



2013 Extension Cotton On-Farm Variety Testing

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Extension large-plot on-farm replicated cotton variety trials are an important component in modern germplasm evaluation. Producer-cooperator and industry support for these trials is substantial. These trials enable growers to observe the newest genetics and transgenic traits on their operations, under their management conditions and are planted and harvested with their equipment. Multiple sites have provided excellent information on which growers can base important variety selection decisions. The objective of this project was to evaluate multiple cotton varieties in producer-cooperator fields under irrigated and dryland management systems.

Six large-plot trials were planted and harvested using grower equipment. The testing locations were Custer, Harmon, Tillman, Jackson, Beckham and Washita Counties. Most trials were established under no-till or strip-till conditions. For the Replicated Agronomic Cotton Evaluation (RACE) trials, typically 6-8 entries (one entry per brand name, plus a grower choice option) were planted at each site, with 3 replicates used. The Cotton Incorporated Core program provided direct support for two trials, the Enhanced Variety Trials, which contained up to 10 entries and 3 replicates (Custer and Harmon Counties). A West Texas Lee weigh wagon (for boll buggies) or Western Forage Systems platform scale (for round modules) was utilized to capture plot weights. At harvest, grab samples were taken from each plot and ginned at the Texas A&M AgriLife Research and Extension Center at Lubbock. Fiber samples were submitted to the Texas Tech University Fiber and Biopolymer Research Institute for high volume instrument (HVI) analysis. Color and leaf grades were set to 21 and 2, respectively, for each sample. HVI data were used to compute the Commodity Credit Corporation (CCC) Loan value for each sample. Final plant heights and visual estimates of storm resistance were taken prior to harvest.

Replicated trials are used in order to obtain multiple independent observations of each variety's performance in comparison with other entries. Statistical analyses of each characteristic reported are represented by "protected" LSD (least significant difference) values given at the bottom of each column in the table. If the difference between the characteristic of concern (i.e. yield, lint turnout, staple, etc) of any two varieties exceeds the LSD (0.05) value provided, then the chances are approximately 95 out of 100 that the difference is real and not a result of other factors such as random error.

The data indicated that in spite of the continuing severe drought situation in far southwestern counties, irrigated cotton performed very well in 2013. This can be attributed to some timely precipitation and cooler temperatures in July and September cotton heat unit accumulation that was about 30% above normal.

Cultural practices and other information for each site are provided in Table 1. Data summaries for each location are provided in Tables 2-13. Summaries across locations for several important characteristics are provided in Tables 14-22.

Mean lint yields at all irrigated sites exceeded 3 bales/acre, and one site averaged above 4 bales/acre. The single dryland location averaged about 600 lbs/acre. Lint yields from on-farm irrigated trial yields were generally a function of available water and delivery efficiency in these fields, but timely rainfall assisted in producing exceptional yields at some sites. Test average yields ranged from a low of 1570 lb/acre in a furrow irrigated trial to over 2100 lb/acre in a center pivot trial.

Net value/acre in this report is defined as lint loan value on a per acre basis plus seed value, which equals total potential income/acre. Total potential income/acre minus ginning cost and seed and technology fees/acre then define net value/acre. Net value/acre averaged \$1134/acre across all irrigated sites and ranged from a low of \$967 to a high of \$1362. Within site differences were most expressed at the Custer County location. When comparing the top and bottom producing entries, a difference of about \$600/acre could be attributed to variety selection in this field in 2013. When the four common entries across all locations were compared, it is evident that the Stoneville 4946GLB2 entry was very competitive with PhytoGen 499WRF and NexGen 1511B2RF. Across the 5 sites, the FiberMax 1944GLB2 was about \$100/acre less competitive than the Stoneville 4946GLB2.

Another important attribute producers should consider include storm resistance. Storm resistance ratings were visually scored just prior to harvest. These ratings range from 1 (bolls loose, with considerable seedcotton loss) to 9 (bolls very tight, with no seedcotton loss). The degree of storm tolerance that a grower can accept can vary from one operation to another. The most important consideration is to be aware of the storm tolerance of varieties planted. This is a major component of risk management.

Plant height is another varietal characteristic that producers should investigate. The plant heights provided were measured near the end of the growing season, prior to harvest aid applications. Excessive rainfall and/or irrigation coupled with high nitrogen fertility can result in varieties producing large plants in spite of high doses of mepiquat based plant growth regulators.

Fiber quality among entries was generally good to excellent unless maturity or late season stress (on dryland) was encountered. The HVI data include several important fiber property measurements. Fiber length (staple when expressed as 32nds), micronaire, strength, and uniformity are the fiber properties reported which partially determine the price per pound for lint. Fiber length was measured as the upper half

mean (in inches). Those measurements were also converted into 32's to determine staple. Uniformity was obtained by dividing mean length (also measured in inches) by the upper half mean length and expressing the result as a percentage. Micronaire is actually a confounded measurement of both fiber fineness and maturity. Micronaire was measured in standard micronaire units. Fiber strength was measured in grams-force per tex on a "beard of fibers" during HVI analysis.

Higher values for lint yield, lint turnout, staple, strength, and uniformity are generally more desirable than lower ones. Micronaire is acceptable anywhere within the micronaire "base" range of 3.5 to 4.9 inclusive. The "premium" range is between 3.7 and 4.2 inclusive. If micronaire falls in the "discount" range (below 3.5 or above 4.9), the price per pound of lint is reduced. Penalties tend to be more severe for micronaire values below 3.5 (especially below 3.0) than for those above 4.9. Therefore, producers should probably select varieties with micronaire values toward the upper half of the range, rather than the lower.

The results from these trials indicate that variety selection in 2013 was very important at some sites. Differences in yields (lb/acre) between highest and lowest lint producers were 910, 236, 139, 245, and 525 among irrigated sites. This difference was 167 lb/acre for the dryland site.

ACKNOWLEDGEMENTS

The authors thank our cooperators: Merlin Schantz, Tony Cox, John McCullough, Drew Darby, Jack Damron, and Danny Davis. We also thank Dr. Mark Kelley and Rhett Overman for sample ginning, and the TTU-FBRI personnel for timely assistance with HVI analysis.



Provided by OSU Extension Cotton Team, Southwest Research and Extension Center, Altus

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Table 1. 2013 Cultural information for Extension large plot trial sites.

