

Tennessee Cotton Variety Trial Results|2021

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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 2021 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 and thirteen CSTs were conducted during 2021. Of the thirteen CSTs, two included both FE (Enlist) and XF (XtendFlex) cultivars; nine included only XF cultivars; and two included only FE cultivars. Unfortunately, one site containing both FE and XF entries was abandoned due to an extreme weather event. Due to the limited number of trials including both trait platforms, the CST data will only be reported in two separate tables split by platform; the first average table consists of the averages of all XF cultivars across ten locations and the second average table consists of the averages of all FE cultivars across three locations.

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

Six OVTs were planted in the 2021 growing season. Five are included within this report. These included three locations on University of Tennessee Research and Education Centers, one location on a private research farm, and two locations on producer farms. Seed of commercial cultivars and experimental lines was provided by respective companies. In all, 41 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. Two 25 boll samples were collected from two replicates of each harvested location. Subsamples from each location were then air-dried and ginned on a 10-saw table top gin.

Large Plot Variety Trials

Twelve CSTs were harvested in the 2021 growing season. Seed of commercial varieties was provided by each respective company. In all, 20 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 one lint cleaner. 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 2021 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 AR (Armor)
- 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

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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 2021 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, BASF, Bayer CropScience, Cannon Packing Company, Dow AgroSciences, FMC Corp., and Syngenta Crop Protection, Inc. and Nichino.

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.

2021 Official Variety Trial Results



Table OVT1. 2021 Tennessee Official Variety Trial details.

Location	Planting Date	Soil Type	Tillage	Irrigation
Gift	05/14/2021	Loring Silt Loam	No-Till	None
Grand Junction ¹	05/17/2021	Memphis Silt Loam	No-Till	None
Jackson ²	05/25/2021	Collins Silt Loam	No-Till	None
Milan ³	05/20/2021	Falaya Silt Loam	No-Till	None
Ridgely	05/13/2021	Reelfoot Silt Loam	No-Till	None

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

²West Tennessee Research and Education Center, Jackson, TN

³Milan Research and Education Center, Milan, TN

Table OVT2. Average lint yield, turnout, and fiber quality of 41 entries in the 2021 Official Variety Trials conducted near Gift, Grand Junction, Jackson, Milan and Ridgely, listed by yield rank.

Yield Rank	Variety	Lint Yield (lb/ac)	Turnout [†] (%)	Mic	Length (in.)	Strength (g/tex)	Unif (%)
1	AR 9371 B3XF	1496 a [‡]	44.4 d-h	4.7 b-e	1.18 n-q	31.0 opq	86.3 a-e
2	BX 2295 B3XF	1496 a	44.3 d-h	4.7 b-e	1.22 hij	31.0 opq	85.8 d-i
3	PX 1140A385-04 W3FE	1481 ab	47.0 a	4.8 bcd	1.18 opq	33.4 c-g	86.7 ab
4	PHY 400 W3FE	1474 abc	44.9 bcd	4.5 e-h	1.20 j-n	33.3 d-h	85.7 d-j
5	DP 2127 B3XF	1462 a-d	44.6 c-f	4.9 a	1.16 qr	31.4 m-q	86.1 b-g
6	ST 5091 B3XF	1459 a-e	43.3 k-n	4.0 m	1.20 k-o	31.0 opq	84.5 no
7	PX 1140A383-04 W3FE	1449 a-f	44.6 c-f	4.7 bcd	1.23 fgh	34.9 ab	86.4 a-d
8	DP 2115 B3XF	1440 a-g	44.9 bcd	4.7 bcd	1.17 pqr	31.7 j-p	85.0 j-n
9	ST 4990 B3XF	1430 a-h	40.6 r	4.3 i-l	1.24 efg	31.6 k-q	86.6 abc
10	DP 2038 B3XF	1424 a-i	46.9 a	4.8 abc	1.15 rs	32.0 i-m	84.2 o
11	ST 4550 GLTP	1397 a-j	45.4 b	4.7 b-e	1.17 pqr	32.9 e-i	85.7 e-j
12	PHY 332 W3FE	1389 a-j	42.4 p	4.4 h-l	1.24 e-g	33.2 d-h	85.1 i-n
13	NG 3195 B3XF	1382 b-k	43.8 h-l	4.5 f-i	1.17 pq	32.5 g-k	85.7 d-i
14	AMX 20B037 B3XF	1378 b-l	44.8 cde	4.7 b-e	1.19 l-p	35.2 a	86.4 a-e
15	PHY 443 W3FE	1375 b-l	43.1 mno	4.6 b-f	1.17 pqr	33.4 c-g	85.7 d-j
16	DG 3535 B3XF	1369 c-m	44.0 f-j	4.4 h-l	1.23 ghi	32.0 i-n	85.6 f-j
17	ST 4993 B3XF	1363 d-m	45.0 bc	4.8 bcd	1.20 j-n	34.0 bcd	86.4 a-d
18	NG 4190 B3XF	1358 d-m	43.9 g-l	4.4 g-k	1.22 h-k	31.6 l-q	86.3 a-f
19	PHY 390 W3FE	1356 d-m	44.3 d-h	4.4 g-k	1.20 k-o	33.7 c-f	84.8 k-o
20	DP 2141 B3XF	1351 e-m	43.6 i-m	4.7 b-e	1.21 i-l	34.3 abc	84.8 k-o
21	AR 9831 B3XF	1340 f-n	44.4 c-g	4.8 ab	1.19 m-p	32.6 g-j	84.5 mno
22	20R734 B3XF	1332 g-o	44.2 e-j	4.6 c-f	1.20 j-n	31.8 j-o	84.8 k-o
23	PX 1130A329-04 W3FE	1330 h-o	44.6 c-f	4.8 bcd	1.20 j-n	33.3 d-h	85.0 i-n
24	NG 4936 B3XF	1324 h-o	40.8 r	4.3 jkl	1.26 cde	31.2 m-q	86.8 a
25	NG 5150 B3XF	1318 i-o	42.8 nop	4.5 f-j	1.23 ghi	31.7 j-o	85.4 g-l
26	DG 3317 B3XF	1313 j-o	43.8 g-l	4.7 b-e	1.17 pqr	31.7 j-o	85.3 h-l
27	AR 9608 B3XF	1309 j-o	44.4 c-g	4.4 h-l	1.20 k-o	31.1 n-q	84.8 k-o
28	DP 1646 B2XF	1307 j-o	43.2 l-o	4.3 kl	1.28 ab	30.9 opq	85.4 g-l
29	BX 2298 B3XF	1296 j-o	42.8 nop	4.6 d-g	1.14 st	30.7 pqr	84.7 l-o
30	PX 4B08 W3FE	1295 j-o	44.3 d-h	4.8 ab	1.12 t	32.8 f-i	84.8 k-o
31	BX 2297 B3XF	1292 j-p	43.6 j-m	4.6 c-f	1.18 nop	30.0 r	85.0 j-n
32	DP 2012 B3XF	1277 k-q	42.4 p	4.3 i-l	1.22 hij	32.4 h-l	85.9 c-h
33	PHY 360 W3FE	1272 l-q	42.7 nop	4.4 g-k	1.18 nop	30.7 qr	84.4 no
34	DG 3456 B3XF	1262 m-q	43.9 g-k	4.2 l	1.20 j-n	30.9 o-r	85.3 h-m
35	DG 3555 B3XF	1261 m-r	41.4 q	3.8 n	1.27 bcd	33.8 cde	86.2 a-f
36	DG 3644 B3XF	1240 n-s	42.7 op	4.8 bcd	1.25 def	34.8 ab	85.9 c-h
37	DG 3520 B3XF	1226 o-s	40.7 r	3.7 n	1.30 a	33.2 d-h	86.7 ab
38	BX 2296 B3XF	1182 p-s	44.3 e-i	4.7 bcd	1.21 ijk	32.0 i-m	85.9 c-h
39	DP 2020 B3XF	1170 qrs	40.3 r	4.4 h-l	1.25 d-g	32.0 i-m	85.9 c-h
40	DG 3469 B3XF	1152 rs	41.5 q	4.5 f-j	1.21 i-m	31.7 j-o	85.4 g-k
41	NG 5711 B3XF	1141 s	41.6 q	4.4 h-l	1.28 bc	32.4 h-l	86.0 b-g
Average		1341	43.6	4.5	1.21	32.3	85.6
LSD (p<0.05)		110	0.6	0.2	0.02	0.9	0.7
CV (%)		12.71	2.20	4.41	2.06	3.31	0.96

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

[†]Turnout and fiber quality determined from ginning two 25 boll samples from two replicates at Gift, Grand Junction, Jackson, Milan and Ridgely. Tennessee AgResearch data of Raper et al. (2021).

