

2016 Texas Panhandle Cotton Variety Trials



Jourdan Bell, PhD

Extension and Research Agronomist – Amarillo

Seth Byrd, PhD

Extension Cotton Agronomist – Lubbock

Preston Sirmon, Extension Assistant

Carla Naylor, Research Associate

Bronc Finch, Research Technician

Rick Auckerman, Deaf Smith County Agent

Michael Bragg, Hartley County Agent

Marcel Fischbacher, Moore County Agent

John Villalba, Swisher County Agent

Curtis Preston, Bailey County Agent

Jody Bradford, Carson County Agent

Mike Jeffcoat, Gray County Agent

We wish to express our appreciation to the cooperators (Frank Bezner – Deaf Smith County, Middlewater Farms - Hartley County, Williams Family – Parmer County, Jeremy Reed – Swisher County, Ryan Davis - Gray County, Tommy Cartrite - Sherman County) for providing the land, equipment and time to conduct these trials. Furthermore, we thank Dr. Jane Dever and Ms. Valerie Morgan (Texas A&M AgriLife Research) for the use of the ginning facilities and Dr. Eric Hequet (Texas Tech University Fiber and Biopolymer Research Institute) for HVI fiber quality analyses. We sincerely thank **Cotton Incorporated through the Texas State Support Committee** (Project 07-947TX) for supporting these trials.

2016 Texas Panhandle Cotton Variety Trials

While variety selection is one of the most important decisions a producer makes in all cotton producing regions, cotton varietal selection in the northern Texas Panhandle counties can be especially challenging as a result of a narrow production window between planting and harvest. The Northern Texas Panhandle cotton production is generally limited by sufficient growing degree days (GDD) to drive the maturation of long-season cotton varieties. Uniform germination and timely establishment are essential for adequate GDD accumulation and yield optimization; however, the combined effect of cool spring temperatures and a short growing season often results in reductions in early season vigor and seasonal GDD accumulation. Commonly, early and medium maturity varieties that are better adapted to the region's short growing season are planted, but these varieties are also susceptible to non-ideal conditions at planting resulting in poor germination and vigor. Consequently, knowledge of varietal performance under Texas Panhandle environmental conditions is critical to maximize net return. Early to mid-season varieties are well positioned for this cotton region. Early and medium maturing varieties have a shorter bloom period and are generally more determinant than full season varieties. As a result, early maturing varieties are less able to recover from in-season stress; specifically severe weather that results in the need for average storm tolerance. The objective of this project was to evaluate the profitability of newer early- and medium- maturing cotton varieties grown in large-plot, on-farm trials under Texas Panhandle environmental conditions and production practices.

Materials and Methods

Varieties were planted in a randomized complete block design with three replications at five locations. Varieties and characteristics are outlined in Table 1. The 2016 trials were located in Deaf Smith County (Hereford) with Frank Bezner, Hartley County (Middle Water) with Middlewater Farms, Parmer County (Farwell) with the Williams Family, Sherman County (Sunray) with Tommy Cartrite, and Swisher County (Kress) with Jeremy Reed. A sixth location was planted in Gray County (Pampa), but due to emergence issues the trial was terminated on June 29, 2016. All locations were under center pivot irrigation. All plots were eight rows by a minimum length of 500 feet and replicated three times. Agronomic practices including planting date and planting populations are outlined in Table 2 for all locations. Weed and insect control measures, if needed, and harvest aid applications were performed by cooperating producers. Plots were harvested using producer/cooperator equipment. Grab samples were taken from each plot and ginned at the Texas A&M AgriLife Research and Extension Center at Lubbock. Resulting lint samples were submitted to the Texas Tech University – Fiber and Biopolymer Research Institute for HVI fiber analysis and CCC loan values were calculated for all locations. The Commodity Credit Corporation lint loan value was calculated using the high-volume instrument (HVI) classing information to apply either premium credits and/or discounts from the base loan value of \$0.52/pounds for upland cotton for all varieties. Ginning costs were calculated at \$2.75/cwt (2016 Texas Agricultural Custom Rates, <http://agecoext.tamu.edu/files/2013/07/TxCustomRateSurveyMay2016.pdf>). Seed value was calculated at \$200/ton. Yield and quality were evaluated for significant