	Irrigated Cotton Inc Enhanced Variety		Irrigated RACE			Dryland RACE
County-location	Custer - Hydro	Harmon - Hollis	Tillman - Tipton	Jackson - Duke	Beckham - Delhi	Washita - Elk City
Cooperator	Merlin Schantz	Tony Cox	John McCullough	Drew Darby	Jack Damron	Danny Davis
Tillage system	strip till	conventional till	conventional till	conventional till	strip till	no-till
Planting date	21-May	17-May	23-May	16-May	10-May	4-Jun
Seeding rate	49,000	50,000	37,250	47,000	35,000	30,000
Row spacing	36 inches	40 inches	40 inches	40 inches	40 inches	40 inches
Replicates	3	3	3	3	3	3
Harvested plot width	8 rows	6 rows	4 rows	4 rows	4 rows	6 rows
Harvested plot length	600 ft	1300 ft	1000 ft	750 ft	525 ft	1100 ft
Harvest date	3-Dec	4-Nov	1-Nov	14-Nov	9-Nov	2-Dec
Comments	pivot irrigation	subsurface drip irrigation 10% defoliation by hail on August 16	furrow irrigation	furrow irrigation	pivot irrigation	good early season, late stress
Harvester type	stripper with field cleaner	picker	stripper with field cleaner	stripper with field cleaner	stripper with field cleaner	stripper with field cleaner
Entries	FM 1944GLB2 ST 4946GLB2 PHY 499WRF CG 3787B2RF NG 1511B2RF DP 1044B2RF DP 0912B2RF DG 2570B2RF	FM 1944GLB2 ST 4946GLB2 PHY 499WRF CG 3787B2RF NG 1511B2RF DP 1359B2RF DP 1219B2RF DP 1044B2RF	FM 1944GLB2 ST 4946GLB2 PHY 499WRF CG 3156B2RF NG 1511B2RF DP 1044B2RF	FM 1944GLB2 ST 4946GLB2 PHY 499WRF CG 3787B2RF NG 1511B2RF DP 1044B2RF	FM 1944GLB2 ST 4946GLB2 PHY 499WRF CG 3787B2RF NG 1511B2RF DP 1219B2RF	FM 1944GLB2 ST 4946GLB2 PHY 499WRF CG 3156B2RF NG 1511B2RF DP 1044B2RF
Grower's choice	DP 1219B2RF	none	none	DP 1359B2RF	none	DP 1137B2RF

Table 2. Harvest results from the Beckham County irrigated RACE trial, Jack Damron Farm, Delhi, OK, 2013.

Entry	Lint turnout	Seed turnout	Bur cotton yield	Lint yield	Seed yield	Lint loan value	Lint value	Seed value	Total value	Ginning cost	Seed/tech cost	Net value
	----- % -----		----- lb/acre -----			--\$/lb--			----- \$/acre -----			
Croplan Genetics 3787B2RF	34.1	49.3	6684	2278	3293	0.5798	1321	379	1699	201	50	1448 a
Stoneville 4946GLB2	33.1	53.2	6638	2190	3531	0.5817	1274	406	1680	199	53	1428 a
NexGen 1511B2RF	34.0	49.2	6542	2224	3218	0.5810	1292	370	1662	196	47	1419 a
PhytoGen 499WRF	34.2	51.0	6334	2166	3229	0.5812	1259	371	1630	190	49	1391 a
Deltapine 1219B2RF	31.6	50.6	6651	2103	3361	0.5810	1222	387	1608	200	49	1360 a
FiberMax 1944GLB2	29.3	50.1	5979	1753	2994	0.5800	1017	344	1361	179	53	1128 b
Test average	32.7	50.6	6471	2119	3271	0.5808	1231	376	1607	194	50	1362
CV, %	2.1	2.6	4.4	4.5	4.5	0.1	4.5	4.5	4.5	4.4	--	4.6
OSL	<0.0001	0.0355	0.0850	0.0006	0.0219	0.0357	0.0006	0.0219	0.0018	0.0850	--	0.0010
LSD	1.3	2.4	425†	173	266	0.0012	100	31	131	13†	--	115

For net value/acre, means within a column with the same letter are not significantly different.

CV - coefficient of variation.

OSL - observed significance level, or probability of a greater F value.

LSD - least significant difference at the 0.05 level, † indicates significance at the 0.10 level, NS - not significant.

Note: some columns may not add up due to rounding error.

Assumes:

\$3.00/cwt ginning cost.

\$230/ton for seed.

Value for lint based on CCC loan value from grab samples and FBRI HVI results.

Color grades set to 21, leaf grades set to 2 for entire trial.

Table 3. Harvest results from the Beckham County irrigated RACE trial, Jack Damron Farm, Delhi, OK, 2013.

Entry	Final population	Final plant height	Storm resistance	Micronaire	Staple	Strength	Uniformity
	plants/acre	inches	1-9 visual scale*	units	32nds inch	g/tex	%
Croplan Genetics 3787B2RF	25,352	35.2	4.2	4.0	37.3	29.6	81.8
Deltapine 1219B2RF	29,359	38.8	6.2	3.7	38.2	32.9	80.9
FiberMax 1944GLB2	28,140	30.2	6.2	3.8	38.2	30.6	80.7
NexGen 1511B2RF	27,791	31.9	4.8	4.0	36.3	31.6	81.6
PhytoGen 499WRF	27,356	40.0	5.5	4.0	37.1	31.6	81.5
Stoneville 4946GLB2	27,356	32.2	7.2	4.0	37.3	32.0	81.4
Test average	27,559	34.7	5.7	3.9	37.4	31.4	81.3
CV, %	6.2	10.6	5.6	2.8	1.4	1.7	0.7
OSL	0.2083	0.0427	<0.0001	0.011	0.0077	0.0005	0.2208
LSD	NS	6.7	0.6	0.2	0.9	1.0	NS

CV - coefficient of variation.

OSL - observed significance level, or probability of a greater F value.

LSD - least significant difference at the 0.05 level, † indicates significance at the 0.10 level, NS - not significant.

*Visual storm resistance scale: 1=loose, 9=tight.

Assumes:

Color grades set to 21, leaf grades set to 2 for entire trial.

Table 4. Harvest results from the Jackson County irrigated RACE trial, Drew Darby Farm, Duke, OK, 2013.