Table OVT3. Average lint yield, turnout, and fiber quality of 41 entries in the 2021 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 (%)
1	BX 2295 B3XF	1596 _a ¥	45.0	4.8	1.20	32.1	85.2
2	DP 2127 B3XF	1568 _{ab}	45.1	5.2	1.15	31.8	85.6
3	PX 1140A385-04 W3FE	1544 _{abc}	46.5	4.7	1.20	34.0	87.5
4	PHY 390 W3FE	1524 _{a-d}	45.0	4.6	1.19	33.9	84.0
5	PX 1140A383-04 W3FE	1519 _{a-e}	45.0	4.9	1.19	34.8	85.5
6	PHY 443 W3FE	1510 _{a-e}	43.7	4.9	1.17	35.0	85.2
7	PHY 400 W3FE	1481 _{a-f}	45.7	4.7	1.16	32.8	84.0
8	ST 4990 B3XF	1448 _{a-g}	41.6	4.5	1.25	32.3	85.9
9	AR 9371 B3XF	1445 _{a-g}	45.3	4.8	1.18	31.0	86.3
10	NG 4190 B3XF	1442 _{a-g}	45.2	4.7	1.21	31.7	85.7
11	PHY 332 W3FE	1411 _{b-h}	43.4	4.6	1.22	33.3	85.2
12	DP 2012 B3XF	1410 _{b-h}	42.2	4.5	1.21	32.9	85.5
13	DP 2115 B3XF	1401 _{b-i}	45.3	5.0	1.16	33.0	84.8
14	NG 3195 B3XF	1390 _{b-i}	44.0	4.3	1.21	32.9	86.7
15	AR 9608 B3XF	1373 _{c-j}	45.9	4.4	1.19	30.4	84.8
16	ST 4550 GLTP	1363 _{d-j}	45.3	4.7	1.19	34.1	85.9
17	NG 4936 B3XF	1359 _{d-j}	40.8	4.5	1.30	30.9	86.3
18	DP 2141 B3XF	1357 _{d-j}	44.1	4.6	1.24	35.6	85.7
19	PHY 360 W3FE	1341 _{e-k}	42.9	4.6	1.19	30.4	84.6
20	PX 1130A329-04 W3FE	1327 _{f-k}	44.8	4.9	1.19	33.3	84.8
21	ST 5091 B3XF	1307 _{f-l}	42.5	4.0	1.21	32.2	84.2
22	DG 3535 B3XF	1298 _{g-m}	43.3	4.6	1.22	33.0	85.5
23	BX 2297 B3XF	1281 _{g-m}	44.6	4.8	1.18	30.9	84.4
24	DP 2038 B3XF	1278 _{g-m}	46.4	4.9	1.17	33.0	84.2
25	DG 3456 B3XF	1276 _{g-m}	43.9	4.1	1.20	31.5	84.6
26	DP 2020 B3XF	1275 _{g-m}	40.3	4.5	1.23	32.6	85.7
27	20R734 B3XF	1257 _{h-m}	43.9	4.7	1.22	33.3	85.8
28	DP 1646 B2XF	1256 _{h-m}	42.9	4.2	1.30	31.7	85.6
29	NG 5150 B3XF	1239 _{h-n}	42.9	4.5	1.19	30.8	84.7
30	BX 2298 B3XF	1226 _{i-n}	42.9	4.6	1.14	30.8	84.3
31	PX 4B08 W3FE	1224 _{i-n}	44.9	5.1	1.10	33.3	83.6
32	ST 4993 B3XF	1201 _{j-o}	45.9	5.0	1.18	34.9	86.0
33	DG 3644 B3XF	1200 _{j-o}	42.1	4.8	1.25	36.0	85.1
34	DG 3317 B3XF	1170 _{k-o}	42.9	4.7	1.16	31.7	85.2
35	AR 9831 B3XF	1138 _{l-p}	42.7	4.8	1.18	33.1	85.1
36	AMX 20B037 B3XF	1137 _{l-p}	44.7	4.9	1.18	35.1	86.0
37	DG 3555 B3XF	1130 _{l-p}	40.9	3.7	1.27	33.7	86.5
38	NG 5711 B3XF	1125 _{m-p}	41.2	4.3	1.26	32.8	85.6
39	DG 3469 B3XF	1067 _{no} p	42.5	4.7	1.21	32.5	85.1
40	BX 2296 B3XF	1028 _{op}	42.9	4.5	1.24	32.8	86.7
41	DG 3520 B3XF	979 _p	39.6	3.6	1.31	34.2	86.6
Average		1315	43.7	4.6	1.20	32.8	85.3
LSD (p<0.05)		179					
CV (%)		9.71					

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

[†]Turnout and fiber quality determined from ginning two 25 boll samples from the 1st and 2nd replicates.

Tennessee AgResearch data of Raper et al. (2021).

Table OVT4. Average lint yield, turnout, and fiber quality of 41 entries in the 2021 Official Variety Trial conducted in Grand Junction, TN listed by yield rank.

