Corporation, 100 Park Ave, Florham Park, NJ 07932
 - Abbreviated as ST (Stoneville)
- Croplan Genetics, 8700 Trail Lake Dr., Suite 100, Memphis, TN 38125
 - Abbreviated as CP (Croplan)
- Crop Production Services, 3005 Rocky Mountain Ave., Loveland, CO 80538
 - Abbreviated as DG (DynaGro) or DGX (experimental)
- Bayer CropScience, P.O. Box 157, Scott, MS 38772
 - Abbreviated as DP (DeltaPine)
- Phytogen Seed Co., P.O. Box 27, Leland, MS 38756
 - Abbreviated as PHY (Phytogen) or PX (experimental)

Acknowledgements

The authors would like to extend a special thanks to Couch Farms, Keith Sullivan, Moore Farms, John Lindamood, Dr. Blake Brown, Director of Research and Education Center at Milan and Dr. Robert Hayes, Director of the West Tennessee Research and Education Center, and Dr. Rick Carlisle, Director of the Ames Plantation Research and Education Center for their assistance and cooperation in conducting large plot replicated trials and/or OVTs on their farms during 2019. We would also like to thank the numerous county extension agents and producers who conducted CSTs in 2019.

This program was partially funded by Cotton Incorporated State Support Project No. 15-917TN and Cotton Incorporated Core Project No. 15-929. Additionally, all entrant companies provided financial support to the TN Cotton Research Program during the 2019 season. Their contributions are vital to covering costs of conducting this research and are greatly appreciated. We also gratefully acknowledge donations of other inputs used in conducting this research from AMVAC Chemical, Bayer CropScience, Cannon Packing Company, Dow AgroSciences, DuPont, FMC Corp., Monsanto Co., Sanders Inc., Syngenta Crop Protection, Inc., and Valent USA Corp.

Finally, we would like to recognize the USDA-AMS Cotton Division Classing Office in Memphis, TN which provided the fiber quality data reported herein and all who were involved in plot establishment, maintenance and harvest. Thank you.

2019 Official Variety Trial Results



Table 1. 2019 Official Variety Trial details.

Location	Planting Date	Soil Type	Tillage	Fertility	Irrigation
Ames Plantation ¹	05/06/2019	Memphis Silt Loam	No-Till	80-var P&K	None
Gift	05/21/2019	Loring Silt Loam	No-Till	70-var P&K	None
MREC ²	05/23/2019	Collins Silt Loam	Raised Bed	80-0-90-10	None
Ridgely	04/30/2019	Reelfoot Silt Loam	No-Till	90- var P&K	None
WTREC ³	04/29/2019	Collins Silt Loam	Minimal-Till	107-40-90-12.5	None

¹Ames Plantation Research and Education Center, Grand Junction, TN

²Milan Research and Education Center, Milan, TN

³West Tennessee Research and Education Center, Jackson, TN.

Table OVT1. Average lint yield, turnout, and fiber quality of 48 entries in the 2019 Official Variety Trials conducted near Gift, Grand Junction, Jackson, Milan and Ridgely locations, listed by yield rank.

Yield Rank	Variety	Lint Yield (lb/ac)	Turnout (%)	Mic	Length (in.)	Strength (g/tex)	Unif (%)	Color	Leaf Grade
1	ST 4550GLTP	1572 a	40.9%	4.6	1.18	31.4	83.9	31	3
2	PX3D43W3FE	1537 ab	41.0%	4.6	1.16	32.7	83.8	41	3
3	DP 1725 B2XF	1506 abc	42.0%	4.7	1.18	30.2	82.9	41	4
4	PX5C05W3FE	1506 abc	43.1%	4.6	1.13	30.6	83.9	41	3
5	DP 1646 B2XF	1504 abc	40.1%	4.5	1.25	29.6	83.2	31	4
6	PHY 340 W3FE	1492 a-d	41.0%	4.7	1.18	30.7	83.9	41	5
7	CP 9608 B3XF	1489 a-e	42.5%	4.5	1.16	29.2	82.4	41	4
8	CP 9210 B3XF	1486 a-e	40.7%	5.0	1.19	31.4	84.1	41	3
9	ST 5471 GLTP	1472 b-f	39.5%	4.5	1.16	31.2	82.4	31	3
10	PX5C45W3FE	1466 b-g	42.3%	4.5	1.15	31.7	83.4	41	4
11	PX3D32W3FE	1462 b-h	38.8%	4.3	1.23	32.2	84.1	31	4
12	PHY 360 W3FE	1458 b-i	38.9%	4.3	1.18	30.6	82.5	51	4
13	PHY 350 W3FE	1452 b-j	38.5%	4.6	1.19	32.1	83.9	41	3
14	CP 9178 B3XF	1446 b-k	41.3%	4.6	1.18	33.0	84.4	41	3
15	DP 1518 B2XF	1445 b-k	38.5%	4.2	1.17	29.2	83.6	41	5
16	PHY 400 W3FE	1436 c-l	40.7%	4.4	1.18	33.7	83.1	31	4
17	DP 1916 B3XF	1427 c-m	40.8%	4.5	1.20	32.3	84.7	41	3
18	PHY 500 W3FE	1425 c-m	40.2%	4.2	1.16	32.5	83.7	41	4
19	DG 3385 B2XF	1424 c-m	38.9%	4.7	1.18	29.9	85.0	31	3
20	NG 3729 B2XF	1421 c-m	38.6%	4.8	1.23	30.1	84.2	41	4
21	DGX 18507-C B3XF	1407 d-n	41.0%	4.8	1.15	29.6	82.9	31	3
22	NG 5007 B2XF	1398 e-n	39.7%	4.6	1.17	28.6	82.5	41	3
23	DG 3570 B3XF	1392 f-n	41.0%	5.1	1.17	30.1	84.8	41	3
24	NG 4936 B3XF	1391 f-n	38.4%	4.6	1.24	30.1	85.0	41	3
25	DG 3317 B3XF	1388 f-o	40.0%	4.8	1.15	30.4	84.2	41	4
26	AMX 19A005 B3XF	1379 g-o	41.1%	4.5	1.17	29.2	83.3	31	3
27	NG 4098 B3XF	1375 g-o	38.4%	4.6	1.25	34.0	84.0	41	5
28	NG 3994 B3XF	1374 g-o	39.8%	4.9	1.19	30.7	82.8	41	4
29	DP 1835 B3XF	1373 h-o	41.8%	4.7	1.18	30.7	82.9	41	4
30	DG 3526 B2XF	1371 h-o	40.5%	4.8	1.16	28.7	84.1	31	4
31	DP 1614 B2XF	1368 i-o	41.1%	4.9	1.20	30.0	84.6	41	4
32	PHY 580 W3FE	1361 j-p	40.8%	4.5	1.17	32.3	83.3	41	4
33	DG H959 B3XF	1360 j-p	37.6%	4.6	1.20	32.4	83.8	41	4
34	PHY 480 W3FE	1356 k-p	39.5%	4.4	1.17	31.3	84.9	41	4
35	AMX 1828 B3XF	1347 l-q	38.5%	4.8	1.21	32.8	84.1	41	4
36	PX5E28W3FE	1335 m-q	38.2%	4.0	1.19	32.1	83.3	41	4
37	DG 3470 B3XF	1327 n-r	39.7%	5.0	1.17	31.0	84.5	31	3
38	DG H929 B3XF	1327 n-r	36.9%	4.3	1.17	32.3	84.2	41	5
39	DG 3427 B3XF	1325 n-s	39.9%	4.6	1.18	30.4	81.8	41	4
40	ST 5600 B2XF	1322 n-s	39.7%	5.1	1.19	31.6	84.5	41	4
41	NG 3522 B2XF	1298 o-s	38.3%	4.5	1.14	28.0	82.8	41	3
42	NG 3930 B3XF	1275 p-t	38.1%	4.5	1.20	30.3	83.5	31	4
43	PX5E34W3FE	1269 p-t	36.8%	4.0	1.19	32.1	83.9	41	4
44	DG 3421 B3XF	1269 p-t	39.4%	4.5	1.19	30.0	84.0	31	4
45	DP 1820 B3XF	1263 q-t	39.7%	4.7	1.25	33.5	83.3	31	4
46	AMX 1818 B3XF	1238 rst	38.3%	4.6	1.22	32.7	85.2	41	4
47	ST 5707 B2XF	1233 st	35.1%	4.8	1.21	35.0	84.4	41	5
48	AMX 1816 B3XF	1199 t	35.6%	4.0	1.22	31.1	83.2	41	4
Average		1391	39.6%	4.6	1.19	31.1	83.7	31	4
LSD (p<0.05)		65							
CV (%)		10.7							