Entry	Lint turnout	Seed turnout	Bur cotton yield	Lint yield	Seed yield	Lint loan value	Lint value	Seed value	Total value	Ginning cost	Seed/tech cost	Net value	
	----- % -----		----- lb/acre -----			--\$/lb--			----- \$/acre -----				
PhytoGen 499WRF	35.7	49.2	4767	1701	2344	0.5785	984	270	1254	143	66	1044	a
Grower's Choice Deltapine 1359B2RF	34.8	52.3	4774	1660	2496	0.5777	959	287	1246	143	72	1031	ab
Deltapine 1044B2RF	33.2	51.7	4716	1567	2437	0.5770	904	280	1184	141	65	978	abc
NexGen 1511B2RF	36.7	50.0	4371	1606	2186	0.5623	904	251	1156	131	63	962	bc
Stoneville 4946GLB2	34.2	52.9	4418	1510	2336	0.5803	876	269	1145	133	72	941	c
Croplan Genetics 3787B2RF	36.4	50.8	4094	1489	2078	0.5790	862	239	1101	123	68	911	c
FiberMax 1944GLB2	34.1	52.5	4270	1456	2243	0.5788	843	258	1100	128	72	901	c
Test average	35.0	51.3	4487	1570	2303	0.5762	905	265	1169	135	68	967	
CV, %	3.5	2.9	4.3	4.4	4.3	1.2	4.5	4.3	4.4	4.3	--	4.8	
OSL	0.0318	0.0696	0.0049	0.0077	0.0033	0.1018	0.0106	0.0032	0.0142	0.0049	--	0.0142	
LSD	2.1	2.1†	345	124	176	NS	72	20	92	10	--	82	

For net value/acre, means within a column with the same letter are not significantly different.

CV - coefficient of variation.

OSL - observed significance level, or probability of a greater F value.

LSD - least significant difference at the 0.05 level, † indicates significance at the 0.10 level, NS - not significant.

Note: some columns may not add up due to rounding error.

Assumes:

\$3.00/cwt ginning cost.

\$230/ton for seed.

Value for lint based on CCC loan value from grab samples and FBRI HVI results.

Color grades set to 21, leaf grades set to 2 for entire trial.

Table 5. Harvest results from the Jackson County irrigated RACE trial, Drew Darby Farm, Duke, OK, 2013.

Entry	Final population	Final plant height	Storm resistance	Micronaire	Staple	Strength	Uniformity
	plants/acre	inches	1-9 visual scale*	units	32nds inch	g/tex	%
Croplan Genetics 3787B2RF	33,541	27.8	4.3	4.4	37.1	29.7	82.0
Deltapine 1044B2RF	40,685	24.9	6.2	4.5	35.8	30.1	81.4
FiberMax 1944GLB2	33,977	24.4	6.7	4.5	37.0	30.3	81.2
Grower's Choice Deltapine 1359B2RF	35,632	28.7	3.7	4.2	37.1	30.6	79.7
NexGen 1511B2RF	39,204	25.4	4.2	4.7	35.0	30.5	81.5
PhytoGen 499WRF	35,371	29.5	5.2	4.6	36.0	31.7	82.5
Stoneville 4946GLB2	35,458	22.8	7.2	4.6	36.9	32.3	82.4
Test average	36,267	26.2	5.3	4.5	36.4	30.7	81.5
CV, %	6.2	9.1	6.0	3.9	1.5	2.5	0.7
OSL	0.0163	0.0400	<0.0001	0.0497	0.0023	0.0163	0.0017
LSD	4,000	4.2	0.6	0.3	1.0	1.4	1.1

CV - coefficient of variation.

OSL - observed significance level, or probability of a greater F value.

LSD - least significant difference at the 0.05 level, † indicates significance at the 0.10 level, NS - not significant.

*Visual storm resistance scale: 1=loose, 9=tight.

Assumes:

Color grades set to 21, leaf grades set to 2 for entire trial.

Table 6. Harvest results from the Tillman County irrigated RACE trial, John McCullough Farm, Tipton, OK, 2013.

Entry	Lint turnout	Seed turnout	Bur cotton yield	Lint yield	Seed yield	Lint loan value	Lint value	Seed value	Total value	Ginning cost	Seed/tech cost	Net value
	----- % -----		----- lb/acre -----			--\$/lb--			----- \$/acre -----			
PhytoGen 499WRF	32.7	47.9	5981	1954	2866	0.5743	1123	330	1453	179	53	1221 a
Stoneville 4946GLB2	30.0	47.4	6488	1944	3074	0.5738	1115	353	1469	195	57	1217 a
FiberMax 1944GLB2	32.2	48.8	5898	1900	2879	0.5722	1089	331	1420	177	57	1186 a
Deltapine 1044B2RF	28.4	49.8	6392	1815	3181	0.5752	1043	366	1409	192	52	1166 a
Croplan Genetics 3156B2RF	29.0	45.6	6540	1895	2983	0.5652	1071	343	1414	196	52	1166 a
NexGen 1511B2RF	32.1	45.7	5900	1893	2696	0.5600	1062	310	1372	177	50	1145 a
Test average	30.7	47.5	6200	1900	2947	0.5701	1084	339	1423	186	53	1183
CV, %	6.5	6.5	6.3	6.3	6.5	1.9	6.8	6.5	6.6	6.3	--	7.0
OSL	0.0973	0.5280	0.1968	0.7552	0.1107	0.4856	0.7422	0.1109	0.8401	0.1963	--	0.8347
LSD	2.9†	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	NS

For net value/acre, means within a column with the same letter are not significantly different.

CV - coefficient of variation.

OSL - observed significance level, or probability of a greater F value.

LSD - least significant difference at the 0.05 level, † indicates significance at the 0.10 level, NS - not significant.

Note: some columns may not add up due to rounding error.

Assumes:

\$3.00/cwt ginning cost.

\$230/ton for seed.

Value for lint based on CCC loan value from grab samples and FBRI HVI results.

Color grades set to 21, leaf grades set to 2 for entire trial.

Table 7. Harvest results from the Tillman County irrigated RACE trial, John McCullough Farm, Tipton, OK, 2013.