Yield Rank	Variety	Lint Yield (lb/ac)	Turnout [†] (%)	Mic	Length (in.)	Strength (g/tex)	Unif (%)
1	AMX 20B037 B3XF	1633 _a ¥	45.5	4.9	1.20	35.5	87.5
2	PHY 400 W3FE	1632 _a	45.0	4.6	1.20	34.1	86.0
3	BX 2295 B3XF	1602 _{ab}	45.2	4.9	1.20	31.2	85.8
4	ST 5091 B3XF	1590 _{abc}	45.1	4.4	1.17	31.0	83.5
5	ST 4993 B3XF	1566 _{a-d}	45.6	4.9	1.20	34.7	86.5
6	PX 1140A385-04 W3FE	1532 _{a-e}	46.5	5.0	1.19	33.7	87.4
7	PX 1140A383-04 W3FE	1525 _{a-f}	45.7	4.9	1.25	36.6	87.0
8	NG 3195 B3XF	1513 _{a-g}	43.9	4.5	1.12	32.1	84.4
9	ST 4990 B3XF	1484 _{a-h}	40.8	4.7	1.23	32.2	86.4
10	PX 1130A329-04 W3FE	1468 _{a-i}	45.4	5.2	1.17	34.1	83.9
11	PHY 332 W3FE	1463 _{a-i}	42.1	4.5	1.23	33.5	84.5
12	DP 2038 B3XF	1463 _{a-i}	47.3	4.9	1.14	32.8	84.3
13	DP 2012 B3XF	1456 _{a-j}	43.7	4.4	1.21	31.5	85.9
14	ST 4550 GLTP	1448 _{a-j}	46.1	4.9	1.17	32.3	86.3
15	NG 4190 B3XF	1411 _{b-k}	43.8	4.7	1.19	31.8	85.0
16	DP 2127 B3XF	1408 _{b-k}	45.6	4.8	1.16	31.4	86.1
17	AR 9371 B3XF	1393 _{b-k}	42.5	4.7	1.18	32.4	86.5
18	BX 2297 B3XF	1380 _{c-l}	44.3	4.9	1.19	29.9	85.5
19	DG 3535 B3XF	1377 _{c-l}	44.5	4.3	1.20	32.8	85.6
20	PHY 443 W3FE	1377 _{d-l}	43.8	4.9	1.13	33.0	85.1
21	DP 2115 B3XF	1372 _{d-l}	44.1	5.0	1.17	31.9	85.6
22	DG 3469 B3XF	1363 _{d-l}	41.6	4.8	1.21	31.7	85.8
23	PHY 390 W3FE	1354 _{d-l}	44.3	4.4	1.18	33.0	84.4
24	DG 3555 B3XF	1353 _{e-l}	41.9	3.9	1.27	34.7	86.2
25	DG 3520 B3XF	1352 _{e-l}	41.1	3.7	1.31	33.6	87.1
26	20R734 B3XF	1349 _{e-l}	45.3	4.9	1.20	31.0	84.6
27	DG 3317 B3XF	1325 _{e-l}	44.0	4.9	1.15	32.2	85.2
28	NG 4936 B3XF	1323 _{e-l}	41.5	4.5	1.27	31.6	87.4
29	DP 2141 B3XF	1322 _{e-l}	44.3	4.9	1.19	32.7	83.9
30	DG 3456 B3XF	1317 _{f-l}	44.4	4.4	1.20	30.8	84.8
31	AR 9831 B3XF	1303 _{g-l}	44.9	5.1	1.19	32.9	83.6
32	NG 5150 B3XF	1300 _{g-l}	44.7	4.4	1.23	33.9	85.5
33	PHY 360 W3FE	1285 _{h-l}	41.7	4.6	1.17	31.2	84.2
34	DG 3644 B3XF	1279 _{h-l}	43.7	5.0	1.22	35.2	85.9
35	DP 2020 B3XF	1262 _{i-l}	40.8	4.5	1.23	33.3	85.3
36	DP 1646 B2XF	1261 _{i-l}	41.8	4.5	1.28	31.4	85.2
37	AR 9608 B3XF	1245 _{jkl}	45.4	4.5	1.19	32.9	84.9
38	PX 4B08 W3FE	1231 _{kl}	43.5	4.8	1.13	34.0	85.5
39	BX 2298 B3XF	1209 _{kl}	43.2	4.8	1.13	32.1	85.0
40	NG 5711 B3XF	1199 _{kl}	41.5	4.6	1.27	32.6	86.9
41	BX 2296 B3XF	1173 _l	46.2	4.9	1.19	32.8	85.0
Average		1388	44.0	4.7	1.20	32.7	85.5
LSD (p<0.05)		213					
CV (%)		9.45					

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

[†]Data from the first replicate was excluded due to observed off-target herbicide injury from an adjacent trial. Turnout and fiber quality determined from ginning two 25 boll samples collected from the third and fourth replicates.

Tennessee AgResearch data of Raper et al. (2021).

Table OVT5. Average lint yield, turnout, and fiber quality of 41 entries in the 2021 West Tennessee Research and Education Trial conducted in Jackson, TN listed by yield rank.

Yield Rank	Variety	Lint Yield (lb/ac)	Turnout (%)	Mic	Length (in.)	Strength (g/tex)	Unif (%)
1	DP 2115 B3XF	1655 _a	45.9	4.5	1.19	30.0	85.6
2	DP 2127 B3XF	1639 _a	45.1	4.9	1.15	29.5	86.8
3	AMX 20B037 B3XF	1623 _{ab}	45.7	4.8	1.18	34.1	86.8
4	ST 5091 B3XF	1599 _{abc}	44.3	4.0	1.20	29.4	85.0
5	AR 9831 B3XF	1585 _{a-d}	45.8	4.7	1.19	32.2	85.3
6	BX 2295 B3XF	1575 _{a-e}	44.0	4.6	1.22	30.0	86.5
7	ST 4990 B3XF	1574 _{a-e}	41.0	4.3	1.24	30.2	86.9
8	DG 3535 B3XF	1560 _{a-f}	44.3	4.2	1.24	31.0	86.0
9	20R734 B3XF	1559 _{a-f}	44.9	4.6	1.19	31.4	83.7
10	AR 9371 B3XF	1555 _{a-f}	44.6	4.5	1.20	30.7	87.0
11	ST 4993 B3XF	1537 _{a-g}	46.1	4.8	1.19	33.2	87.0
12	PX 1140A385-04 W3FE	1537 _{a-g}	47.3	4.6	1.15	31.9	86.0
13	BX 2297 B3XF	1535 _{a-g}	43.4	4.6	1.18	28.1	85.4
14	ST 4550 GLTP	1530 _{a-h}	46.5	4.6	1.14	32.2	85.1
15	DP 2038 B3XF	1498 _{a-i}	48.0	4.7	1.14	30.7	84.4
16	NG 3195 B3XF	1463 _{b-j}	45.0	4.5	1.17	31.5	85.2
17	BX 2296 B3XF	1451 _{c-j}	45.3	4.8	1.22	31.0	86.3
18	DG 3456 B3XF	1451 _{c-j}	45.1	4.2	1.20	28.1	86.1
19	NG 5150 B3XF	1447 _{c-j}	42.2	4.4	1.24	30.3	86.5
20	BX 2298 B3XF	1446 _{c-j}	43.4	4.5	1.13	29.9	85.0
21	DG 3317 B3XF	1440 _{c-j}	44.8	4.7	1.16	31.7	84.9
22	PHY 400 W3FE	1438 _{c-j}	44.7	4.5	1.23	32.6	86.3
23	NG 4190 B3XF	1426 _{d-k}	44.3	4.4	1.24	31.4	87.1
24	PX 1140A383-04 W3FE	1417 _{e-k}	45.4	4.5	1.23	32.3	87.1
25	DP 1646 B2XF	1414 _{e-k}	44.6	4.3	1.27	29.3	86.0
26	DP 2141 B3XF	1407 _{f-l}	44.4	4.7	1.19	33.4	85.0
27	NG 4936 B3XF	1405 _{f-l}	41.5	4.2	1.26	30.1	87.6
28	PHY 443 W3FE	1402 _{f-l}	42.9	4.4	1.16	31.5	85.4
29	PHY 390 W3FE	1390 _{g-m}	44.9	4.3	1.21	33.2	85.2
30	AR 9608 B3XF	1376 _{g-m}	42.9	4.4	1.19	29.3	84.8
31	DG 3555 B3XF	1370 _{h-m}	42.5	3.9	1.26	34.3	86.3
32	PX 4B08 W3FE	1368 _{h-m}	45.5	4.6	1.12	31.0	85.2
33	DG 3520 B3XF	1349 _{i-m}	40.9	3.6	1.29	32.4	87.3
34	DP 2012 B3XF	1348 _{i-m}	42.9	4.4	1.21	32.3	85.5
35	PHY 360 W3FE	1321 _{j-m}	43.6	4.3	1.17	29.4	84.6
36	DP 2020 B3XF	1310 _{j-m}	40.8	4.3	1.26	29.4	87.1
37	DG 3644 B3XF	1300 _{j-m}	43.6	4.7	1.24	34.2	86.3
38	PX 1130A329-04 W3FE	1271 _{klm}	45.2	4.7	1.20	32.2	85.1
39	PHY 332 W3FE	1268 _{klm}	41.8	4.3	1.24	32.0	84.6
40	NG 5711 B3XF	1247 _{lm}	42.4	4.2	1.28	32.1	86.6
41	DG 3469 B3XF	1232 _m	41.7	4.4	1.20	30.0	85.6
Average		1447	44.1	4.4	1.20	31.2	85.8
LSD (p<0.05)		163					
CV (%)		8.04					

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

† Turnout and fiber quality determined from ginning two 25 boll samples collected from the first and second replicates.