‡Means followed by the same letter are not significantly different (p=0.05).

†Turnout calculated from ginning all four replicates of entire plot lengths from Ames Plantation and Lake Co locations. Tennessee AgResearch data of Raper et al. (2019).

Table OVT2. Average lint yield, turnout, and fiber quality of 48 entries in the 2019 Official Variety Trial conducted in Gift, TN listed by yield rank.

Yield Rank	Variety	Lint Yield (lb/ac)	Turnout (%)	Mic	Length (in.)	Strength (g/tex)	Unif (%)	Color	Leaf Grade
1	PX3D43W3FE	1503	42.6%	4.9	1.16	33.4	83.9	41	3
2	NG 4936 B3XF	1439	40.0%	4.7	1.22	30.7	86.3	41	4
3	PHY 350 W3FE	1396	38.3%	4.9	1.20	34.2	83.6	31	3
4	CP 9178 B3XF	1394	43.0%	4.8	1.15	31.8	85.9	31	3
5	PHY 400 W3FE	1393	41.9%	4.7	1.16	32.7	83.4	31	4
6	DP 1518 B2XF	1386	39.0%	4.0	1.18	29.3	85.1	41	5
7	CP 9608 B3XF	1384	44.0%	4.7	1.18	27.5	82.8	31	4
8	PHY 340 W3FE	1375	42.9%	4.9	1.18	31.3	85.3	41	5
9	CP 9210 B3XF	1368	41.4%	5.0	1.23	31.2	85.9	31	4
10	DP 1646 B2XF	1360	40.7%	4.6	1.27	29.9	84.0	31	4
11	PX3D32W3FE	1342	38.3%	4.5	1.26	31.5	84.1	31	4
12	DP 1725 B2XF	1342	43.2%	5.0	1.19	29.3	84.3	41	4
13	DGX 18507-C B3XF	1341	41.6%	4.8	1.15	28.9	83.7	31	3
14	DG 3470 B3XF	1310	41.4%	5.1	1.16	31.5	84.6	31	3
15	PX5C45W3FE	1305	44.1%	4.8	1.15	30.9	84.1	31	4
16	DG 3385 B2XF	1301	40.8%	5.1	1.18	31.1	86.8	31	3
17	ST 4550GLTP	1292	40.6%	4.8	1.15	31.9	84.6	31	3
18	PHY 480 W3FE	1283	39.8%	4.7	1.18	31.9	86.8	31	4
19	PHY 360 W3FE	1279	38.1%	4.4	1.17	31.9	83.1	41	5
20	PHY 500 W3FE	1258	41.7%	4.5	1.14	32.0	84.0	31	3
21	NG 5007 B2XF	1250	39.6%	4.6	1.16	29.2	83.3	31	3
22	NG 4098 B3XF	1250	39.3%	4.8	1.25	33.9	84.6	41	5
23	DG H929 B3XF	1245	38.5%	4.4	1.16	31.0	84.2	41	5
24	ST 5471 GLTP	1239	39.8%	4.8	1.16	30.2	83.3	31	3
25	NG 3729 B2XF	1235	39.6%	5.1	1.23	30.1	85.6	41	4
26	DP 1835 B3XF	1229	42.1%	4.9	1.20	31.7	84.3	31	4
27	NG 3522 B2XF	1220	40.0%	4.6	1.12	26.6	83.7	41	3
28	DG 3526 B2XF	1215	40.7%	5.0	1.16	28.6	85.5	31	4
29	AMX 1828 B3XF	1212	38.6%	4.9	1.20	33.2	84.8	31	4
30	AMX 19A005 B3XF	1209	41.6%	4.6	1.18	29.8	84.3	31	3
31	DP 1916 B3XF	1200	40.4%	4.6	1.24	33.5	86.3	31	4
32	PX5C05W3FE	1190	43.2%	4.9	1.16	30.8	86.2	31	3
33	DG 3570 B3XF	1181	42.0%	5.3	1.14	29.9	86.1	41	3
34	DG 3317 B3XF	1177	40.9%	4.9	1.14	30.6	85.5	41	4
35	AMX 1816 B3XF	1177	37.9%	4.1	1.23	32.9	83.9	31	4
36	PX5E28W3FE	1176	39.1%	4.1	1.22	31.9	85.6	41	4
37	DP 1614 B2XF	1150	38.8%	5.1	1.21	31.2	86.5	41	5
38	DG 3427 B3XF	1148	40.9%	4.6	1.20	31.3	82.3	31	4
39	NG 3994 B3XF	1142	40.4%	5.0	1.18	31.0	83.1	31	5
40	AMX 1818 B3XF	1140	38.3%	4.7	1.22	34.9	86.7	31	4
41	NG 3930 B3XF	1123	39.0%	4.5	1.23	29.5	84.8	31	4
42	DG H959 B3XF	1121	37.3%	4.7	1.21	31.3	84.7	41	4
43	DG 3421 B3XF	1097	40.1%	4.7	1.21	29.8	85.4	31	4
44	PX5E34W3FE	1083	35.6%	4.2	1.19	33.2	84.6	41	4
45	PHY 580 W3FE	1053	39.2%	4.7	1.21	35.1	85.4	41	5
46	DP 1820 B3XF	1024	39.2%	4.9	1.27	34.6	85.2	31	4
47	ST 5707 B2XF	950	35.2%	4.7	1.24	36.6	86.4	41	5
48	ST 5600 B2XF	853	39.2%	5.4	1.19	30.1	85.4	31	5
Average		1236	40.2%	4.7	1.19	31.4	84.8	31	4
LSD ($p < 0.05$)		110							
CV (%)		9.0							

Tennessee AgResearch data of Raper et al. (2019).

Table OVT3. Average lint yield, turnout, and fiber quality of 48 entries in the 2019 Official Variety Trial conducted at the Ames Plantation Research and Education Center near Grand Junction, TN listed by yield rank.