Entry	Final population	Final plant height	Storm resistance	Micronaire	Staple	Strength	Uniformity
	plants/acre	inches	1-9 visual scale*	units	32nds inch	g/tex	%
Croplan Genetics 3156B2RF	38,333	37.3	6.0	4.2	34.8	28.5	79.7
Deltapine 1044B2RF	33,541	39.7	7.0	4.2	35.9	30.5	81.2
FiberMax 1944GLB2	33,803	36.4	7.3	4.5	36.3	30.0	79.9
NexGen 1511B2RF	35,197	38.9	5.0	4.6	35.0	30.4	80.0
PhytoGen 499WRF	34,935	40.2	5.3	4.5	35.4	31.0	81.2
Stoneville 4946GLB2	36,678	38.9	6.0	4.5	36.1	30.7	80.6
Test average	35,414	38.6	6.1	4.4	35.6	30.2	80.5
CV, %	7.4	8.5	5.7	4.7	2.4	3.2	1.2
OSL	0.2952	0.7157	<0.0001	0.1002	0.2690	0.0953	0.3132
LSD	NS	NS	0.6	NS	NS	1.4†	NS

CV - coefficient of variation.

OSL - observed significance level, or probability of a greater F value.

LSD - least significant difference at the 0.05 level, † indicates significance at the 0.10 level, NS - not significant.

*Visual storm resistance scale: 1=loose, 9=tight.

Assumes:

Color grades set to 21, leaf grades set to 2 for entire trial.

Table 8. Harvest results from the Harmon County irrigated Cotton Incorporated Enhanced Variety trial, Tony Cox Farm, Hollis, OK, 2013.

Entry	Lint turnout	Seed turnout	Bur cotton yield	Lint yield	Seed yield	Lint loan value	Lint value	Seed value	Total value	Ginning cost	Seed/tech cost	Net value	
	----- % -----		----- lb/acre -----			--\$/lb--			----- \$/acre -----				
PhytoGen 499WRF	37.2	53.4	5143	1915	2745	0.5802	1111	316	1427	154	71	1202	a
NexGen 1511B2RF	36.9	50.9	5177	1912	2637	0.5783	1105	303	1409	155	67	1186	ab
Deltapine 1044B2RF	34.0	54.6	5356	1819	2924	0.5778	1051	336	1387	161	69	1157	abc
Stoneville 4946GLB2	34.7	55.0	5093	1769	2802	0.5803	1026	322	1349	153	76	1119	abcd
FiberMax 1740B2F	35.7	54.0	4898	1779	2689	0.5740	1021	309	1330	147	69	1115	abcd
FiberMax 1944GLB2	33.9	55.4	4853	1726	2825	0.5783	998	325	1323	146	76	1101	bcd
Deltapine 1219B2RF	35.0	54.3	4987	1743	2708	0.5732	999	311	1310	150	69	1091	cd
Croplan Genetics 3787B2RF	36.1	53.3	4786	1729	2552	0.5790	1001	294	1295	144	72	1079	cd
Deltapine 1359B2RF	34.4	54.3	4886	1679	2654	0.5708	959	305	1264	147	76	1041	d
Test average	35.3	53.9	5020	1786	2726	0.5769	1030	314	1344	151	72	1121	
CV, %	4.1	3.0	5.3	4.3	4.1	1.0	4.3	4.1	4.2	5.3	--	4.5	
OSL	0.0782	0.1117	0.2525	0.0165	0.0272	0.5084	0.0097	0.0273	0.0421	0.2527	--	0.0232	
LSD	2.0 †	NS	NS	132	192	NS	77	22	98	14	--	87	

For net value/acre, means within a column with the same letter are not significantly different.

CV - coefficient of variation.

OSL - observed significance level, or probability of a greater F value.

LSD - least significant difference at the 0.05 level, † indicates significance at the 0.10 level, NS - not significant.

Note: some columns may not add up due to rounding error.

Assumes:

\$3.00/cwt ginning cost.

\$230/ton for seed.

Value for lint based on CCC loan value from grab samples and FBRI HVI results.

Color grades set to 21, leaf grades set to 2 for entire trial.

Table 9. Harvest results from the Harmon County irrigated Cotton Incorporated Enhanced Variety trial, Tony Cox Farm, Hollis, OK, 2013.

Entry	Final population	Final plant height	Storm resistance	Micronaire	Staple	Strength	Uniformity
	plants/acre	inches	1-9 visual scale*	units	32nds inch	g/tex	%
Croplan Genetics 3787B2RF	35,283	36.4	4.3	4.0	36.8	28.9	81.6
Deltapine 1044B2RF	41,382	40.7	6.7	4.0	36.3	28.9	81.0
Deltapine 1219B2RF	33,977	43.3	5.3	3.5	38.2	31.7	80.4
Deltapine 1359B2RF	38,682	43.5	4.0	3.5	37.6	31.0	79.6
FiberMax 1740B2F	37,810	36.9	6.3	4.0	35.5	29.2	81.1
FiberMax 1944GLB2	33,019	42.1	5.7	3.9	38.0	29.5	80.7
NexGen 1511B2RF	37,462	41.6	4.3	4.3	36.3	30.6	81.8
PhytoGen 499WRF	39,117	40.5	5.7	4.3	36.5	30.4	81.6
Stoneville 4946GLB2	38,943	36.8	7.0	4.0	36.6	30.6	81.8
Test average	37,297	40.2	5.5	3.9	36.9	30.1	81.1
CV, %	10.8	8.0	8.2	3.1	1.3	2.2	0.9
OSL	0.2863	0.0705	<0.0001	<0.0001	<0.0001	0.0008	0.0327
LSD	NS	4.6 †	0.8	0.2	0.8	1.2	1.3

CV - coefficient of variation.

OSL - observed significance level, or probability of a greater F value.

LSD - least significant difference at the 0.05 level, † indicates significance at the 0.10 level, NS - not significant.

*Visual storm resistance scale: 1=loose, 9=tight.

Assumes:

Color grades set to 21, leaf grades set to 2 for entire trial.

Table 10. Harvest results from the Custer County irrigated Cotton Incorporated Enhanced Variety Trial, Merlin Schantz Farm, Hydro, OK, 2013.