Tennessee AgResearch data of Raper et al. (2021).

Table OVT6. Average lint yield, turnout, and fiber quality of 41 entries in the 2021 Milan Research and Education Trial conducted in Milan, TN listed by yield rank.

Yield Rank	Variety	Lint Yield (lb/ac)	Turnout (%)	Mic	Length (in.)	Strength (g/tex)	Unif (%)
1	AR 9371 B3XF	1039 _a	44.8	4.4	1.20	30.9	86.7
2	PHY 400 W3FE	1004 _{ab}	44.3	4.2	1.22	33.2	86.0
3	DP 2115 B3XF	984 _{abc}	43.7	4.3	1.20	30.8	85.3
4	DP 2038 B3XF	952 _{a-d}	45.9	4.6	1.18	31.9	85.2
5	AR 9831 B3XF	942 _{a-d}	44.5	4.5	1.18	32.7	84.9
6	NG 5150 B3XF	934 _{a-d}	41.1	4.4	1.26	30.0	85.1
7	PX 1140A383-04 W3FE	888 _{a-d}	42.5	4.2	1.25	34.2	85.8
8	PHY 332 W3FE	878 _{a-e}	42.4	4.0	1.23	32.8	85.1
9	PX 1130A329-04 W3FE	876 _{a-e}	43.2	4.1	1.21	31.8	84.5
10	NG 4936 B3XF	876 _{a-e}	38.7	3.8	1.26	31.8	86.6
11	DG 3317 B3XF	874 _{a-f}	43.8	4.4	1.19	31.0	85.7
12	DG 3535 B3XF	871 _{a-f}	44.9	4.3	1.25	30.9	86.2
13	PX 4B08 W3FE	870 _{a-f}	43.4	4.5	1.14	32.1	85.0
14	DP 1646 B2XF	870 _{a-f}	43.5	4.0	1.28	30.8	84.8
15	DG 3520 B3XF	868 _{a-f}	41.7	3.7	1.29	32.8	86.4
16	NG 3195 B3XF	868 _{a-f}	42.4	4.5	1.18	32.5	86.4
17	DP 2141 B3XF	863 _{a-f}	42.2	4.2	1.22	34.1	85.2
18	BX 2296 B3XF	857 _{a-f}	43.1	4.5	1.20	30.7	86.0
19	ST 5091 B3XF	854 _{a-f}	41.2	3.5	1.24	31.4	85.3
20	PX 1140A385-04 W3FE	849 _{a-f}	47.7	4.5	1.18	32.1	86.1
21	ST 4550 GLTP	843 _{a-f}	44.4	4.6	1.19	32.7	85.5
22	PHY 390 W3FE	835 _{a-f}	43.4	4.2	1.22	33.0	85.4
23	BX 2297 B3XF	824 _{a-f}	42.3	4.1	1.18	30.1	85.2
24	20R734 B3XF	816 _{a-f}	43.8	4.3	1.20	31.8	85.7
25	ST 4990 B3XF	812 _{a-f}	39.6	4.1	1.25	31.0	86.9
26	ST 4993 B3XF	811 _{a-f}	42.4	4.3	1.23	33.3	86.6
27	NG 4190 B3XF	797 _{a-f}	41.7	3.8	1.24	30.9	86.9
28	DG 3644 B3XF	784 _{a-f}	43.0	4.7	1.28	33.6	85.9
29	AMX 20B037 B3XF	779 _{a-g}	43.6	4.3	1.18	35.1	86.6
30	BX 2295 B3XF	760 _{b-g}	43.3	4.4	1.26	29.6	86.4
31	PHY 360 W3FE	747 _{b-g}	42.9	4.0	1.20	30.7	84.1
32	BX 2298 B3XF	740 _{b-g}	42.0	4.4	1.17	30.1	84.8
33	DG 3469 B3XF	733 _{b-g}	40.9	3.9	1.20	32.2	84.8
34	AR 9608 B3XF	730 _{b-g}	43.2	4.0	1.22	31.0	85.0
35	DG 3555 B3XF	726 _{b-g}	40.0	3.6	1.29	32.2	86.0
36	DP 2127 B3XF	715 _{c-g}	42.2	4.7	1.19	31.4	86.8
37	DP 2012 B3XF	710 _{c-g}	41.2	4.1	1.24	31.9	86.8
38	NG 5711 B3XF	684 _{d-g}	40.8	4.2	1.29	31.5	85.6
39	DG 3456 B3XF	607 _{efg}	42.5	4.1	1.22	32.5	85.2
40	PHY 443 W3FE	574 _{fg}	42.1	4.0	1.17	33.1	85.8
41	DP 2020 B3XF	503 _g	39.5	4.1	1.26	31.1	86.2
Average		818	42.7	4.2	1.22	31.9	85.7
LSD (p<0.05)		279					
CV (%)		24.33					

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

†Turnout and fiber quality determined from ginning two 25 boll samples collected from the first and second replicates.

Tennessee AgResearch data of Raper et al. (2021).