Yield Rank	Variety	Lint Yield (lb/ac)	Turnout (%)	Mic	Length (in.)	Strength (g/tex)	Unif (%)	Color	Leaf Grade
1	ST 4550GLTP	1914	40.0%	4.6	1.20	30.9	84.2	41	3
2	PX5C05W3FE	1874	44.9%	4.7	1.10	29.7	82.7	41	3
3	PX3D32W3FE	1800	39.9%	4.3	1.22	31.9	85.9	41	3
4	DP 1916 B3XF	1793	40.8%	4.3	1.18	29.8	84.4	41	3
5	PHY 350 W3FE	1770	39.1%	4.7	1.18	30.3	83.7	41	3
6	AMX 19A005 B3XF	1747	41.3%	4.6	1.15	27.2	83.5	41	4
7	PX5C45W3FE	1740	41.6%	4.5	1.16	32.6	83.9	41	4
8	PHY 340 W3FE	1720	38.5%	4.7	1.20	30.8	84.4	41	5
9	CP 9178 B3XF	1709	40.6%	4.5	1.19	31.9	84.2	41	3
10	DP 1725 B2XF	1702	40.7%	4.9	1.18	30.6	83.2	41	3
11	PHY 500 W3FE	1697	40.1%	4.2	1.18	32.1	84.0	41	4
12	DGX 18507-C B3XF	1689	41.4%	4.9	1.13	29.1	81.7	41	2
13	ST 5600 B2XF	1674	39.3%	5.0	1.20	31.4	86.0	41	3
14	PX3D43W3FE	1672	39.4%	4.5	1.16	31.4	84.1	41	3
15	NG 3994 B3XF	1666	38.2%	4.9	1.18	29.4	83.8	41	3
16	PHY 580 W3FE	1663	42.1%	4.6	1.15	30.8	82.2	41	3
17	NG 3729 B2XF	1651	39.1%	4.8	1.23	29.8	84.3	41	3
18	NG 5007 B2XF	1647	39.7%	4.5	1.15	29.7	82.1	41	2
19	CP 9210 B3XF	1634	40.5%	4.9	1.16	30.5	83.2	41	3
20	CP 9608 B3XF	1615	41.9%	4.4	1.15	27.6	82.2	41	4
21	PHY 360 W3FE	1615	40.6%	4.2	1.19	29.5	82.7	51	4
22	ST 5471 GLTP	1615	40.6%	4.5	1.14	30.4	82.0	41	3
23	DG 3470 B3XF	1613	39.5%	5.1	1.17	31.3	85.9	41	3
24	PHY 480 W3FE	1609	40.2%	4.4	1.14	29.9	83.8	41	4
25	DG 3570 B3XF	1608	40.4%	4.9	1.19	30.1	85.5	41	3
26	DP 1646 B2XF	1604	38.7%	4.5	1.26	27.6	84.2	41	4
27	PHY 400 W3FE	1585	40.8%	4.5	1.19	32.6	83.7	41	5
28	DG 3526 B2XF	1578	39.0%	4.9	1.14	27.6	84.4	41	3
29	DP 1614 B2XF	1577	42.3%	4.8	1.19	28.4	83.7	41	4
30	DG H959 B3XF	1544	36.9%	4.5	1.17	32.7	85.4	41	4
31	DG 3427 B3XF	1540	39.0%	4.6	1.17	28.2	81.8	41	4
32	NG 4936 B3XF	1535	38.2%	4.5	1.25	28.1	84.9	41	3
33	DG 3385 B2XF	1534	37.7%	4.7	1.22	29.4	86.1	41	3
34	NG 4098 B3XF	1528	37.8%	4.5	1.26	33.8	84.7	41	6
35	DG H929 B3XF	1511	35.3%	4.5	1.18	30.7	84.9	41	4
36	DP 1835 B3XF	1508	41.1%	4.8	1.18	28.3	82.6	41	3
37	PX5E28W3FE	1507	38.7%	4.2	1.15	30.9	81.0	41	3
38	DP 1518 B2XF	1490	38.4%	4.3	1.15	26.9	83.0	41	4
39	AMX 1818 B3XF	1473	38.1%	4.6	1.21	30.9	85.2	41	4
40	AMX 1828 B3XF	1458	36.0%	4.8	1.24	33.1	84.1	41	3
41	DG 3421 B3XF	1439	38.5%	4.5	1.22	29.2	84.8	41	3
42	NG 3930 B3XF	1423	38.3%	4.6	1.19	30.4	82.3	41	4
43	DG 3317 B3XF	1422	37.8%	4.6	1.16	30.9	83.7	41	4
44	PX5E34W3FE	1402	35.6%	4.0	1.20	31.1	84.1	41	4
45	NG 3522 B2XF	1401	36.2%	4.5	1.12	26.7	83.6	41	2
46	AMX 1816 B3XF	1388	35.3%	4.0	1.21	30.3	83.5	41	4
47	DP 1820 B3XF	1383	39.5%	4.8	1.26	33.6	84.1	41	5
48	ST 5707 B2XF	1380	33.2%	5.0	1.19	34.9	83.5	41	4
Average		1597	39.2%	4.6	1.18	30.3	83.8	31	4
LSD (p<0.05)		164							
CV (%)		10.4							

Tennessee AgResearch data of Raper et al. (2019).

Table OVT4. Average lint yield, turnout, and fiber quality of 48 entries in the 2019 Official Variety Trial conducted at the West Tennessee Research and Education Center in Jackson, TN listed by yield rank.

Yield Rank	Variety	Lint Yield (lb/ac)	Turnout (%)	Mic	Length (in.)	Strength (g/tex)	Unif (%)	Color	Leaf Grade
1	ST 4550GLTP	1545	41.8%	4.3	1.16	31.7	83.2	31	4
2	ST 5471 GLTP	1517	38.2%	4.1	1.16	33.6	81.2	31	4
3	DP 1725 B2XF	1481	42.6%	4.3	1.17	30.9	82.4	31	3
4	AMX 1828 B3XF	1407	40.1%	4.6	1.21	32.2	83.9	41	4
5	CP 9608 B3XF	1393	42.3%	4.3	1.16	30.5	82.1	31	4
6	DP 1835 B3XF	1386	42.4%	4.3	1.18	31.8	82.4	31	3
7	PHY 360 W3FE	1381	39.1%	4.2	1.17	30.2	81.6	41	4
8	DP 1646 B2XF	1376	41.4%	4.2	1.23	31.2	82.2	31	4
9	PHY 340 W3FE	1358	41.4%	4.2	1.17	31.4	82.9	41	5
10	DP 1518 B2XF	1354	38.5%	4.0	1.18	30.2	83.0	41	5
11	DP 1614 B2XF	1345	42.1%	4.7	1.20	30.0	83.9	42	5
12	DG 3570 B3XF	1343	40.1%	4.8	1.17	30.4	83.1	31	3
13	CP 9210 B3XF	1340	41.0%	4.9	1.20	32.7	83.5	31	3
14	DG 3317 B3XF	1333	40.4%	4.6	1.15	29.9	83.4	31	4
15	DG H959 B3XF	1332	37.9%	4.4	1.20	32.6	82.8	32	4
16	AMX 19A005 B3XF	1318	40.8%	4.3	1.17	30.3	83.5	31	3
17	NG 3994 B3XF	1305	40.9%	4.5	1.16	30.0	82.5	31	4
18	NG 4936 B3XF	1302	37.3%	4.3	1.22	31.2	83.9	31	3
19	DP 1916 B3XF	1300	39.9%	4.4	1.18	33.4	83.8	32	3
20	PHY 350 W3FE	1291	38.9%	4.1	1.19	31.9	83.7	31	4
21	DG 3385 B2XF	1287	38.6%	4.4	1.16	29.5	83.6	31	3
22	NG 3729 B2XF	1274	38.7%	4.5	1.20	31.2	83.3	41	4
23	DG 3526 B2XF	1273	40.6%	4.4	1.14	29.7	82.9	31	4
24	DP 1820 B3XF	1260	40.4%	4.6	1.22	32.4	82.4	31	4
25	NG 4098 B3XF	1255	37.7%	4.2	1.26	34.9	83.5	41	6
26	PHY 500 W3FE	1252	39.3%	3.9	1.17	33.6	83.3	31	5
27	DG H929 B3XF	1250	37.6%	4.2	1.15	33.0	83.3	41	4
28	CP 9178 B3XF	1248	40.5%	4.3	1.17	33.1	83.1	32	4
29	DGX 18507-C B3XF	1244	39.9%	4.4	1.17	30.4	83.0	31	3
30	PX5C45W3FE	1240	41.2%	4.2	1.16	32.8	82.8	41	4
31	PX5C05W3FE	1238	41.8%	4.0	1.14	30.9	83.6	41	5
32	NG 5007 B2XF	1227	39.2%	4.4	1.17	28.1	82.1	31	3
33	PX3D43W3FE	1225	39.9%	4.4	1.15	33.7	83.2	31	4
34	PX3D32W3FE	1216	38.2%	4.0	1.22	33.7	82.7	31	4
35	ST 5600 B2XF	1211	40.4%	4.8	1.17	32.7	82.8	31	4
36	PHY 400 W3FE	1207	40.3%	3.9	1.18	33.9	82.4	31	4
37	ST 5707 B2XF	1184	35.8%	4.5	1.20	35.0	84.6	42	5
38	DG 3421 B3XF	1162	38.8%	4.1	1.15	30.1	82.8	31	4
39	PHY 580 W3FE	1140	41.2%	4.1	1.18	32.2	83.5	31	5
40	PX5E28W3FE	1134	37.3%	3.5	1.16	32.3	82.3	31	4
41	DG 3427 B3XF	1133	40.2%	4.4	1.17	31.0	81.8	41	5
42	AMX 1818 B3XF	1125	38.5%	4.3	1.22	33.5	84.2	41	4
43	PX5E34W3FE	1108	37.5%	3.7	1.18	32.6	82.8	31	4
44	NG 3930 B3XF	1108	37.8%	4.0	1.18	30.6	83.1	31	4
45	DG 3470 B3XF	1097	39.6%	4.9	1.16	31.2	83.7	31	3
46	PHY 480 W3FE	1095	38.2%	3.9	1.17	31.3	83.7	31	4
47	NG 3522 B2XF	1078	38.4%	4.3	1.13	28.1	82.5	31	3
48	AMX 1816 B3XF	926	34.3%	4.0	1.22	31.8	83.3	31	4
Average		1263	39.6%	4.3	1.18	31.6	83.0	31	4
LSD ($p < 0.05$)		116							
CV (%)		9.3							