statistical differences. Statistical analyses represent the significant differences between varieties as well as providing information about the strength of the trial and repeatability of the data. Mean values are often numerically different; however, the mean differences may not be large enough to be significant. The least significant difference (LSD) indicates if the reported mean values are statistically different with 95% confidence. The reported LSD level in each table is the minimum difference between two entries where there is statistical significance. Varieties are only significantly different if the differences between varieties are equal to or greater than the reported LSD. For example, the LSD for the final stand counts at Hartley County was 8,959 plants/ac, and the stand counts for Phytogen 333 and Phytogen 243 were 46,174 and 36,010 plants/acre, respectively (Table 3). Because the stand difference between the two varieties (10,164 plants/ac) is greater than the LSD value (8,959 plants/ac), the final plant stand of Phytogen 333 is significantly greater than the final plant stand of Phytogen 243. A CV (coefficient of variation) describes the variability of the data with a target CV value of 15% or less.

2016 Highlights

Cool temperatures and late spring precipitation prevailed through the 2016 cotton planting season. As a result, most locations were planted with good soil moisture. While soil temperatures at all locations were above 60°F at planting, cool, wet conditions slowed germination at all locations except the Hartley County location where the sandier soil likely resulted in warmer soil temperatures and more uniform emergence (Table 3). Due to cool, wet planting conditions, there was poor emergence at the Swisher County location planted on May 6, 2016. The trial was replanted on June 7, 2016. Cool, wet conditions coupled with low nighttime temperatures resulted in delayed early-season development as reflected in the growing degree days (GDDs) accumulated (Fig. 1) at all locations. Late July and early August were marked by several weeks with daily highs that reached or exceeded 100°F causing some stress during the peak bloom period. September brought much needed precipitation and cooler temperatures; however, this also resulted in secondary regrowth at several locations requiring aggressive plant growth regulator (PGR) management.

Lint production was greatest at the Deaf Smith, Hartley and Sherman County locations for all varieties (Fig. 2). Production at Parmer County was affected by *Verticillium* Wilt that resulted in premature defoliation especially for non-tolerant varieties. At the Parmer County trial, all plots were rated for defoliation damage (Table 4), and the greatest yields were achieved with tolerant varieties such as Phytogen 243 and Stoneville 4747GLB2. *Verticillium* was also found at the Sherman County trial, but not at yield limiting levels that warranted ratings. Lint production at the Swisher County trial was affected by the late planting. Detailed yield and quality results are presented for all locations in Tables 7-16. Varieties ranked by lint yield (lb/ac) and net value (return/ac) are listed in Tables 15 and 16, respectively, to evaluate yield stability. In the 2016 Texas Panhandle Cotton Variety trials, there was not a specific variety that topped yields at all locations; however, Deltapine 1612B2XF, Fibermax 1320GL, NexGen 3405B2XF, and NexGen 3406B2XF all yielded above 1600 lbs/acre lint at the Deaf Smith, Sherman and Hartley County locations where yield was not limited by disease or late planting (Fig. 2).