Table OVT7. Average lint yield, turnout, and fiber quality of 41 entries in the 2021 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 (%)
1	AR 9371 B3XF	2054 _a	44.2	5.0	1.16	30.2	85.2
2	ST 5091 B3XF	2001 _{ab}	44.3	4.3	1.19	31.0	84.6
3	DP 2127 B3XF	1986 _{abc}	45.4	5.1	1.18	33.2	85.2
4	BX 2295 B3XF	1985 _{abc}	44.2	4.8	1.24	32.4	85.0
5	PHY 443 W3FE	1983 _{a-d}	43.0	4.9	1.21	34.5	87.0
6	PHY 332 W3FE	1979 _{a-e}	41.9	4.5	1.28	34.5	86.4
7	PX 1140A385-04 W3FE	1971 _{a-e}	46.9	5.2	1.19	35.4	86.6
8	DP 2038 B3XF	1965 _{a-f}	47.2	4.9	1.14	31.8	83.2
9	PX 1140A383-04 W3FE	1921 _{a-g}	44.6	5.0	1.25	36.7	86.9
10	BX 2298 B3XF	1870 _{a-h}	42.6	4.8	1.15	30.9	84.5
11	ST 4990 B3XF	1834 _{a-i}	39.5	4.2	1.26	32.2	86.9
12	PHY 400 W3FE	1832 _{a-i}	44.8	4.7	1.20	34.0	86.5
13	AR 9608 B3XF	1826 _{a-i}	45.0	4.6	1.22	31.8	84.8
14	ST 4550 GLTP	1807 _{a-i}	44.8	4.7	1.19	33.4	85.7
15	DP 2141 B3XF	1801 _{a-i}	43.3	5.1	1.22	36.0	84.2
16	PX 4B08 W3FE	1779 _{b-i}	43.9	5.2	1.12	33.8	84.8
17	AMX 20B037 B3XF	1771 _{b-i}	44.3	4.6	1.21	36.3	85.3
18	DG 3555 B3XF	1763 _{b-i}	41.9	4.0	1.27	34.2	86.2
19	DG 3317 B3XF	1763 _{b-i}	43.6	4.8	1.20	32.1	85.5
20	ST 4993 B3XF	1735 _{b-j}	45.2	5.0	1.22	34.2	86.2
21	DP 2115 B3XF	1735 _{b-j}	45.5	5.0	1.14	32.7	83.8
22	PX 1130A329-04 W3FE	1733 _{c-j}	44.6	5.0	1.25	35.3	86.9
23	DG 3535 B3XF	1717 _{d-j}	42.9	4.5	1.23	32.3	84.8
24	DP 1646 B2XF	1712 _{e-j}	42.9	4.5	1.30	31.7	85.3
25	AR 9831 B3XF	1703 _{f-j}	44.4	5.0	1.20	32.0	83.9
26	NG 4190 B3XF	1701 _{f-k}	44.3	4.6	1.22	32.1	86.8
27	NG 3195 B3XF	1675 _{g-l}	43.6	4.7	1.20	33.6	86.1
28	DG 3456 B3XF	1663 _{g-l}	43.7	4.4	1.21	31.6	85.6
29	PHY 360 W3FE	1656 _{g-l}	42.2	4.8	1.21	31.9	84.7
30	20R734 B3XF	1651 _{h-l}	43.2	4.7	1.20	31.5	84.4
31	DG 3644 B3XF	1636 _{h-m}	40.7	4.7	1.28	35.0	86.2
32	PHY 390 W3FE	1635 _{h-m}	43.8	4.7	1.20	35.2	85.1
33	NG 5150 B3XF	1632 _{h-m}	43.8	4.7	1.23	33.7	85.2
34	NG 4936 B3XF	1623 _{h-n}	41.7	4.7	1.21	32.0	86.4
35	DG 3520 B3XF	1597 _{i-n}	40.3	4.0	1.29	33.3	86.5
36	DP 2020 B3XF	1492 _{j-o}	40.2	4.5	1.26	33.8	85.1
37	DP 2012 B3XF	1435 _{k-o}	42.0	4.4	1.25	33.5	86.2
38	NG 5711 B3XF	1426 _{l-o}	41.9	4.7	1.29	33.3	85.6
39	BX 2297 B3XF	1371 _{mno}	43.5	4.8	1.20	31.0	84.6
40	DG 3469 B3XF	1359 _{no}	40.9	4.7	1.24	32.2	85.9
41	BX 2296 B3XF	1326 _o	44.2	5.0	1.22	33.0	85.5
Average		1734	43.4	4.7	1.22	33.1	85.5
LSD (p<0.05)		268					
CV (%)		9.50					

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

†Data from the first replicate was excluded due to observed off-target herbicide injury from a yard/brush spray. Turnout and fiber quality determined from ginning two 25 boll samples collected from the third and fourth replicates.

Tennessee AgResearch data of Raper et al. (2021).

2021 County Standard Trial Results



Two summary tables have been constructed from the 2021 CST data. The first (Table CST1) includes fifteen XtendFlex Varieties averaged across ten locations. The second (Table CST2) includes five Enlist Varieties averaged across three locations. The remaining tables consist of location responses.

Table CST1. Average lint yield, gin turnout, and fiber quality of the 15 XtendFlex varieties entered in the 2021 Tennessee County Standard Trial Program across ten trial locations.

Yield Rank	Variety	Lint Yield (lb/ac)	Turnout (%)	Mic	Length (in.)	Strength (g/tex)	Unif (%)	Leaf Grade	Color	Loan Value
1	DP 2115 B3XF	1228 _a	41.5 _{bc}	4.6 _a	1.17 _g	30.4 _{gh}	84.3 _{cd}	5	41	51.85
2	DP 2038 B3XF	1213 _a	43.1 _a	4.5 _{ab}	1.13 _h	30.7 _{fgh}	83.1 _{ef}	4	31	55.15
3	NG 3195 B3XF	1179 _{ab}	41.3 _{bc}	4.5 _{ab}	1.17 _{fg}	32.3 _{bc}	84.5 _{bcd}	4	41	54.30
4	ST 5091 B3XF	1179 _{ab}	41.2 _{bcd}	3.9 _f	1.19 _{def}	30.6 _{gh}	83.0 _f	4	41	54.25
5	DG 3456 B3XF	1174 _{ab}	41.4 _{bc}	4.1 _{ef}	1.18 _{efg}	29.9 _h	83.5 _{ef}	4	41	54.10
6	AR 9608 B3XF	1154 _{abc}	43.6 _a	4.2 _{cde}	1.18 _{fg}	30.5 _{gh}	83.1 _{ef}	5	41	51.90
7	ST 4993 B3XF	1150 _{abc}	41.6 _b	4.5 _{ab}	1.18 _{fg}	33.2 _a	85.3 _a	4	31	55.55
8	AR 9371 B3XF	1146 _{abcd}	41.0 _{bcd}	4.4 _{bc}	1.18 _{fg}	30.8 _{efg}	85.1 _{abc}	4	41	54.25
9	DP 2020 B3XF	1113 _{bcd}	39.2 _e	4.1 _{ef}	1.22 _a	31.7 _{bcde}	84.7 _{abc}	5	41	52.15
10	DP 2012 B3XF	1107 _{bcd}	39.3 _e	4.1 _{ef}	1.20 _{bcd}	32.4 _b	84.5 _{bcd}	5	41	52.15
11	DP 2127 B3XF	1099 _{bcd}	40.9 _{bcd}	4.5 _{ab}	1.17 _g	31.5 _{cdef}	84.5 _{bcd}	4	41	54.30
12	DG 3535 B3XF	1097 _{bcd}	40.2 _{de}	4.1 _{ef}	1.21 _{abc}	31.9 _{bcd}	83.9 _{de}	5	41	52.10
13	NG 5150 B3XF	1093 _{bcd}	40.5 _{cd}	4.2 _{de}	1.20 _{cde}	31.1 _{defg}	83.3 _{ef}	5	41	52.10
14	ST 4990 B3XF	1084 _{cd}	37.3 _f	4.4 _{bcd}	1.22 _{ab}	31.2 _{defg}	84.8 _{abc}	4	41	54.40
15	NG 4190 B3XF	1059 _d	40.5 _{cd}	4.2 _e	1.21 _{abc}	31.7 _{bcd}	85.2 _{ab}	5	41	52.20
Average		1138	40.9	4.3	1.23	31.8	84.4	4	41	53.38
LSD (p<0.05)		88	1.0	0.2	0.02	0.9	0.7			
CV (%)		8.7	2.9	5.2	1.6	3.1	1.0			

Table CST2. Average lint yield, gin turnout, and fiber quality of the 5 Enlist varieties entered in the 2021 Tennessee County Standard Trial Program across three trial locations.

Yield Rank	Variety	Lint Yield (lb/ac)	Turnout (%)	Mic	Length (in.)	Strength (g/tex)	Unif (%)	Leaf Grade	Color	Loan Value
1	PHY 400 W3FE	1457 _a	41.6 _a	4.0 _{ns}	1.20 _{ab}	33.3 _a	83.8 _a	5	41	52.15
2	PHY 360 W3FE	1433 _a	40.0 _{bc}	4.2	1.18 _b	29.6 _b	83.2 _{ab}	5	41	51.75
3	PX4B08 W3FE	1317 _{ab}	40.5 _{ab}	4.3	1.12 _d	31.8 _a	82.6 _b	5	41	51.85
4	PHY 332 W3FE	1308 _{ab}	39.6 _{bc}	4.1	1.21 _a	32.9 _a	84.1 _a	5	41	52.15
5	PHY 443 W3FE	1221 _b	38.8 _c	4.3	1.16 _c	31.8 _a	84.1 _a	5	41	52.05
Average		1347	40.1	4.2	1.17	31.9	83.5	5	41	51.99
LSD (p<0.05)		175	1.2	0.3	0.02	1.64	1.06			
CV (%)		6.9	1.7	8.9	1.1	2.7	0.6			

Table CST3. Results from the 2021 Carroll XtendFlex County Standard Trial planted May 18th and harvested Nov. 9th.