Tennessee AgResearch data of Raper et al. (2019).

Table OVT5. Average lint yield of 48 entries in the 2019 Milan Research and Education Center trial in Milan, TN, listed by yield rank.

Yield Rank	Variety	Lint Yield [†] (lb/ac)
1	DP 1646 B2XF	1523
2	PX5C05W3FE	1466
3	PX3D43W3FE	1461
4	ST 4550GLTP	1458
5	CP 9608 B3XF	1442
6	DG 3317 B3XF	1436
7	DG 3570 B3XF	1430
8	NG 3729 B2XF	1430
9	DP 1725 B2XF	1418
10	CP 9210 B3XF	1413
11	DG 3427 B3XF	1413
12	PHY 360 W3FE	1412
13	ST 5471 GLTP	1410
14	DP 1614 B2XF	1408
15	PX5C45W3FE	1395
16	DG 3385 B2XF	1383
17	NG 5007 B2XF	1380
18	CP 9178 B3XF	1378
19	PHY 340 W3FE	1368
20	DG 3526 B2XF	1367
21	NG 4098 B3XF	1360
22	PHY 580 W3FE	1356
23	DP 1518 B2XF	1353
24	ST 5600 B2XF	1347
25	PHY 400 W3FE	1341
26	PX3D32W3FE	1338
27	DG H929 B3XF	1335
28	DP 1835 B3XF	1331
29	NG 3930 B3XF	1329
30	DG H959 B3XF	1324
31	PHY 500 W3FE	1323
32	NG 4936 B3XF	1296
33	DP 1820 B3XF	1296
34	PHY 480 W3FE	1292
35	DGX 18507-C B3XF	1291
36	PX5E28W3FE	1283
37	NG 3522 B2XF	1274
38	AMX 1816 B3XF	1269
39	PHY 350 W3FE	1262
40	ST 5707 B2XF	1262
41	AMX 1828 B3XF	1258
42	AMX 1818 B3XF	1255
43	NG 3994 B3XF	1246
44	PX5E34W3FE	1220
45	DP 1916 B3XF	1211
46	AMX 19A005 B3XF	1204
47	DG 3470 B3XF	1175
48	DG 3421 B3XF	1174
Average		1342
LSD (p<0.05)		101
CV (%)		7.6

[†]Turnout calculated from the average of the Ames, Gift, Ridgely and Jackson locations. Tennessee AgResearch data of Raper et al. (2019).

Table OVT6. Average lint yield, turnout, and fiber quality of 48 entries in the 2019 Official Variety Trial conducted in Ridgely, TN listed by yield rank.

Yield Rank	Variety	Lint Yield (lb/ac)	Turnout (%) [†]	Mic [‡]	Length (in.)	Strength (g/tex)	Unif (%)	Color	Leaf Grade
1	PX3D43W3FE	1827	42.1%	4.8	1.16	32.4	84.0	41	4
2	PX5C05W3FE	1759	42.5%	4.8	1.14	30.8	83.0	41	3
3	CP 9210 B3XF	1675	39.9%	5.2	1.19	31.2	83.7	41	3
4	DP 1646 B2XF	1655	39.5%	4.6	1.25	29.9	82.3	41	4
5	PHY 400 W3FE	1653	39.6%	4.5	1.17	35.4	83.0	41	5
6	PX5C45W3FE	1650	42.3%	4.6	1.14	30.4	82.6	41	5
7	ST 4550GLTP	1650	41.1%	4.8	1.19	31.0	83.7	41	3
8	DP 1518 B2XF	1644	38.2%	4.6	1.19	30.6	83.3	41	4
9	PHY 340 W3FE	1639	41.0%	4.8	1.19	29.5	82.8	41	4
10	DP 1916 B3XF	1629	41.9%	4.9	1.19	32.5	84.2	41	3
11	DG 3385 B2XF	1614	38.5%	4.7	1.17	29.5	83.7	41	4
12	PX3D32W3FE	1612	38.7%	4.6	1.21	31.6	83.6	41	4
13	CP 9608 B3XF	1609	41.9%	4.6	1.17	31.0	82.5	41	5
14	PHY 360 W3FE	1603	38.0%	4.6	1.19	30.7	82.6	51	4
15	PHY 500 W3FE	1596	39.8%	4.3	1.17	32.3	83.7	41	5
16	PHY 580 W3FE	1594	40.6%	4.5	1.15	31.0	82.2	41	4
17	DP 1725 B2XF	1589	41.4%	4.7	1.19	29.9	81.8	41	4
18	ST 5471 GLTP	1579	39.5%	4.7	1.20	30.6	83.3	41	4
19	PX5E28W3FE	1575	37.8%	4.2	1.22	33.2	84.1	41	4
20	DG 3317 B3XF	1572	40.7%	5.1	1.17	30.3	84.1	41	4
21	PHY 350 W3FE	1539	37.7%	4.6	1.20	31.9	84.4	41	4
22	PX5E34W3FE	1531	38.4%	4.1	1.20	31.5	84.3	41	4
23	ST 5600 B2XF	1525	40.1%	5.0	1.21	32.4	83.7	41	4
24	NG 3729 B2XF	1518	37.2%	4.8	1.24	29.1	83.7	41	5
25	NG 3522 B2XF	1518	38.7%	4.6	1.19	30.6	81.3	41	3
26	NG 3994 B3XF	1513	39.6%	5.2	1.22	32.5	82.0	41	4
27	PHY 480 W3FE	1502	40.0%	4.6	1.21	32.0	85.2	41	4
28	CP 9178 B3XF	1499	40.9%	4.9	1.20	35.3	84.5	41	4
29	NG 5007 B2XF	1489	40.3%	4.8	1.18	27.3	82.5	41	3
30	NG 4098 B3XF	1481	38.9%	4.8	1.23	33.5	83.1	41	5
31	DG H959 B3XF	1480	38.2%	4.7	1.21	33.1	82.2	41	4
32	DGX 18507-C B3XF	1472	41.0%	4.9	1.16	30.1	83.2	41	3
33	DG 3421 B3XF	1472	40.2%	4.6	1.19	30.8	82.9	41	4
34	DG 3470 B3XF	1442	38.4%	5.0	1.20	29.9	83.8	31	3
35	DG 3526 B2XF	1425	41.6%	4.8	1.18	28.8	83.7	41	4
36	AMX 19A005 B3XF	1417	40.9%	4.7	1.17	29.6	82.1	41	3
37	DP 1835 B3XF	1411	41.4%	4.8	1.18	30.9	82.1	41	4
38	AMX 1828 B3XF	1402	39.2%	5.0	1.20	32.7	83.6	41	5
39	DG 3570 B3XF	1398	41.4%	5.2	1.18	30.0	84.3	41	2
40	NG 3930 B3XF	1394	37.4%	4.8	1.18	30.5	83.9	41	3
41	DG 3427 B3XF	1391	39.7%	4.7	1.17	31.1	81.2	41	5
42	ST 5707 B2XF	1390	36.2%	5.0	1.20	33.4	83.2	41	5
43	NG 4936 B3XF	1382	38.2%	4.8	1.25	30.5	85.0	41	3
44	DP 1614 B2XF	1362	41.0%	5.2	1.20	30.3	84.2	41	3
45	DP 1820 B3XF	1350	39.7%	4.7	1.23	33.6	81.5	41	4
46	DG H929 B3XF	1295	36.2%	4.1	1.19	34.4	84.6	41	5
47	AMX 1816 B3XF	1233	35.0%	3.9	1.22	29.6	82.3	41	5
48	AMX 1818 B3XF	1195	38.3%	4.7	1.23	31.5	84.6	41	3
Average		1516	39.6%	4.7	1.19	31.3	83.3	41	4
LSD (p<0.05)		170							
CV (%)		11.3							