Entry	Lint turnout	Seed turnout	Bur cotton yield	Lint yield	Seed yield	Lint loan value	Lint value	Seed value	Total value	Ginning cost	Seed/tech cost	Net value	
	----- % -----		----- lb/acre -----			--\$/lb--			----- \$/acre -----				
Deltapine 0912B2RF	28.3	51.4	7283	2063	3744	0.5265	1086	431	1517	218	72	1227	a
Stoneville 4946GLB2	29.0	53.7	6725	1950	3609	0.5190	1012	415	1427	202	72	1154	ab
FiberMax 1740B2F	28.1	51.6	6841	1923	3529	0.5175	995	406	1401	205	64	1131	bc
Dyna-Gro 2570B2RF	27.2	51.4	6879	1869	3534	0.5173	967	406	1373	206	70	1097	bcd
NexGen 1511B2RF	28.9	49.4	6487	1875	3203	0.5048	947	368	1315	195	63	1058	cd
FiberMax 1944GLB2	26.4	52.5	6548	1730	3441	0.5162	894	396	1289	196	72	1021	d
Croplan Genetics 3787B2RF	25.9	50.7	6167	1598	3128	0.4853	775	360	1135	185	68	882	e
PhytoGen 499WRF	26.6	48.2	5820	1548	2804	0.4983	771	322	1094	175	66	853	e
Deltapine 1044B2RF	24.1	51.1	6011	1447	3072	0.4842	701	353	1054	180	65	808	e
Grower's Choice Deltapine 1219B2RF	23.6	50.8	4875	1153	2475	0.4800	553	285	838	146	65	626	f
Test average	26.8	51.1	6364	1716	3254	0.5049	870	374	1244	191	68	986	
CV, %	5.5	1.4	2.7	2.6	2.7	3.4	5.2	2.7	4.3	2.7	--	5.0	
OSL	0.0022	<0.0001	<0.0001	<0.0001	<0.0001	0.0225	<0.0001	<0.0001	<0.0001	<0.0001	--	<0.0001	
LSD	2.5	1.3	296	78	151	0.0290	78	17	92	9	--	85	

For net value/acre, means within a column with the same letter are not significantly different.

CV - coefficient of variation.

OSL - observed significance level, or probability of a greater F value.

LSD - least significant difference at the 0.05 level, † indicates significance at the 0.10 level, NS - not significant.

Note: some columns may not add up due to rounding error.

Assumes:

\$3.00/cwt ginning cost.

\$230/ton for seed.

Value for lint based on CCC loan value from grab samples and FBRI HVI results.

Color grades set to 21, leaf grades set to 2 for entire trial.

Table 11. Harvest results from the Custer County irrigated Cotton Incorporated Enhanced Variety Trial, Merlin Schantz Farm, Hydro, OK, 2013.

Entry	Final population	Final plant height	Storm resistance	Micronaire	Staple	Strength	Uniformity
	plants/acre	inches	1-9 visual scale*	units	32nds inch	g/tex	%
Croplan Genetics 3787B2RF	34,461	42.9	4.2	2.5	39.5	29.5	81.1
Dyna-Gro 2570B2RF	31,557	39.7	5.3	2.8	38.7	30.1	81.3
Deltapine 0912B2RF	27,685	39.3	3.8	2.9	37.2	29.8	81.0
Deltapine 1044B2RF	32,912	42.9	5.7	2.4	37.9	30.1	80.5
FiberMax 1740B2F	27,491	38.2	4.7	2.8	38.5	30.9	81.4
FiberMax 1944GLB2	27,588	37.2	5.2	2.8	40.3	30.5	80.8
Grower's Choice Deltapine 1219B2RF	32,041	56.2	4.2	2.2	39.2	31.0	78.4
NexGen 1511B2RF	29,137	41.7	4.2	2.6	37.6	30.3	80.4
PhytoGen 499WRF	35,235	44.1	4.8	2.5	38.8	31.5	81.6
Stoneville 4946GLB2	32,622	38.1	6.3	2.7	39.1	31.6	81.0
Test average	31,073	42.0	4.8	2.6	38.7	30.5	80.7
CV, %	11.8	9.2	9.7	7.3	1.8	3.4	1.3
OSL	0.1202	0.0006	<0.0001	0.0042	0.0011	0.2509	0.0923
LSD	NS	6.7	0.8	0.3	1.2	NS	1.5 †

CV - coefficient of variation.

OSL - observed significance level, or probability of a greater F value.

LSD - least significant difference at the 0.05 level, † indicates significance at the 0.10 level, NS - not significant.

*Visual storm resistance scale: 1=loose, 9=tight.

Assumes:

Color grades set to 21, leaf grades set to 2 for entire trial.

Table 12. Harvest results from the Washita County dryland RACE trial, Danny Davis Farm, Elk City, OK, 2013.

Entry	Lint turnout	Seed turnout	Bur cotton yield	Lint yield	Seed yield	Lint loan value	Lint value	Seed value	Total value	Ginning cost	Seed/tech cost	Net value	
	----- % -----		----- lb/acre -----			--\$/lb--			----- \$/acre -----				
Stoneville 4946GLB2	36.3	48.7	1934	702	942	0.5337	375	108	483	58	46	379	a
NexGen 1511B2RF	36.6	46.4	1654	606	767	0.5405	328	88	416	50	40	326	b
FiberMax 1944GLB2	34.4	48.9	1601	551	783	0.5647	311	90	401	48	46	307	bc
Deltapine 1044B2RF	35.5	48.1	1685	597	810	0.4983	297	93	391	51	42	298	cd
Croplan Genetics 3156B2RF	35.5	47.1	1690	600	795	0.4978	299	91	390	51	42	297	cd
PhytoGen 499WRF	36.6	45.8	1568	574	718	0.5198	298	83	381	47	42	292	cd
Grower's Choice Deltapine 1137B2RF	35.4	49.2	1512	535	743	0.5272	282	85	367	45	44	278	d
Test average	35.7	47.7	1663	595	794	0.5260	313	91	404	50	43	311	
CV, %	3.4	1.4	3.2	3.2	3.2	2.5	3.5	3.2	3.2	3.2	--	3.8	
OSL	0.3599	0.0002	<0.0001	<0.0001	<0.0001	0.0005	<0.0001	<0.0001	<0.0001	<0.0001	--	<0.0001	
LSD	NS	1.2	95	34	45	0.0231	19	5	23	3	--	21	

For net value/acre, means within a column with the same letter are not significantly different.