Yield Rank	Variety	Lint Yield (lb/ac)	Turnout (%)	Mic	Length (in.)	Strength (g/tex)	Unif. (%)	HVI Color	Leaf Grade	Loan Value
1	AR 9371 B3XF	1416	41.0	4.0	1.18	30.2	85.3	31	4	55.40
2	DP 2038 B3XF	1393	43.3	4.2	1.14	31.1	83.7	31	3	57.05
3	NG 4190 B3XF	1366	43.5	4.1	1.20	31.1	85.3	41	5	52.20
4	DG 3456 B3XF	1364	40.0	3.7	1.21	30.2	84.0	41	4	54.30
5	ST 5091 B3XF	1332	40.0	3.4	1.22	31.8	83.4	41	5	47.05
6	DP 2115 B3XF	1320	40.5	4.3	1.17	30.7	84.3	31	3	56.80
7	NG 3195 B3XF	1203	41.7	4.4	1.16	31.5	84.5	41	3	54.80
8	ST 4993 B3XF	1166	40.8	4.0	1.19	33.2	85.2	31	3	57.35
9	NG 5150 B3XF	1111	37.9	3.3	1.24	31.6	83.0	31	6	44.85
10	DP 2020 B3XF	1108	36.9	3.4	1.23	32.8	85.7	41	4	49.50
11	DP 2127 B3XF	1087	38.3	3.2	1.20	31.6	85.1	31	4	48.85
12	DP 2012 B3XF	1047	37.7	3.6	1.23	31.2	84.7	31	4	55.45
13	AR 9608 B3XF	1016	41.3	3.6	1.20	30.6	83.2	41	5	51.80
14	ST 4990 B3XF	990	37.9	4.5	1.24	31.2	87.1	41	3	55.10
15	DG 3535 B3XF	934	38.0	3.4	1.21	32.5	83.9	31	4	50.45
Average		1190	39.9	3.8	1.20	31.4	84.6	31	4	52.73

Table CST4. Results from the 2021 Crockett (Hollingshead) XtendFlex County Standard Trial planted May 20th and harvested Nov. 3rd.

Yield Rank	Variety	Lint Yield (lb/ac)	Turnout (%)	Mic	Length (in.)	Strength (g/tex)	Unif. (%)	HVI Color	Leaf Grade	Loan Value
1	ST 4993 B3XF	1448	42.6	4.7	1.20	34.0	85.9	41	4	54.50
2	AR 9371 B3XF	1435	43.5	4.7	1.18	30.5	85.5	41	4	54.25
3	NG 3195 B3XF	1413	45.7	4.6	1.16	33.0	86.0	31	4	55.55
4	AR 9608 B3XF	1347	47.6	4.4	1.16	30.4	82.4	41	6	48.90
5	DP 2115 B3XF	1339	42.8	4.8	1.19	31.1	85.1	41	4	54.45
6	DP 2020 B3XF	1280	44.0	4.3	1.23	31.9	84.4	41	4	54.40
7	NG 5150 B3XF	1271	39.7	4.5	1.18	30.3	81.8	41	4	54.05
8	DG 3535 B3XF	1260	42.0	4.2	1.20	32.7	84.1	41	4	54.50
9	DG 3456 B3XF	1235	41.7	4.5	1.19	29.9	83.3	41	4	54.00
10	ST 5091 B3XF	1207	42.1	4.1	1.16	29.5	82.0	41	4	53.95
11	DP 2127 B3XF	1191	42.1	4.9	1.15	32.8	85.0	41	5	52.10
12	DP 2038 B3XF	1182	39.6	4.8	1.13	30.8	82.5	41	4	53.80
13	DP 2012 B3XF	1167	40.6	4.2	1.21	31.3	84.6	41	5	52.15
14	ST 4990 B3XF	1100	37.5	4.4	1.24	31.5	85.8	41	4	54.45
15	NG 4190 B3XF	1080	42.4	4.5	1.20	31.7	85.3	41	4	54.45
Average		1264	42.3	4.5	1.19	31.4	84.2	40	4	53.70

Table CST5. Results from the 2021 Crockett (King) XtendFlex County Standard Trial planted May 20th and harvested Nov. 19th.

Yield Rank	Variety	Lint Yield (lb/ac)	Turnout (%)	Mic	Length (in.)	Strength (g/tex)	Unif. (%)	HVI Color	Leaf Grade	Loan Value
1	DP 2115 B3XF	998	40.6	5.8	1.18	25.5	84.3	41	6	40.80
2	NG 3195 B3XF	938	39.4	4.4	1.17	32.4	84.7	41	4	54.30
3	DP 2127 B3XF	921	41.6	4.9	1.15	31.0	84.1	41	5	52.05
4	AR 9608 B3XF	913	43.4	4.1	1.16	30.8	83.7	31	5	53.00
5	ST 5091 B3XF	901	39.9	4.2	1.13	27.9	80.2	41	4	53.65
6	ST 4993 B3XF	893	41.6	4.3	1.18	31.9	84.8	31	3	57.15
7	DG 3456 B3XF	885	41.2	4.3	1.18	28.6	83.6	41	3	54.55
8	DP 2012 B3XF	872	39.0	4.1	1.18	33.2	83.7	41	5	52.15
9	NG 4190 B3XF	862	40.5	4.3	1.19	30.9	84.9	41	5	51.85
10	AR 9371 B3XF	845	40.4	4.6	1.15	29.2	84.0	41	5	51.70
11	DP 2020 B3XF	829	38.6	4.0	1.22	30.4	85.1	41	6	49.15
12	NG 5150 B3XF	814	41.5	4.2	1.20	30.4	82.8	41	6	49.00
13	DP 2038 B3XF	812	41.7	4.4	1.14	29.9	83.6	31	5	52.75
14	DG 3535 B3XF	809	39.1	4.2	1.17	30.6	82.9	41	6	49.00
15	ST 4990 B3XF	784	34.5	4.2	1.25	31.6	85.0	41	4	54.55
Average		872	40.2	4.4	1.18	30.3	83.8	41	5	51.71

Table CST6. Results from the 2021 Fayette XtendFlex County Standard Trial planted May 24th and harvested Oct. 26th.

Yield Rank	Variety	Lint Yield (lb/ac)	Turnout (%)	Mic	Length (in.)	Strength (g/tex)	Unif. (%)	HVI Color	Leaf Grade	Loan Value
1	ST 5091 B3XF	869	40.7	4.2	1.19	32.6	84.7	41	5	52.15
2	AR 9608 B3XF	837	43.6	4.7	1.16	32.2	82.3	41	4	54.20
3	NG 5150 B3XF	810	40.3	-	-	-	-	-	-	-
4	DP 2115 B3XF	809	40.3	4.9	1.12	31.2	83.7	41	4	54.05
5	DG 3456 B3XF	781	42.4	4.7	1.16	30.0	83.7	41	4	54.05
6	NG 3195 B3XF	725	40.1	4.9	1.15	33.1	84.1	41	3	54.85
7	NG 4190 B3XF	710	38.6	4.2	1.23	33.2	85.4	41	5	52.25
8	ST 4990 B3XF	710	37.1	4.7	1.16	29.7	82.5	41	4	53.85
9	DP 2127 B3XF	705	40.6	5.2	1.18	32.8	84.7	41	3	52.60
10	DP 2020 B3XF	703	37.9	4.5	1.21	32.7	85.5	41	5	52.10
11	ST 4993 B3XF	702	41.5	5.0	1.16	33.4	85.4	31	4	53.10
12	DP 2038 B3XF	701	42.6	5.1	1.13	32.3	82.9	41	4	51.60
13	DG 3535 B3XF	692	39.8	4.6	1.21	32.4	82.8	41	5	51.95
14	AR 9371 B3XF	689	38.9	4.7	1.17	31.0	85.1	41	4	54.35
15	DP 2012 B3XF	688	39.1	4.2	1.23	31.8	84.2	41	4	54.50
Average		742	40.2	4.7	1.18	32.0	84.1	40	4	53.26

Table CST7. Results from the 2021 Gibson County Standard Trial including both Enlist and XtendFlex varieties planted May 18th and harvested Nov. 29th.