Tennessee AgResearch data of Raper et al. (2019).

2019 County Standard Trial Results



Two summary tables have been constructed from the 2019 CST data. The first (Table CST1) includes all 18 entries (Enlist, GlyTol/LibertyLink and XtendFlex) across five locations. The second (Table CST2) includes the 14 XtendFlex entries in across eight locations. Due to poor stands, only 16 of the 18 Madison County entries have been reported in Table CST9 and the Madison County data was not included in either overall average table.

Table CST1. Average lint yield, gin turnout, fiber quality 18 Enlist, GlyTol/LibertyLink, and XtendFlex entries entered in the 2019 Tennessee County Standard Trial Program in five trial locations.

Yield Rank	Variety	Lint Yield (lb/ac)	Turnout (%)	Mic	Length (in.)	Strength (g/tex)	Unif. (%)	HVI Color	Leaf Grade
1	PHY 400 W3FE	1396 ^a	42.0%	4.2	1.17	32.5	83.1	41	4
2	DP 1646 B2XF	1391 ^a	40.2%	4.2	1.23	30.5	83.3	41	4
3	DP 1518 B2XF	1366 ^{ab}	39.0%	4.0	1.17	30.7	82.9	41	5
4	CP 9178 B3XF	1349 ^{abc}	40.4%	4.4	1.16	33.7	83.3	41	3
5	CP 9608 B3XF	1349 ^{abc}	41.9%	4.3	1.16	30.1	82.2	41	4
6	ST 5471 GLTP	1343 ^{abc}	40.0%	4.3	1.15	31.0	81.8	41	4
7	DG 3385 B2XF	1336 ^{abc}	40.2%	4.5	1.14	29.6	83.4	31	3
8	NG 4936 B3XF	1315 ^{a-d}	37.6%	4.3	1.22	31.6	84.5	41	3
9	ST 4550 GLTP	1311 ^{a-d}	41.4%	4.3	1.17	31.5	83.1	41	4
10	DP 1916 B3XF	1292 ^{a-d}	41.0%	4.4	1.18	33.5	83.2	41	4
11	NG 3729 B2XF	1263 ^{bcd}	39.7%	4.5	1.19	30.7	83.7	41	5
12	PHY 350 W3FE	1258 ^{bcd}	38.6%	4.4	1.18	31.8	83.1	41	4
13	DP 1725 B2XF	1258 ^{bcd}	41.4%	4.5	1.14	30.4	81.9	41	4
14	DG 3526 B2XF	1255 ^{bcd}	41.1%	4.4	1.12	29.2	83.0	41	4
15	ST 5600 B2XF	1235 ^{cd}	39.6%	4.7	1.18	32.1	83.2	41	4
16	NG 3994 B3XF	1202 ^d	40.2%	4.6	1.18	31.2	83.1	41	4
17	DP 1820 B3XF	1193 ^d	40.7%	4.4	1.18	33.1	83.2	41	4
18	DG 3317 B3XF	1192 ^d	40.8%	4.5	1.14	30.5	82.9	41	4
Mean		1295	40.3%	4.4	1.17	31.3	83.0	41	4
	LSD ($p \leq 0.05$)	88.6							
	CV (%)	7.6							

Mean and LSD values were calculated from 18 varieties planted and harvested in 5 independent 2019 Tennessee County Standard Trials. Locations included Gibson, Hardeman, first Haywood, Lincoln and first Tipton trials.

Table CST2. Average lint yield, gin turnout, and fiber quality of 14 XtendFlex entries calculated from eight locations of the 2019 Tennessee County Standard Trials.

Yield Rank	Variety	Lint Yield (lb/ac)	Turnout (%)	Mic	Length (in.)	Strength (g/tex)	Unif. (%)	HVI Color	Leaf Grade
1	DP 1646 B2XF	1443 a	39.8%	4.2	1.23	30.4	83.3	41	4
2	DP 1518 B2XF	1405 a	38.7%	4.0	1.16	31.1	82.6	41	5
3	DG 3385 B2XF	1385 a	39.5%	4.5	1.15	29.8	83.5	31	3
4	DP 1725 B2XF	1376 a	41.2%	4.4	1.15	30.8	81.8	41	4
5	CP 9608 B3XF	1358 a	41.5%	4.2	1.16	30.2	82.0	41	4
6	NG 3729 B2XF	1355 ab	39.4%	4.5	1.19	30.7	83.7	41	5
7	NG 4936 B3XF	1353 ab	37.4%	4.2	1.22	31.5	84.2	41	3
8	CP 9178 B3XF	1352 ab	40.1%	4.4	1.17	33.8	83.3	41	3
9	DG 3526 B2XF	1351 ab	40.6%	4.4	1.13	29.5	83.0	41	4
10	DP 1916 B3XF	1315 abc	40.7%	4.4	1.18	33.3	83.0	41	4
11	NG 3994 B3XF	1229 bc	40.2%	4.5	1.18	31.1	82.8	41	4
12	ST 5600 B2XF	1228 bc	39.1%	4.6	1.18	32.1	83.3	41	4
13	DP 1820 B3XF	1213 c	40.2%	4.3	1.19	33.6	83.0	41	4
14	DG 3317 B3XF	1205 c	40.3%	4.4	1.15	30.8	82.8	41	4
	Mean	1326	39.9%	4.4	1.17	31.4	83.0	41	4
	LSD ($p \leq 0.05$)	91							
	CV (%)	9.7							

Table CST3. Results from the 2019 Crockett County Standard Trial planted May 27th. Turnout calculated from average of other trials.