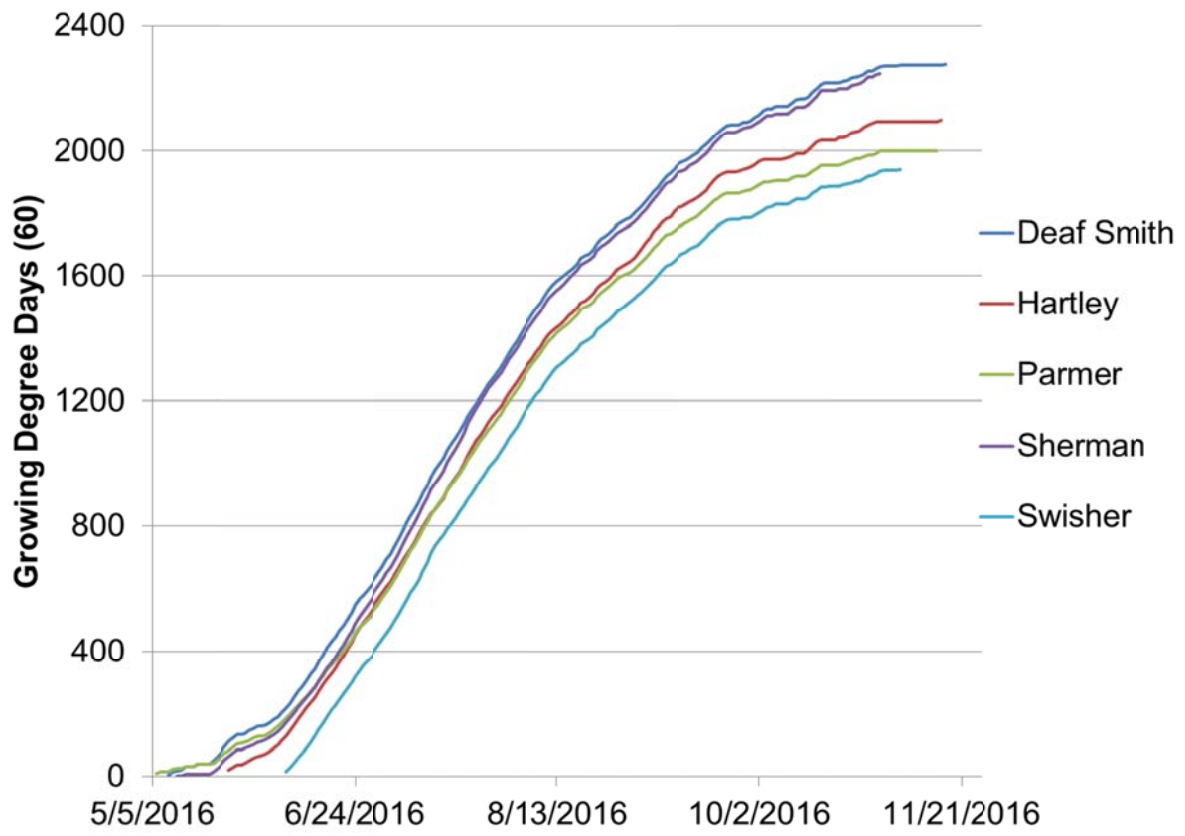


Figure 1. Growing Degree Day (GDD60) accumulation for all locations from planting.