Yield Rank	Variety	Lint Yield (lb/ac)	Turnout (%)	Mic	Length (in.)	Strength (g/tex)	Unif. (%)	HVI Color	Leaf Grade	Loan Value
1	ST 5091 B3XF	1310	39.6	3.7	1.17	29.2	81.1	41	4	53.90
2	DP 2038 B3XF	1268	41.9	4.1	1.14	30.2	82.1	41	4	54.10
3	PHY 400 W3FE	1207	39.7	3.9	1.20	33.4	84.1	41	5	52.20
4	DP 2012 B3XF	1197	37.3	3.7	1.18	31.7	83.6	41	5	52.10
5	DG 3456 B3XF	1179	39.2	3.7	1.19	29.9	83.2	41	5	51.75
6	DP 2115 B3XF	1179	40.5	4.0	1.17	31.2	83.5	41	5	52.10
7	DP 2020 B3XF	1155	36.3	3.7	1.20	30.7	83.1	41	5	51.90
8	PHY 332 W3FE	1132	38.8	4.2	1.20	32.4	83.5	41	5	52.10
9	PHY 360 W3FE	1112	38.1	3.9	1.17	28.7	82.8	41	6	48.80
10	DP 2127 B3XF	1104	38.0	3.8	1.15	30.3	83.9	41	5	51.90
11	PX4B08 W3FE	1090	38.8	3.9	1.10	31.1	82.5	41	5	51.10
12	NG 3195 B3XF	1086	38.7	4.0	1.19	31.4	83.7	41	5	52.10
13	AR 9371 B3XF	1059	38.3	3.9	1.17	29.4	84.0	41	4	54.05
14	ST 4990 B3XF	1039	36.1	3.9	1.22	30.0	84.2	41	4	54.30
15	ST 4993 B3XF	1038	39.6	3.8	1.17	31.9	84.6	31	5	53.25
16	AR 9608 B3XF	1037	40.4	3.7	1.18	29.8	82.8	41	6	48.85
17	DG 3535 B3XF	1035	37.7	3.6	1.22	30.7	84.3	41	4	54.20
18	PHY 443 W3FE	1034	37.7	4.2	1.15	30.4	84.2	41	6	49.10
19	NG 5150 B3XF	1007	38.6	4.0	1.18	29.9	82.4	41	5	51.70
20	NG 4190 B3XF	902	37.4	3.5	1.19	28.5	83.0	41	5	51.60
Average		1108	38.6	3.9	1.18	30.5	83.3	41	5	52.06

Table CST8. Results from the 2021 Haywood (Booth) County Standard Trial including both Enlist and XtendFlex varieties planted May 19th and harvested Oct. 27th.

Yield Rank	Variety	Lint Yield (lb/ac)	Turnout (%)	Mic	Length (in.)	Strength (g/tex)	Unif. (%)	HVI Color	Leaf Grade	Loan Value
1	AR 9608 B3XF	1387	43.8	4.0	1.18	30.8	82.9	31	5	52.95
2	DP 2115 B3XF	1376	43.8	4.4	1.17	31.1	85.0	41	5	52.10
3	NG 3195 B3XF	1350	41.3	4.5	1.20	33.8	86.1	41	4	54.55
4	DP 2038 B3XF	1315	44.9	4.3	1.12	31.7	84.3	31	4	55.10
5	ST 5091 B3XF	1268	41.3	4.0	1.17	31.6	83.5	41	4	54.35
6	DG 3535 B3XF	1224	41.7	4.2	1.24	31.7	85.1	31	4	55.60
7	DP 2012 B3XF	1221	40.2	4.1	1.20	32.6	84.6	31	5	53.25
8	AR 9371 B3XF	1209	42.3	4.3	1.20	31.0	86.0	41	4	54.50
9	DP 2020 B3XF	1206	39.5	4.0	1.24	32.2	84.2	41	5	52.15
10	ST 4990 B3XF	1205	38.6	4.4	1.23	32.0	86.3	41	4	54.50
11	DP 2127 B3XF	1181	41.7	4.3	1.18	31.5	85.8	31	5	53.20
12	NG 5150 B3XF	1174	41.4	4.1	1.19	32.4	84.1	31	4	55.55
13	ST 4993 B3XF	1157	41.6	4.6	1.16	34.4	86.0	31	3	57.15
14	DG 3456 B3XF	1125	42.1	4.1	1.18	31.3	85.5	31	4	55.60
15	NG 4190 B3XF	1083	40.8	4.1	1.21	31.8	86.0	41	5	52.25
Average		1232	41.7	4.2	1.19	32.0	85.0	31	4	54.19

Table CST9. Results from the 2021 Haywood (Farmer) County Standard Trial including both Enlist and XtendFlex varieties planted May 20th and harvested Nov. 9th.

Yield Rank	Variety	Lint Yield (lb/ac)	Turnout (%)	Mic	Length (in.)	Strength (g/tex)	Unif. (%)	HVI Color	Leaf Grade	Loan Value
1	DG 3456 B3XF	1272	42.4	4.4	1.17	29	83.6	41	5	51.65
2	AR 9371 B3XF	1221	41.6	4.7	1.21	32.7	85.7	41	5	52.10
3	DP 2115 B3XF	1202	43.4	4.9	1.16	30.9	84.7	41	4	54.10
4	DP 2127 B3XF	1105	42.1	5.1	1.17	32.6	85.5	41	3	52.45
5	DP 2038 B3XF	1083	46.3	4.9	1.12	30.4	84.1	41	4	53.90
6	DP 2012 B3XF	1074	39.8	4.3	1.23	32.6	86.8	41	5	52.15
7	DG 3535 B3XF	1064	41.8	4.4	1.19	32.9	83.0	41	5	52.00
8	ST 4990 B3XF	1051	38.9	4.4	1.23	32.9	84.8	41	3	55.00
9	ST 4993 B3XF	1049	43.1	4.9	1.19	35.3	86.3	41	5	52.20
10	NG 3195 B3XF	1044	42.3	4.7	1.16	31.7	84.1	41	5	52.05
11	ST 5091 B3XF	1013	41.7	4.2	1.22	32.1	84.4	41	5	52.15
12	DP 2020 B3XF	986	41.1	4.4	1.23	31.7	85.0	41	4	54.45
13	NG 4190 B3XF	974	41.4	4.7	1.22	33.6	86.1	41	5	52.20
14	NG 5150 B3XF	928	42.4	4.7	1.20	31.1	84.1	41	5	52.05
15	AR 9608 B3XF	902	44.1	5.3	1.22	28.9	84.2	41	5	47.75
Average		1064	42.2	4.7	1.19	31.9	84.8	41	5	52.41

Table CST10. Results from the 2021 Henry Enlist County Standard Trial planted May 20th and harvested Nov. 23rd.