Yield Rank	Variety	Lint Yield (lb/ac)
1	DG 3526 B2XF	2020
2	DP 1725 B2XF	2005
3	DP 1646 B2XF	1940
4	DP 1518 B2XF	1870
5	NG 3729 B2XF	1837
6	NG 4936 B3XF	1783
7	CP 9178 B3XF	1645
8	DG 3385 B2XF	1623
9	DP 1916 B3XF	1559
10	CP 9608 B3XF	1450
11	ST 5600 B2XF	1444
12	DP 1820 B3XF	1368
13	DG 3317 B3XF	1364
14	NG 3994 B3XF	1270
Mean		1655

Table CST4. Results from the 2019 Gibson County Standard Trial planted May 21st.

Yield Rank	Variety	Lint Yield (lb/ac)	Turnout (%)	Mic	Length (in.)	Strength (g/tex)	Unif. (%)	HVI Color	Leaf Grade
1	PHY 400 W3FE	1796	42.8%	4.5	1.19	34.2	83.9	31	3
2	DP 1916 B3XF	1741	43.3%	4.7	1.17	33.2	84.6	41	4
3	DP 1518 B2XF	1682	38.3%	4.2	1.16	29.7	82.5	41	5
4	DP 1646 B2XF	1657	38.5%	4.3	1.26	30.8	83.9	31	4
5	CP 9608 B3XF	1638	42.5%	4.6	1.22	30.0	83.5	41	3
6	CP 9178 B3XF	1620	41.1%	4.8	1.15	33.1	82.7	41	3
7	ST 5471 GLTP	1612	39.3%	4.5	1.19	31.7	83.9	41	5
8	NG 4936 B3XF	1584	36.9%	4.3	1.24	32.2	85.3	31	3
9	NG 3729 B2XF	1553	38.7%	4.7	1.20	31.8	82.9	41	4
10	DP 1820 B3XF	1505	40.0%	4.5	1.24	34.8	83.6	31	4
11	NG 3994 B3XF	1499	41.7%	4.9	1.19	31.7	83.0	41	4
12	PHY 350 W3FE	1465	37.7%	4.5	1.19	32.8	84.0	31	4
13	DP 1725 B2XF	1460	40.6%	4.6	1.17	32.2	83.0	41	4
14	DG 3385 B2XF	1452	37.9%	4.9	1.15	29.6	84.6	31	3
15	DG 3526 B2XF	1450	42.0%	4.5	1.14	29.2	83.4	41	4
16	ST 4550 GLTP	1425	40.8%	4.5	1.17	33.8	84.5	41	5
17	ST 5600 B2XF	1385	38.8%	4.8	1.21	32.3	83.2	42	5
18	DG 3317 B3XF	1345	39.7%	4.6	1.16	31.6	83.1	41	5
Mean		1548	40.0%	4.6	1.19	31.9	83.6	41	4

Table CST5. Results from the 2019 Hardeman County Standard Trial planted May 8th.

Yield Rank	Variety	Lint Yield (lb/ac)	Turnout (%)	Mic	Length (in.)	Strength (g/tex)	Unif. (%)	HVI Color	Leaf Grade
1	CG 9608 B3XF	1505	41.3%	4.5	1.14	30.4	82.1	41	4
2	DP 1646 B2XF	1496	42.9%	4.4	1.19	30.2	82.7	41	3
3	DG 3385 B2XF	1433	43.9%	4.6	1.13	29.3	83.1	41	3
4	CG 9178 B3XF	1416	40.8%	4.3	1.13	32.7	82.8	41	2
5	ST 5600 B2XF	1382	41.2%	4.5	1.16	31.7	83.2	41	4
6	DP 1518 B2XF	1375	40.7%	4	1.16	29.8	82.6	41	5
7	PHY 350 W3FE	1374	39.6%	4.5	1.17	31.2	83.1	41	4
8	ST 5471 GLTP	1353	41.1%	4.3	1.12	29.8	81.3	41	3
9	PHY 400 W3FE	1326	44.0%	4.4	1.15	31	82.2	41	4
10	DG 3526 B2XF	1311	42.6%	4.5	1.1	29.4	83.9	41	4
11	NG 3994 B3XF	1310	42.2%	4.9	1.13	29.2	82.2	41	4
12	ST 4550 GLTP	1295	42.5%	4.3	1.21	27.3	79.9	41	4
13	NG 4936 B3XF	1288	38.3%	4.3	1.21	30.1	83.9	41	3
14	DG 3317 B3XF	1243	43.1%	4.7	1.12	28.3	82.0	41	4
15	DP 1820 B3XF	1229	42.5%	4.4	1.13	31.4	82.9	41	3
16	DP 1725 B2XF	1197	44.2%	4.7	1.1	27.5	80.7	41	3
17	DP 1916 B3XF	1189	41.3%	4.5	1.19	33.5	82.0	41	3
18	NG 3729 B2XF	1033	43.9%	4.5	1.17	32.3	84.1	41	5
Mean		1320	42.0%	4.5	1.15	30.3	82.5	41	4

Table CST6. Results from the first 2019 Haywood County Standard Trial planted May 17th.

Yield Rank	Variety	Lint Yield (lb/ac)	Turnout (%)	Mic	Length (in.)	Strength (g/tex)	Unif. (%)	HVI Color	Leaf Grade
1	DP 1646 B2XF	1395	39.8%	4.5	1.24	30.9	83.9	41	3
2	ST 5471 GLTP	1355	40.3%	4.6	1.14	31.0	81.5	31	3
3	ST 4550 GLTP	1334	41.1%	4.7	1.17	34.0	84.5	41	3
4	PHY 400 W3FE	1332	41.2%	4.5	1.17	32.2	84.1	41	4
5	CG 9608 B3XF	1299	42.1%	4.45	1.16	30.2	82.7	41	5
6	NG 4936 B3XF	1298	37.0%	4.6	1.20	32.4	85.3	41	3
7	DP 1518 B2XF	1292	39.4%	3.5	1.20	34.5	84.8	41	5
8	DG 3385 B2XF	1283	39.0%	4.6	1.16	32.9	84.3	31	3
9	NG 3729 B2XF	1265	38.5%	4.9	1.19	30.6	84.3	41	5
10	DP 1725 B2XF	1237	38.7%	4.7	1.17	32.1	83.3	41	3
11	CG 9178 B3XF	1164	38.6%	4.7	1.19	36.5	83.9	41	3
12	DG 3526 B2XF	1150	39.5%	4.6	1.13	30.1	83.4	41	3
13	PHY 350 W3FE	1124	38.0%	4.7	1.18	34.0	84.4	41	4
14	DG 3317 B3XF	1114	40.0%	4.9	1.15	31.3	83.7	41	4
15	DP 1820 B3XF	1088	39.9%	4.7	1.23	35.1	83.3	41	4
16	DP 1916 B3XF	1059	39.9%	4.6	1.19	36.0	84.2	41	4
17	ST 5600 B2XF	1053	38.8%	5.1	1.20	33.3	83.9	31	3
18	NG 3994 B3XF	948	37.3%	4.85	1.19	31.8	84.0	41	5
Mean		1211	39.4%	4.6	1.18	32.7	83.9	41	34

Table CST7. Results from the second 2019 Haywood County Standard Trial planted May 7th.