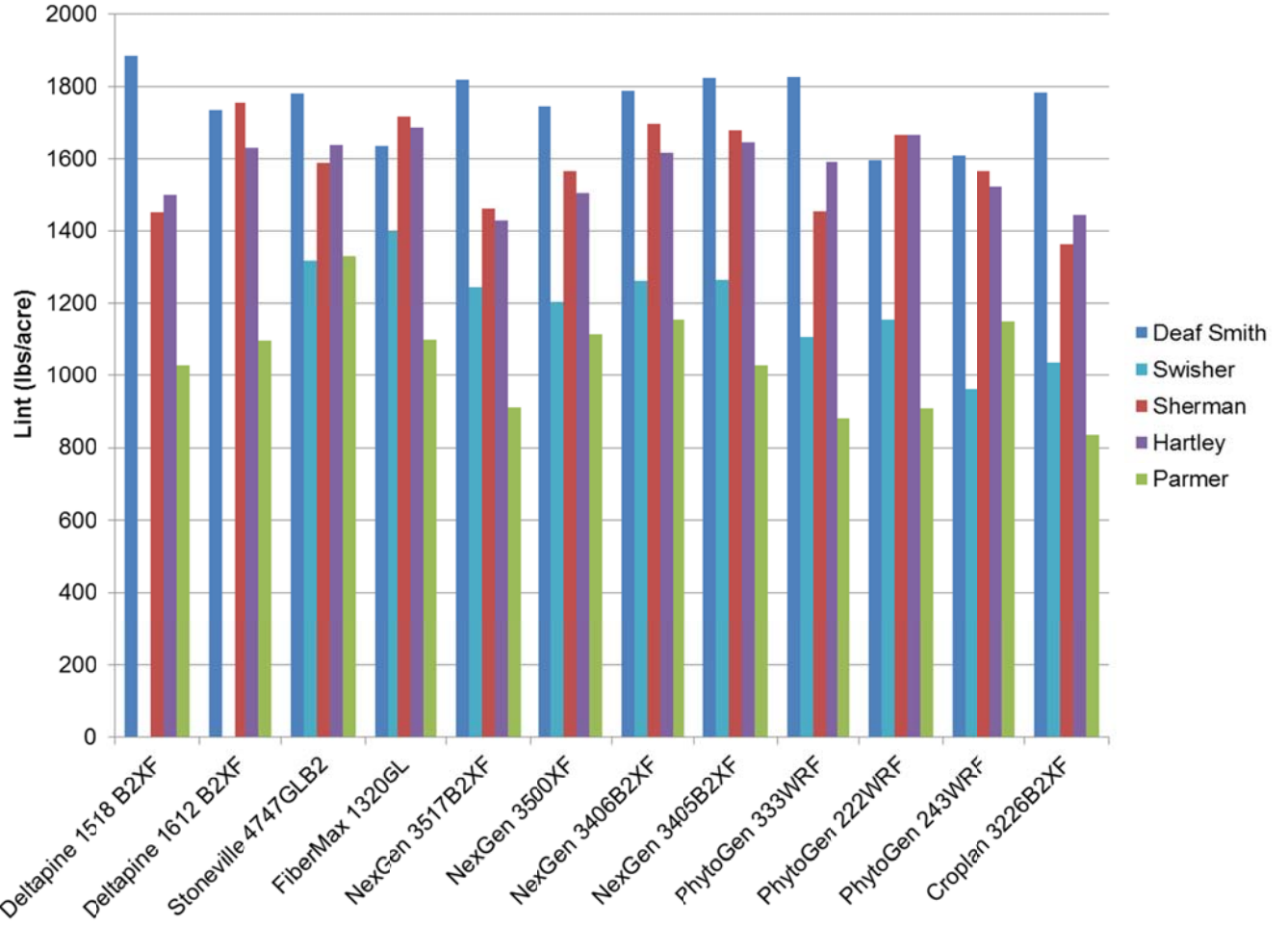


Figure 2. 2016 Lint yield (lbs/ac) distribution across trial sites.

Table 1. 2016 Variety Characteristics

Variety	Maturity	Herbicide Package	Leaf Type	Storm Tolerance *	Plant Height	Mic	Vert.
Deltapine 1518 B2XF	Early	Glyphos., Glufos., and Dicamba	Light Hair	4	Medium	4.11	
Deltapine 1612 B2XF	Early	Glyphos., Glufos., and Dicamba	Light Hair	6	Medium	4.3	
Stoneville 4747GLB2	Early-Med	Glyphosate and Glufosinate	Semi-Smooth	7	Short	4.2	Intermediate
FiberMax 1320GL	Very Early	Glyphosate and Glufosinate	Semi-Smooth	7	Short	4.2	
NexGen 3517B2XF	Early - Med	Glyphos., Glufos., and Dicamba	Smooth	6	Med - Tall	4.3	Good
NexGen 3500XF	Early - Med	Glyphos., Glufos., and Dicamba	Smooth	5	Medium	4.1	Tolrant
NexGen 3406B2XF	Early - Med	Glyphos., Glufos., and Dicamba	Semi-Smooth	7	Medium	4.5	
NexGen 3405B2XF	Early - Med	Glyphos., Glufos., and Dicamba	Semi-Smooth	5	Medium	4.5	
PhytoGen 222WRF	Very Early	Glyphosate and Glufosinate	Smooth	Excellent	Short	4.1	
PhytoGen 243WRF	Early	Glyphosate and Glufosinate	Semi-Smooth	Very Good	Short-Med	3.7	Excellent
PhytoGen 333WRF	Early	Glyphosate and Glufosinate	Hairy	Very Good	Med - Tall	4.5	
Croplan 3226B2XF	Very Early	Glyphos., Glufos., and Dicamba	Smooth	4	Medium	4.3	
FiberMax 2011GT†	Early	Glyphosate and Glufosinate	Semi-Smooth	8	Short	3.9	Very Good
FiberMax 9250GL†	Early	Glyphosate and Glufosinate	Semi-Smooth	7	Short	3.8	Very Good

*Storm Tolerance (1-9): 1=Loose Boll, 9=Tight Boll from Company Variety Descriptions.

†Variety included at the producer's request.

Table 2. 2016 Agronomic information by location.