CV - coefficient of variation.

OSL - observed significance level, or probability of a greater F value.

LSD - least significant difference at the 0.05 level, † indicates significance at the 0.10 level, NS - not significant.

Note: some columns may not add up due to rounding error.

Assumes:

\$3.00/cwt ginning cost.

\$230/ton for seed.

Value for lint based on CCC loan value from grab samples and FBRI HVI results.

Color grades set to 21, leaf grades set to 2 for entire trial.

Table 13. Harvest results from the Washita County dryland RACE trial, Danny Davis Farm, Elk City, OK, 2013.

Entry	Final population	Final plant height	Storm resistance	Micronaire	Staple	Strength	Uniformity
	plants/acre	inches	1-9 visual scale*	units	32nds inch	g/tex	%
Croplan Genetics 3156 B2RF	26,920	31.9	6.3	4.1	32.5	26.5	78.3
Deltapine 1044 B2RF	22,564	31.9	5.3	4.9	33.2	30.8	78.9
FiberMax 1944 GLB2	23,261	31.3	5.3	4.3	35.0	28.6	79.0
Grower's Choice Deltapine 1137 B2RF	24,742	35.3	4.0	4.3	33.2	28.9	80.4
NexGen 1511B2RF	21,867	32.9	3.8	4.7	33.6	31.1	79.5
PhytoGen 499WRF	23,871	38.9	2.7	4.6	32.9	31.6	79.8
Stoneville 4946GLB2	22,564	32.6	6.2	4.6	33.5	31.4	80.3
Test average	23,684	33.5	4.8	4.5	33.4	29.8	79.5
CV, %	10.8	5.4	9.4	3.4	1.6	2.2	1.0
OSL	0.3093	0.0028	<0.0001	0.0005	0.0038	<0.0001	0.0498
LSD	NS	3.2	0.8	0.3	1.0	1.1	1.4

CV - coefficient of variation.

OSL - observed significance level, or probability of a greater F value.

LSD - least significant difference at the 0.05 level, † indicates significance at the 0.10 level, NS - not significant.

*Visual storm resistance scale: 1=loose, 9=tight.

Assumes:

Color grades set to 21, leaf grades set to 2 for entire trial.

Table 14. Lint yield results from the Extension irrigated RACE trials, 2013.

County ==>	Beckham	Jackson	Tillman	Custer	Harmon	All-Site
Irrigation Type ==>	Pivot	Furrow	Furrow	Pivot	Drip	Mean
Location ==>	Delhi	Duke	Tipon	Hydro	Hollis	for Common
Cooperator ==>	Damron	Darby	McCullough	Schantz	Cox	Entries
Entry	----- Lint yield (lb/acre) -----					
Croplan Genetics 3787B2RF	2278	1489	--	1598	1729	
Deltapine 1219B2RF	2103	--	--	1153	1743	
FiberMax 1944GLB2	1753	1456	1900	1730	1726	1713
NexGen 1511B2RF	2224	1606	1893	1875	1912	1902
PhytoGen 499WRF	2166	1701	1954	1548	1915	1857
Stoneville 4946GLB2	2190	1510	1944	1950	1769	1873
Deltapine 1044B2RF	--	1567	1815	1447	1819	
Deltapine 1359B2RF	--	1660	--	--	1679	
Croplan Genetics 3156B2RF	--	--	1895	--	--	
Deltapine 0912B2RF	--	--	--	2063	--	
FiberMax 1740B2F	--	--	--	1923	1779	
Dyna-Gro 2570B2RF	--	--	--	1869		
Test average	2119	1570	1900	1716	1786	1836
CV, %	4.5	4.4	6.3	2.6	4.3	
OSL	0.0006	0.0077	0.7552	<0.0001	0.0165	
LSD	173	124	NS	78	132	

CV - coefficient of variation.

OSL - observed significance level, or probability of a greater F value.

LSD - least significant difference at the 0.05 level.

Table 15. Storm resistance results from the Extension irrigated RACE trials, 2013.

County ==>	Beckham	Jackson	Tillman	Custer	Harmon	All-Site
Irrigation Type ==>	Pivot	Furrow	Furrow	Pivot	Drip	Mean
Location ==>	Delhi	Duke	Tipon	Hydro	Hollis	for Common
Cooperator ==>	Damron	Darby	McCullough	Schantz	Cox	Entries
Entry	----- Storm resistance (visual rating: 1 loose, 9 tight) -----					
Croplan Genetics 3787B2RF	4.2	4.3	--	4.2	4.3	
Deltapine 1219B2RF	6.2	--	--	4.2	5.3	
FiberMax 1944GLB2	6.2	6.7	7.3	5.2	5.7	6.2
NexGen 1511B2RF	4.8	4.2	5.0	4.2	4.3	4.5
PhytoGen 499WRF	5.5	5.2	5.3	4.8	5.7	5.3
Stoneville 4946GLB2	7.2	7.2	6.0	6.3	7.0	6.7
Deltapine 1044B2RF	--	6.2	7.0	5.7	6.7	
Deltapine 1359B2RF	--	3.7	--	--	4.0	
Croplan Genetics 3156B2RF	--	--	6.0	--	--	
Deltapine 0912B2RF	--	--	--	3.8	--	
FiberMax 1740B2F	--	--	--	4.7	6.3	
Dyna-Gro 2570B2RF	--	--	--	5.3	--	
Test average	5.7	5.4	6.1	4.8	5.5	5.7
CV, %	5.6	6.0	5.7	9.7	8.2	
OSL	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	
LSD	0.6	0.6	0.6	0.8	0.8	

CV - coefficient of variation.

OSL - observed significance level, or probability of a greater F value.

LSD - least significant difference at the 0.05 level.

Table 16. Plant height results from the Extension irrigated RACE trials, 2013.