Yield Rank	Variety	Lint Yield (lb/ac)	Turnout (%)	Mic	Length (in.)	Strength (g/tex)	Unif. (%)	HVI Color	Leaf Grade
1	CG 9608 B3XF	1772	39.9%	4.2	1.18	29.2	83.0	31	5
2	DP 1725 B2XF	1663	40.0%	4.4	1.17	32.3	83.3	31	4
3	NG 3729 B2XF	1634	37.9%	4.4	1.20	30.1	83.4	41	6
4	DG 3385 B2XF	1630	35.5%	4.5	1.19	31.1	84.6	31	4
5	DP 1646 B2XF	1580	37.9%	4.1	1.25	29.4	84.9	31	5
6	NG 4936 B3XF	1545	36.3%	4.3	1.24	30.1	85.3	31	4
7	NG 3994 B3XF	1532	40.2%	4.8	1.18	30.0	83.1	41	5
8	DG 3317 B3XF	1440	37.9%	4.4	1.17	31.6	83.6	31	4
9	DP 1518 B2XF	1418	37.1%	4.2	1.11	35.3	82.2	31	4
10	ST 5600 B2XF	1382	36.7%	4.4	1.19	31.6	84.7	31	4
11	CG 9178 B3XF	1380	38.8%	4.3	1.18	34.4	84.4	31	4
12	DG 3526 B2XF	1352	37.9%	4.6	1.16	29.4	84.5	31	4
13	DP 1820 B3XF	1334	37.9%	4.2	1.21	36.6	84.5	31	3
14	DP 1916 B3XF	1310	39.4%	4.4	1.20	33.6	83.0	31	4
Mean		1498	38.1%	4.4	1.19	31.8	83.9	41	4

Table CST8. Results from the 2019 Lincoln County Standard Trial planted May 25th.

Yield Rank	Variety	Lint Yield (lb/ac)	Turnout (%)	Mic	Length (in.)	Strength (g/tex)	Unif. (%)	HVI Color	Leaf Grade
1	DG 3385 B2XF	1265	38.3%	3.6	1.12	28.1	80.9	31	3
2	DP 1518 B2XF	1212	39.3%	4.0	1.17	28.6	81.6	41	4
3	ST 4550 GLTP	1187	40.6%	3.6	1.15	31.5	83.2	41	3
4	NG 3729 B2XF	1183	38.0%	3.8	1.18	29.1	82.1	41	4
5	DG 3317 B3XF	1179	39.3%	3.8	1.14	31.0	82.0	31	4
6	ST 5471 GLTP	1140	39.1%	3.3	1.14	31.4	81.0	31	4
7	DP 1725 B2XF	1136	41.2%	3.9	1.15	30.4	81.7	41	4
8	PHY 400 W3FE	1118	38.4%	3.3	1.18	32.5	82.3	41	4
9	DG 3526 B2XF	1113	39.5%	3.9	1.15	29.3	81.5	31	3
10	PHY 350 W3FE	1111	37.5%	3.4	1.17	31.8	81.3	41	3
11	DP 1646 B2XF	1107	39.9%	3.5	1.25	30.8	82.8	31	4
12	CG 9608 B3XF	1091	40.3%	3.4	1.14	30.4	80.7	31	3
13	CG 9178 B3XF	1081	38.8%	3.6	1.18	33.4	82.9	41	3
14	NG 4936 B3XF	1049	36.0%	3.6	1.23	32.9	84.1	41	4
15	DP 1916 B3XF	1025	38.6%	3.7	1.20	32.7	80.8	41	4
16	ST 5600 B2XF	1016	38.2%	4.0	1.15	31.8	81.4	31	4
17	NG 3994 B3XF	969	39.5%	3.9	1.15	29.9	81.9	32	4
18	DP 1820 B3XF	918	37.5%	3.3	1.17	34.2	82.6	31	4
Mean		1105	38.9%	3.6	1.17	31.1	81.9	41	3.7

Table CST9. Results from the 2019 Madison County Standard Trial planted May 7th.

Yield Rank	Variety	Lint Yield (lb/ac)	Turnout (%)	Mic	Length (in.)	Strength (g/tex)	Unif. (%)	HVI Color	Leaf Grade
1	PHY 400 W3FE	1851	43.2%	4.3	1.15	33.1	83.0	31	3
2	CG 9608 B3XF	1718	41.7%	4.5	1.15	29.8	82.9	41	4
3	ST 5471 GLTP	1661	39.8%	4.3	1.15	31.6	82.0	31	2
4	PHY 350 W3FE	1619	37.9%	4.7	1.17	31.3	84.1	41	4
5	DG 3385 B2XF	1598	39.6%	4.8	1.11	29.6	84.3	31	3
6	ST 5600 B2XF	1563	39.7%	4.9	1.18	32.9	84.7	31	3
7	NG 4936 B3XF	1541	38.9%	4.4	1.21	32.2	83.4	41	3
8	DP 1518 B2XF	1536	38.1%	4.3	1.15	30.1	83.4	41	4
9	NG 3994 B3XF	1531	42.0%	4.9	1.15	30.3	83.5	41	4
10	DG 3526 B2XF	1524	40.1%	4.6	1.12	29.6	84.0	31	3
11	DP 1646 B2XF	1467	42.6%	4.6	1.21	31.6	83.3	31	3
12	DP 1820 B3XF	1459	40.6%	4.7	1.18	33.5	85.1	31	3
13	DG 3317 B3XF	1458	39.6%	4.7	1.14	32.0	83.6	41	2
14	DP 1916 B3XF	1453	39.6%	4.6	1.19	33.5	82.1	41	4
15	DP 1725 B2XF	1420	41.7%	4.7	1.15	30.8	81.3	31	3
16	ST 4550 GLTP	1420	41.8%	4.6	1.17	33.0	82.5	31	3
Mean		1551	40.4%	4.6	1.16	31.6	83.3	41	3.2

Table CST10. Results from the first 2019 Tipton County Standard Trial planted May 14th.

Yield Rank	Variety	Lint Yield (lb/ac)	Turnout (%)	Mic	Length (in.)	Strength (g/tex)	Unif. (%)	HVI Color	Leaf Grade
1	CG 9178 B3XF	1464	42.5%	4.8	1.16	32.9	84.4	41	4
2	DP 1916 B3XF	1446	41.7%	4.5	1.17	31.9	84.2	41	4
3	PHY 400 W3FE	1406	43.7%	4.4	1.18	32.4	82.8	51	4
4	NG 4936 B3XF	1357	39.7%	4.5	1.20	30.3	84.0	41	3
5	ST 5600 B2XF	1337	40.8%	4.9	1.19	31.2	84.3	51	5
6	ST 4550 GLTP	1314	42.0%	4.6	1.15	30.7	83.3	51	4
7	DP 1646 B2XF	1299	39.9%	4.3	1.22	29.8	83.0	41	4
8	NG 3729 B2XF	1282	39.5%	4.7	1.20	29.9	85.2	51	5
9	NG 3994 B3XF	1281	40.4%	4.3	1.23	33.3	84.3	51	5
10	DP 1518 B2XF	1271	37.4%	4.2	1.17	30.7	82.8	51	5
11	DP 1725 B2XF	1260	42.4%	4.6	1.13	29.7	80.6	41	4
12	ST 5471 GLTP	1253	40.4%	4.7	1.14	31.0	81.5	41	3
13	DG 3526 B2XF	1250	42.2%	4.7	1.10	28.2	82.8	51	4
14	DG 3385 B2XF	1249	42.2%	4.7	1.14	28.3	84.1	41	3
15	DP 1820 B3XF	1227	43.6%	4.9	1.14	29.8	83.4	51	4
16	PHY 350 W3FE	1215	40.1%	4.7	1.17	29.4	82.6	51	4
17	CG 9608 B3XF	1213	43.1%	4.5	1.15	29.5	82.0	51	5
18	DG 3317 B3XF	1079	41.7%	4.7	1.14	30.2	83.7	51	4
Mean		1289	41.3%	4.6	1.17	30.5	83.3	41	4.1

Table CST11. Results from the second 2019 Tipton County Standard Trial planted May 28th.