County	Deaf-Smith	Hartley	Parmer	Sherman	Swisher
Location (Nearest Town)	Hereford	Middlewater	Farwell	Sunray	Kress
Latitude, Longitude	34.772747, -102.386406	35.866958, -102.791992	34.350823, -103.077183	36.118281, -101.766253	34.310526, -101.736786
Cooperator	Frank Bezner	Middlewater Farms	Williams	Tommy Cartrite	Jeremy Reed
Soil Type	Pullman clay loam, 0 to 1% slope	Dallam fine sandy loam, 0 to 1% slope	Amarillo fine sandy loam, 0 to 1% slope	Sherman clay loam, 0 to 1% slope	Pullman clay loam, 0 to 1% slope
Irrigation (inches)	6			12.5	5
Precipitation (inches)	11.9	9.8	10.7	2.1	9.3
Growing Degree Days	2227	2100	1999	2248	1939
Air Temp. at Planting (°F)	75	70	75	57	86
Soil Temp. (4") at Planting (°F)	61	66	74	62	78
Previous Crop	Corn	Corn	Terminated Wheat	2015 sorghum with spring 2016 oat cover	Corn
Row Spacing	30	30	30	30	40
Planting Population	52000	55000	45000	58000	50000
Planting Date	5/9/2016	5/24/2016	5/6/2016	5/11/2016	7-Jun-2016 (Replant from 6-May-16)
Harvest Date	11/27/2016	12/14/2016	11/16/2016	11/14/2016	6/7/2016
Varieties	Deltapine 1518 B2XF	Deltapine 1518 B2XF	Deltapine 1518 B2XF	Deltapine 1518 B2XF	----‡
	Deltapine 1612 B2XF	Deltapine 1612 B2XF	Deltapine 1612 B2XF	Deltapine 1612 B2XF	----‡
	Stoneville 4747GLB2	Stoneville 4747GLB2	Stoneville 4747GLB2	Stoneville 4747GLB2	Stoneville 4747GLB2
	FiberMax 1320GL	FiberMax 1320GL	FiberMax 1320GL	FiberMax 1320GL	FiberMax 1320GL
	NexGen 3517B2XF	NexGen 3517B2XF	NexGen 3517B2XF	NexGen 3517B2XF	NexGen 3517B2XF
	NexGen 3500XF	NexGen 3500XF	NexGen 3500XF	NexGen 3500XF	NexGen 3500XF
	NexGen 3406B2XF	NexGen 3406B2XF	NexGen 3406B2XF	NexGen 3406B2XF	NexGen 3406B2XF
	NexGen 3405B2XF	NexGen 3405B2XF	NexGen 3405B2XF	NexGen 3405B2XF	NexGen 3405B2XF
	PhytoGen 222WRF	PhytoGen 222WRF	PhytoGen 222WRF	PhytoGen 222WRF	PhytoGen 222WRF
	PhytoGen 243WRF	PhytoGen 243WRF	PhytoGen 243WRF	PhytoGen 243WRF	PhytoGen 243WRF
	PhytoGen 333WRF	PhytoGen 333WRF	PhytoGen 333WRF	PhytoGen 333WRF	PhytoGen 333WRF
	Croplan 3226B2XF	Croplan 3226B2XF	Croplan 3226B2XF	Croplan 3226B2XF	Croplan 3226B2XF
				FiberMax 2011GT†	
			FiberMax 9250GL†		

†Variety included at the producer's request.

‡Not enough seed for the second planting

Table 3. Four-week stand counts by location.

Variety	Deaf Smith County, Hereford, TX		Hartley County, Middlewater, TX		Parmer County, Farwell, TX		Sherman County, Sunray, TX	
	Stand Count (plants/ac)	% of Planted Population (52,000 seeds/ac)	Stand Count (plants/ac)	% of Planted Population (55,000 seeds/ac)	Stand Count (plants/ac)	% of Planted Population (45,000 seeds/ac)	Stand Count (plants/ac)	% of Planted Population (58,000 seeds/ac)
Deltapine 1518 B2XF	31654 ab*	61	41963 ab	76	26499 ed	59	35719 bcd	62
Deltapine 1612 B2XF	31073 ab	60	41672 ab	76	29766 bcd	66	48497 a	84
Stoneville 4747GLB2	36881 ab	71	42398 ab	77	41019 a	91	40656 abc	70
FiberMax 1320GL	25991 b	50	38914 ab	71	13976 ef	31	29863 cd	51
NexGen 3517B2XF	32234 ab	62	40366 ab	73	18150 def	40	37462 abcd	65
NexGen 3500XF	30202 ab	58	40801 ab	74	26681 ed	59	32670 bcd	56
NexGen 3406B2XF	36445 ab	70	41963 ab	76	37208 ab	83	40075 abc	69
NexGen 3405B2XF	36445 ab	70	40656 ab	74	23414 cde	52	33977 bcd	59
PhytoGen 222WRF	39640 a	76	41963 ab	76	21054 def	47	40656 abc	70
PhytoGen 243WRF	31218 ab	60	36010 b	65	24140 def	54	35864 bcd	62
PhytoGen 333WRF	41382 a	80	46174 a	84	36300 abc	81	43705 ab	75
Croplan 3226B2XF	30202 ab	58	39785 ab	72	14883 f	33	27443 d	47
FiberMax 2011GT†	---	---	---	---	---	---	36010 bcd	62
FiberMax 9250GL†	---	---	---	---	---	---	35864 bcd	62
Test Average	33614	65	41055	75	26091	58	37216	64
CV, %	13		6		33		16	
OSL	0.0039		0.0984		<0.0001		0.0001	
LSD	12019		8959		6972		12361	

†Variety included at the producer's request.