County ==>	Beckham	Jackson	Tillman	Custer	Harmon	All-Site
Irrigation Type ==>	Pivot	Furrow	Furrow	Pivot	Drip	Mean
Location ==>	Delhi	Duke	Tipon	Hydro	Hollis	for Common
Cooperator ==>	Damron	Darby	McCullough	Schantz	Cox	Entries
Entry	----- Plant height (inches) -----					
Croplan Genetics 3787B2RF	35.2	27.8	--	42.9	36.4	
Deltapine 1219B2RF	38.8	--	--	56.2	43.3	
FiberMax 1944GLB2	30.2	24.4	36.4	37.2	42.1	34.1
NexGen 1511B2RF	31.9	25.4	38.9	41.7	41.6	35.9
PhytoGen 499WRF	40.0	29.5	40.2	44.1	40.5	38.9
Stoneville 4946GLB2	32.2	22.8	38.9	38.1	36.8	33.8
Deltapine 1044B2RF	--	24.9	39.7	42.9	40.7	
Deltapine 1359B2RF	--	28.7	--	--	43.5	
Croplan Genetics 3156B2RF	--	--	37.3	--	--	
Deltapine 0912B2RF	--	--	--	39.3	--	
FiberMax 1740B2F	--	--	--	38.2	36.9	
Dyna-Gro 2570B2RF	--	--	--	39.7	--	
Test average	34.7	26.2	38.6	42.0	40.2	35.6
CV, %	10.6	9.1	8.5	9.2	8.0	
OSL	0.0427	0.0400	0.7157	0.0006	0.0705	
LSD	6.7	4.2	NS	6.7	4.6 †	

CV - coefficient of variation.

OSL - observed significance level, or probability of a greater F value.

LSD - least significant difference at the 0.05 level, † indicates significance at the 0.10 level, NS - not significant.

Table 17. Loan value results from the Extension irrigated RACE trials, 2013.

County ==>	Beckham	Jackson	Tillman	Custer	Harmon	All-Site
Irrigation Type ==>	Pivot	Furrow	Furrow	Pivot	Drip	Mean
Location ==>	Delhi	Duke	Tipon	Hydro	Hollis	for Common
Cooperator ==>	Damron	Darby	McCullough	Schantz	Cox	Entries
Entry	----- Loan value (\$/lb) -----					
Croplan Genetics 3787B2RF	0.5798	0.5790	--	0.4853	0.5790	
Deltapine 1219B2RF	0.5810	--	--	0.4800	0.5732	
FiberMax 1944GLB2	0.5800	0.5788	0.5722	0.5162	0.5783	
NexGen 1511B2RF	0.5810	0.5623	0.5600	0.5048	0.5783	
PhytoGen 499WRF	0.5812	0.5785	0.5743	0.4983	0.5802	
Stoneville 4946GLB2	0.5817	0.5803	0.5738	0.5190	0.5803	
Deltapine 1044B2RF	--	0.5770	0.5752	0.4842	0.5778	
Deltapine 1359B2RF	--	0.5777	--	--	0.5708	
Croplan Genetics 3156B2RF	--	--	0.5652	--	--	
Deltapine 0912B2RF	--	--	--	0.5265	--	
FiberMax 1740B2F	--	--	--	0.5175	0.5740	
Dyna-Gro 2570B2RF	--	--	--	0.5173	--	
Test average	0.5808	0.5762	0.5701	0.5049	0.5769	#DIV/0!
CV, %	0.1	1.2	1.9	3.4	1.0	
OSL	0.0357	0.1018	0.4856	0.0225	0.5084	
LSD	0.0012	NS	NS	0.0290	NS	

CV - coefficient of variation.

OSL - observed significance level, or probability of a greater F value.

LSD - least significant difference at the 0.05 level, † indicates significance at the 0.10 level, NS - not significant.

Note: Color grades set to 21, leaf grades set to 2 for entire trial.

Table 18. Net value results from the Extension irrigated RACE trials, 2013.

County ==>	Beckham	Jackson	Tillman	Custer	Harmon	All-Site
Irrigation Type ==>	Pivot	Furrow	Furrow	Pivot	Drip	Mean
Location ==>	Delhi	Duke	Tipon	Hydro	Hollis	for Common
Cooperator ==>	Damron	Darby	McCullough	Schantz	Cox	Entries
Entry	----- Net value (\$/acre) -----					
Croplan Genetics 3787B2RF	1448	911	--	882	1079	
Deltapine 1219B2RF	1360	--	--	626	1091	
FiberMax 1944GLB2	1128	901	1186	1021	1101	1067
NexGen 1511B2RF	1419	962	1145	1058	1186	1154
PhytoGen 499WRF	1391	1044	1221	853	1202	1142
Stoneville 4946GLB2	1428	941	1217	1154	1119	1172
Deltapine 1044B2RF	--	978	1166	808	1157	
Deltapine 1359B2RF	--	1031	--	--	1041	
Croplan Genetics 3156B2RF	--	--	1166	--	--	
Deltapine 0912B2RF	--	--	--	1227	--	
FiberMax 1740B2F	--	--	--	1131	1115	
Dyna-Gro 2570B2RF	--	--	--	1097	--	
Test average	1362	967	1184	986	1121	1134
CV, %	4.6	4.8	7.0	5.0	4.5	
OSL	0.0010	0.0142	0.8347	<0.0001	0.0232	
LSD	115	82	NS	85	87	

CV - coefficient of variation.

OSL - observed significance level, or probability of a greater F value.

LSD - least significant difference at the 0.05 level, † indicates significance at the 0.10 level, NS - not significant.

Table 19. Micronaire results from the Extension irrigated RACE trials, 2013.

County ==>	Beckham	Jackson	Tillman	Custer	Harmon	All-Site
Irrigation Type ==>	Pivot	Furrow	Furrow	Pivot	Drip	Mean
Location ==>	Delhi	Duke	Tipon	Hydro	Hollis	for Common
Cooperator ==>	Damron	Darby	McCullough	Schantz	Cox	Entries
Entry	----- Micronaire (units) -----					
Croplan Genetics 3787B2RF	4.0	4.4	--	2.5	4.0	
Deltapine 1219B2RF	3.7	--	--	2.2	3.5	
FiberMax 1944GLB2	3.8	4.5	4.5	2.8	3.9	3.9
NexGen 1511B2RF	4.0	4.7	4.6	2.6	4.3	4.0
PhytoGen 499WRF	4.0	4.6	4.5	2.5	4.3	4.0
Stoneville 4946GLB2	4.0	4.6	4.5	2.7	4.0	4.0
Deltapine 1044B2RF	--	4.5	4.2	2.4	4.0	
Deltapine 1359B2RF	--	4.2	--	--	3.5	
Croplan Genetics 3156B2RF	--	--	4.2	--	--	
Deltapine 0912B2RF	--	--	--	2.9	--	
FiberMax 1740B2F	--	--	--	2.8	4.0	
Dyna-Gro 2570B2RF	--	--	--	2.8	--	
Test average	3.9	4.5	4.4	2.6	3.9	4.0
CV, %	2.8	3.9	4.7	7.3	3.1	
OSL	0.011	0.0497	0.1002	0.0042	<0.0001	
LSD	0.2	0.3	NS	0.3	0.2	

CV - coefficient of variation.