Yield Rank	Variety	Lint Yield (lb/ac)	Turnout (%)	Mic	Length (in.)	Strength (g/tex)	Unif. (%)	HVI Color	Leaf Grade	Loan Value
1	PHY 400 W3FE	1544	43.3	4.0	1.19	33.6	83.6	41	4	54.50
2	PX4B08 W3FE	1492	41.4	4.3	1.12	31.4	82.2	41	5	51.85
3	PHY 360 W3FE	1477	40.7	4.3	1.18	28.5	82.8	41	5	51.55
4	PHY 332 W3FE	1408	39.7	4.1	1.18	32.7	83.4	41	4	54.45
5	PHY 443 W3FE	1391	38.8	4.2	1.15	32.3	84.3	41	4	54.40
Average		1463	40.8	4.2	1.16	31.7	83.3	41	4	53.35

Table CST11. Results from the 2021 Lake XtendFlex County Standard Trial planted May 14th and harvested Nov. 8th.

Yield Rank	Variety	Lint Yield (lb/ac)	Turnout (%)	Mic	Length (in.)	Strength (g/tex)	Unif. (%)	HVI Color	Leaf Grade	Loan Value
1	AR 9608 B3XF	1668	43.9	4.2	1.22	31.8	84.7	41	6	49.30
2	DP 2038 B3XF	1616	43.9	4.3	1.20	30.6	83.7	41	4	54.15
3	ST 4990 B3XF	1530	38.5	3.8	1.22	30.8	84.6	41	6	49.10
4	DP 2020 B3XF	1526	38.9	4.3	1.19	30.7	84.5	41	5	51.85
5	ST 4993 B3XF	1511	40.7	4.2	1.17	31.9	83.8	41	5	52.10
6	DG 3535 B3XF	1509	41.2	4.2	1.20	31.8	85.2	41	5	52.20
7	NG 5150 B3XF	1486	40.3	4.1	1.23	33.8	84.1	41	5	52.20
8	DG 3456 B3XF	1482	41.2	3.7	1.25	31.7	84.9	41	5	52.15
9	DP 2115 B3XF	1472	38.0	4.3	1.18	29.5	84.8	41	4	54.05
10	NG 3195 B3XF	1458	40.8	3.7	1.23	31.7	83.9	41	5	52.10
11	AR 9371 B3XF	1342	40.6	4.0	1.19	33.6	83.6	41	4	54.50
12	DP 2012 B3XF	1302	39.1	4.3	1.12	31.4	82.2	41	5	51.85
13	NG 4190 B3XF	1294	39.2	4.3	1.18	28.5	82.8	41	5	51.55
14	DP 2127 B3XF	1287	40.3	4.1	1.18	32.7	83.4	41	4	54.45
15	ST 5091 B3XF	1206	40.9	4.2	1.15	32.3	84.3	41	4	54.40
Average		1446	40.5	4.1	1.19	31.5	84.0	41	5	52.40

Table CST12. Results from the 2021 Lauderdale XtendFlex County Standard Trial planted May 22nd and harvested Oct. 26th.

Yield Rank	Variety	Lint Yield (lb/ac)	Turnout (%)	Mic	Length (in.)	Strength (g/tex)	Unif. (%)	HVI Color	Leaf Grade	Loan Value
1	ST 5091 B3XF	1196	42.5	4.3	1.19	30.1	84.2	41	3	54.80
2	NG 3195 B3XF	1188	41.7	4.6	1.17	33.0	84.4	41	4	54.35
3	DP 2115 B3XF	1182	42.5	4.8	1.15	32.0	84.3	41	5	52.05
4	NG 5150 B3XF	1177	42.2	4.7	1.20	32.1	85.1	41	3	55.05
5	AR 9608 B3XF	1177	44.9	4.2	1.21	31.6	84.5	41	6	49.30
6	DP 2038 B3XF	1124	43.1	4.6	1.14	32.3	84.5	41	4	54.30
7	DG 3535 B3XF	1108	40.9	4.4	1.22	32.9	84.0	41	5	52.05
8	NG 4190 B3XF	1107	41.5	4.5	1.21	33.6	86.5	41	5	52.20
9	DP 2127 B3XF	1097	43.3	4.7	1.18	32.9	85.3	41	5	52.10
10	DP 2012 B3XF	1095	40.8	4.5	1.16	33.9	84.2	41	5	52.10
11	ST 4993 B3XF	1093	41.9	4.9	1.20	35.1	85.8	41	4	54.50
12	DG 3456 B3XF	1090	42.5	4.4	1.18	30.5	84.0	41	4	54.20
13	AR 9371 B3XF	1063	43.2	4.8	1.16	32.2	85.2	41	5	52.10
14	ST 4990 B3XF	1025	37.0	4.6	1.21	32.1	85.0	41	5	52.10
15	DP 2020 B3XF	-	40.2	4.4	1.21	30.6	84.4	41	4	54.20
Average		1123	41.9	4.6	1.19	32.3	84.8	41	4	53.03

Table CST13. Results from the 2021 Lincoln XtendFlex County Standard Trial planted May 17th and harvested Nov. 13th.

Yield Rank	Variety	Lint Yield (lb/ac)	Turnout (%)	Mic	Length (in.)	Strength (g/tex)	Unif. (%)	HVI Color	Leaf Grade	Loan Value
1	DP 2038 B3XF	1635	44.1	4.1	1.13	28.6	81.9	31	4	54.65
2	ST 5091 B3XF	1486	43.7	3.6	1.19	29.4	82.6	41	4	53.95
3	ST 4993 B3XF	1443	42.6	4.4	1.16	30.5	84.6	31	3	56.80
4	DP 2012 B3XF	1405	40.0	3.8	1.19	31.5	84.6	41	4	54.50
5	ST 4990 B3XF	1405	37.0	4.2	1.22	30.5	84	41	4	54.30
6	DP 2115 B3XF	1398	42.3	4.1	1.18	30	83.9	31	4	55.30
7	NG 3195 B3XF	1387	41.5	4.2	1.17	31.4	83.6	41	4	54.35
8	DG 3535 B3XF	1335	39.6	3.7	1.23	30.7	83.7	31	4	55.30
9	DG 3456 B3XF	1323	41.5	3.7	1.15	28.6	79.8	31	4	54.40
10	DP 2127 B3XF	1309	40.9	4.5	1.12	29.8	81	41	3	54.20
11	AR 9608 B3XF	1255	42.9	3.9	1.16	29.5	82.3	41	4	53.95
12	DP 2020 B3XF	1224	38.8	3.9	1.22	30.5	84.2	31	4	55.35
13	NG 4190 B3XF	1212	39.6	4	1.21	30.6	84.5	41	5	51.95
14	AR 9371 B3XF	1183	40.6	4.1	1.19	30	84.6	41	3	54.90
15	NG 5150 B3XF	1147	41.0	3.8	1.22	31.7	82.4	41	4	54.40
Average		1343	41.1	4	1.18	30.2	83.2	41	4	54.55

Table CST14. Results from the 2021 Tipton Enlist County Standard Trial planted May 20th and harvested Oct. 20th.

Yield Rank	Variety	Lint Yield (lb/ac)	Turnout (%)	Mic	Length (in.)	Strength (g/tex)	Unif. (%)	HVI Color	Leaf Grade	Loan Value
1	PHY 360 W3FE	1709	41.3	4.3	1.2	31.6	83.9	41	5	52.00
2	PHY 400 W3FE	1619	41.7	4.2	1.2	32.8	83.6	41	5	52.10
3	PHY 332 W3FE	1384	40.2	4.1	1.24	33.5	85.3	41	5	52.25
4	PX4B08 W3FE	1368	41.5	4.7	1.14	32.9	83.1	41	5	52.00
5	PHY 443 W3FE	1238	39.9	4.5	1.17	32.8	83.8	41	5	52.00
Average		1464	40.9	4.4	1.19	32.7	83.9	41	5	52.07

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.