Yield Rank	Variety	Lint Yield (lb/ac)	Turnout (%)	Mic	Length (in.)	Strength (g/tex)	Unif. (%)	HVI Color	Leaf Grade
1	DP 1916 B3XF	1192	40.7%	4.3	1.15	32.0	82.4	42	4
2	DG 3526 B2XF	1159	40.6%	4.0	1.16	30.8	81.6	41	4
3	DG 3385 B2XF	1148	39.5%	4.3	1.15	29.3	82.9	41	4
4	DP 1518 B2XF	1117	38.7%	4.1	1.12	29.3	82.0	51	5
5	DP 1646 B2XF	1066	39.8%	4.0	1.22	31.1	82.0	41	4
6	NG 3729 B2XF	1056	39.4%	4.2	1.20	31.1	83.8	41	5
7	DP 1725 B2XF	1047	41.2%	3.7	1.16	31.4	80.3	41	4
8	CP 9178 B3XF	1047	40.1%	4.2	1.17	33.4	82.3	42	5
9	DP 1820 B3XF	1035	40.2%	3.9	1.24	33.0	80.5	41	5
10	NG 3994 B3XF	1024	40.2%	4.1	1.17	31.8	81.2	42	4
11	NG 4936 B3XF	920	37.4%	4.0	1.22	32.7	81.7	51	4
12	CP 9608 B3XF	896	41.5%	3.8	1.15	31.5	80.2	42	4
13	DG 3317 B3XF	875	40.3%	4.0	1.16	31.5	81.2	41	3
14	ST 5600 B2XF	825	39.1%	4.2	1.18	32.8	82.2	42	5
	Mean	1029	39.9%	4.1	1.18	31.6	81.7	41	4

Glossary

Bollgard II: A two-gene trait which expresses the Cry1Ac and Cry2Ab proteins from *Bacillus thuringiensis* (*Bt*) and provides resistance to certain lepidopteran pests such as tobacco budworm. Abbreviated **B2** in variety names.

Bollgard III: A three-gene trait which expresses the Cry1Ac, Cry2Ab and Vip3A proteins from *Bacillus thuringiensis* (*Bt*) and provides resistance to certain lepidopteran pests such as tobacco budworm. Abbreviated **B3** in variety names.

Commodity Credit Corporation: An entity administered by the Farm Services Agency of the United States Department of Agriculture. Commonly abbreviated as CCC.

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.

County Standard Test: A large plot variety trial consisting of no-replications and only commercially available cotton varieties. Abbreviated as CST.

Coefficient of variation: 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. Abbreviated as CV.

Earliness: A measure of how rapidly a cotton crop reaches maturity. Relative earliness of varieties can be measured by the heat units needed to mature the highest harvestable boll. Earliness is under genetic control but is strongly influenced by crop management.

Enlist: A trait which provides tolerance (in cotton) to the herbicides 2,4-D, glyphosate, and glufosinate. Abbreviated **FE** in variety names.

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

Glytol: A trait which provides tolerance to the herbicide glyphosate. Abbreviated **G** in variety names.

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

High Volume Instrument: A classing instrument providing accurate measurements of fiber length, strength, micronaire, length uniformity, trash, and color. Abbreviated as HVI.

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.

Height to Node Ratio: A ratio of the main stem height divided by the total number of nodes. This measurement can provide insight into 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.

Length (32nds)	Length (Inches)	Length (32nds)	Length (Inches)
24	0.79 & shorter	36	1.11 – 1.13
26	0.80 – 0.85	37	1.14 – 1.17
28	0.86 – 0.89	38	1.18 – 1.20
29	0.90 – 0.92	39	1.21 – 1.23
30	0.93 – 0.95	40	1.24 – 1.26
31	0.96 – 0.98	41	1.27 – 1.29
32	0.99 – 1.01	42	1.30 – 1.32
33	1.02 – 1.04	43	1.33 – 1.35
34	1.05 – 1.07	44 & +	1.36 & +
35	1.08 – 1.10		

Source: USDA (1999)

Lint yield: Weight of lint harvested per unit ground area (typically reported as pounds per acre).

Liberty Link: A trait which provides tolerance to the herbicide glufosinate. Abbreviated **LL** in variety names.

Least Significant Difference: Least significant difference is the 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 as mike or mic. No decimal point is used by the USDA (1999) in reporting micronaire values, while others report values in tenths of units.

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)

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

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. Abbreviated as NAWF.

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.

Official Variety Trail: A replicated small-plot test conducted at several locations to evaluate the adaptation of the most promising commercial cultivars for Tennessee. Abbreviated as OVT.

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).

Randomized Complete Block Design: An experimental design in which all treatments are randomly assigned to plots in separate within-field blocks (replications). This design increases the power of the trial to isolate treatment differences from inherent field variability.

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 trait which provides tolerance to a broadcast application of the herbicide glyphosate until the fifth true leaf reaches the size of a quarter. Subsequent glyphosate applications must be directed towards the base of the plant. Abbreviated **R** or **RR** in variety names.

Roundup Ready Flex: A trait which provides tolerance to a broadcast application of the herbicide glyphosate beyond the fifth true leaf stage. Abbreviated **F** or **RF** in variety names.

Seedcotton: Lint plus seed, trash and excess moisture.

Staple: A traditional term applied to lengths of fiber that require spinning or twisting in the manufacture of yarn. Staple also refers to the average length of the bulk fibers measured in 32nds of one inch. Cotton fiber considered with regard to its length.

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 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:

Twinlink: A two-gene trait which expresses the Cry1Ab and Cry2Ae proteins from *Bacillus thuringiensis* (*Bt*) and provides resistance to certain lepidopteran pests such as tobacco budworm. Abbreviated **T** in variety names.

TwinlinkPlus: A three-gene trait which expresses the Cry1Ab, Cry2Ae, and Vip3Aa19 proteins from *Bacillus thuringiensis* (*Bt*) and provides resistance to certain lepidopteran pests such as tobacco budworm. Abbreviated **TP** in variety names.

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)

Widestrike: A two-gene trait which expresses the Cry1Ac and Cry1F proteins from *Bacillus thuringiensis* (*Bt*) and provides resistance to certain lepidopteran pests such as tobacco budworm. Abbreviated **W** in variety names.

Widestrike 3: A three-gene trait which expresses the Cry1Ac, Cry1F, and Vip3A proteins from *Bacillus thuringiensis* (*Bt*) and provides resistance to certain lepidopteran pests such as tobacco budworm and improved resistance management. Abbreviated **W3** in variety names.

XtendFlex: A trait which provides tolerance (in cotton) to the herbicides dicamba, glyphosate, and glufosinate. Abbreviated **XF** in variety names.

References

- USDA. 1997. Cotton Classification Results -- Understanding the Data. Agricultural Marketing Service, Cotton Div. Rev. 5/97. 12 pp.
- USDA. 1999. The Classification of Cotton. Agricultural Marketing Service, Agric. Handbook 566. Rev. 1/99. Washington, DC. 23 pp.