OSL - observed significance level, or probability of a greater F value.

LSD - least significant difference at the 0.05 level, † indicates significance at the 0.10 level, NS - not significant.

Table 20. Staple results from the Extension irrigated RACE trials, 2013.

County ==>	Beckham	Jackson	Tillman	Custer	Harmon	All-Site
Irrigation Type ==>	Pivot	Furrow	Furrow	Pivot	Drip	Mean
Location ==>	Delhi	Duke	Tipon	Hydro	Hollis	for Common
Cooperator ==>	Damron	Darby	McCullough	Schantz	Cox	Entries
Entry	----- Staple (32nds inch) -----					
Croplan Genetics 3787B2RF	37.3	37.1	--	39.5	36.8	
Deltapine 1219B2RF	38.2	--	--	39.2	38.2	
FiberMax 1944GLB2	38.2	37.0	36.3	40.3	38.0	38.0
NexGen 1511B2RF	36.3	35.0	35.0	37.6	36.3	36.0
PhytoGen 499WRF	37.1	36.0	35.4	38.8	36.5	36.8
Stoneville 4946GLB2	37.3	36.9	36.1	39.1	36.6	37.2
Deltapine 1044B2RF	--	35.8	35.9	37.9	36.3	
Deltapine 1359B2RF	--	37.1	--	--	37.6	
Croplan Genetics 3156B2RF	--	--	34.8	--	--	
Deltapine 0912B2RF	--	--	--	37.2	--	
FiberMax 1740B2F	--	--	--	38.5	35.5	
Dyna-Gro 2570B2RF	--	--	--	38.7	--	
Test average	37.4	36.4	35.6	38.7	36.9	37.0
CV, %	1.4	1.5	2.4	1.8	1.3	
OSL	0.0077	0.0023	0.2690	0.0011	<0.0001	
LSD	0.9	1.0	NS	1.2	0.8	

CV - coefficient of variation.

OSL - observed significance level, or probability of a greater F value.

LSD - least significant difference at the 0.05 level, † indicates significance at the 0.10 level, NS - not significant.

Table 21. Strength results from the Extension irrigated RACE trials, 2013.

County ==>	Beckham	Jackson	Tillman	Custer	Harmon	All-Site
Irrigation Type ==>	Pivot	Furrow	Furrow	Pivot	Drip	Mean
Location ==>	Delhi	Duke	Tipon	Hydro	Hollis	for Common
Cooperator ==>	Damron	Darby	McCullough	Schantz	Cox	Entries
Entry	----- Strength (g/tex) -----					
Croplan Genetics 3787B2RF	29.6	29.7	--	29.5	28.9	
Deltapine 1219B2RF	32.9	--	--	31.0	31.7	
FiberMax 1944GLB2	30.6	30.3	30.0	30.5	29.5	30.2
NexGen 1511B2RF	31.6	30.5	30.4	30.3	30.6	30.7
PhytoGen 499WRF	31.6	31.7	31.0	31.5	30.4	31.2
Stoneville 4946GLB2	32.0	32.3	30.7	31.6	30.6	31.4
Deltapine 1044B2RF	--	30.1	30.5	30.1	28.9	
Deltapine 1359B2RF	--	30.6	--	--	31.0	
Croplan Genetics 3156B2RF	--	--	28.5	--	--	
Deltapine 0912B2RF	--	--	--	29.8	--	
FiberMax 1740B2F	--	--	--	30.9	29.2	
Dyna-Gro 2570B2RF	--	--	--	30.1	--	
Test average	31.4	30.7	30.2	30.5	30.1	30.9
CV, %	1.7	2.5	3.2	3.4	2.2	
OSL	0.0005	0.0163	0.0953	0.2509	0.0008	
LSD	1.0	1.4	1.4†	NS	1.2	

CV - coefficient of variation.

OSL - observed significance level, or probability of a greater F value.

LSD - least significant difference at the 0.05 level, † indicates significance at the 0.10 level, NS - not significant.

Table 22. Uniformity results from the Extension irrigated RACE trials, 2013.

County ==>	Beckham	Jackson	Tillman	Custer	Harmon	All-Site
Irrigation Type ==>	Pivot	Furrow	Furrow	Pivot	Drip	Mean
Location ==>	Delhi	Duke	Tipon	Hydro	Hollis	for Common
Cooperator ==>	Damron	Darby	McCullough	Schantz	Cox	Entries
Entry	----- Uniformity (%) -----					
Croplan Genetics 3787B2RF	81.8	82.0	--	81.1	81.6	
Deltapine 1219B2RF	80.9	--	--	78.4	80.4	
FiberMax 1944GLB2	80.7	81.2	79.9	80.8	80.7	80.7
NexGen 1511B2RF	81.6	81.5	80.0	80.4	81.8	81.1
PhytoGen 499WRF	81.5	82.5	81.2	81.6	81.6	81.7
Stoneville 4946GLB2	81.4	82.4	80.6	81.0	81.8	81.4
Deltapine 1044B2RF	--	81.4	81.2	80.5	81.0	
Deltapine 1359B2RF	--	79.7	--	--	79.6	
Croplan Genetics 3156B2RF	--	--	79.7	--	--	
Deltapine 0912B2RF	--	--	--	81.0	--	
FiberMax 1740B2F	--	--	--	81.4	81.1	
Dyna-Gro 2570B2RF	--	--	--	81.3	--	
Test average	81.3	81.5	80.4	80.8	81.1	81.2
CV, %	0.7	0.7	1.2	1.3	0.9	
OSL	0.2208	0.0017	0.3132	0.0923	0.0327	
LSD	NS	1.1	NS	1.5 †	1.3	

CV - coefficient of variation.

OSL - observed significance level, or probability of a greater F value.

LSD - least significant difference at the 0.05 level, † indicates significance at the 0.10 level, NS - not significant.