*Means followed by the same letter do not significantly differ using LSD (0.05)

Stand Counts not taken at Swisher County

Table 4. Verticillium ratings at Parmer County.

Variety	Rating†	
Deltapine 1518 B2XF	3.0	abc*
Deltapine 1612 B2XF	2.6	abc
Stoneville 4747GLB2	1.8	c
FiberMax 1320GL	4.8	a
NexGen 3517B2XF	2.6	abc
NexGen 3500XF	1.8	c
NexGen 3406B2XF	2.8	abc
NexGen 3405B2XF	3.0	abc
PhytoGen 222WRF	3.7	abc
PhytoGen 243WRF	1.0	c
PhytoGen 333WRF	4.2	ab
Croplan 3226B2XF	2.0	bc

† Rating Score: 0=no verticillium damage to 10=100% verticillium damage

*Means followed by the same letter do not significantly differ using LSD (0.05).

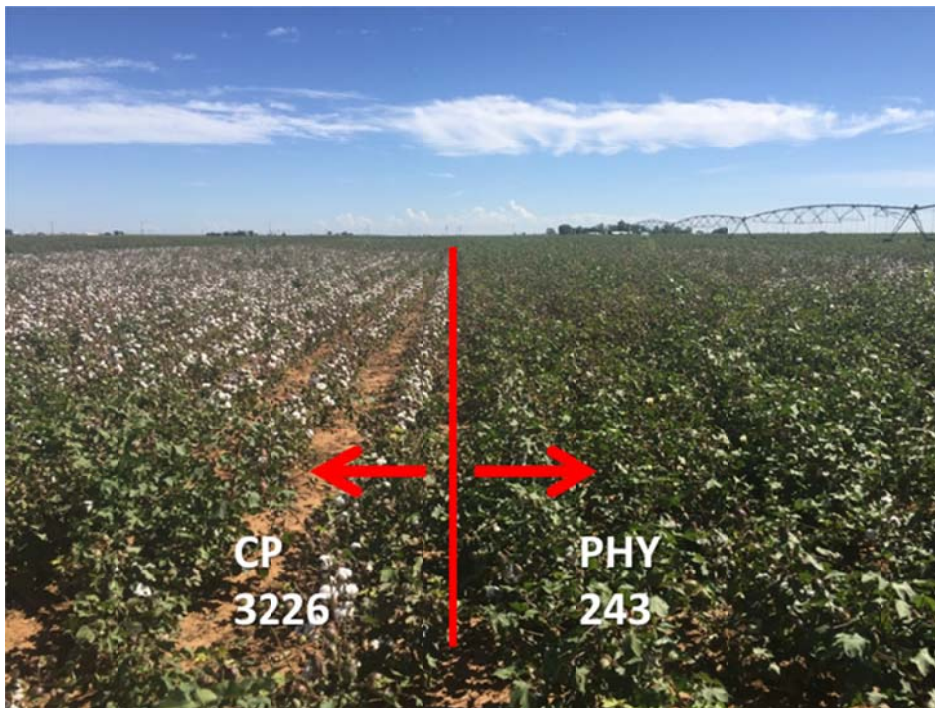


Figure 3. Visual differences in defoliation damage from Verticillium Wilt at the Parmer County trial between non-tolerant Croplan 3226 (left) and tolerant Phytogen 243 (right).

Table 5. Harvest results from the 2016 Deaf Smith trial (Frank Bezner Farm, Hereford, Texas).

Entry	Lint turnout ----- %	Seed turnout -----	Bur cotton yield ----- lb/acre	Lint yield ----- lb/acre	Seed yield -----	Lint loan value \$ /lb	Lint value -----	Seed value -----	Total value -----	Ginning cost \$/acre	Seed/tech cost -----	Net value -----
Deltapine 1518 B2XF	35.5	49.9	5310	1884	2648	0.5475	1031.55	264.80	1296.35	146.04	86.32	1063.99 a
Deltapine 1612 B2XF	34.2	50.6	5078	1735	2571	0.5692	987.71	257.07	1244.78	139.64	78.70	1026.43 ab
Stoneville 4747GLB2	33.4	50.7	5333	1782	2702	0.5582	994.62	270.18	1264.80	146.64	89.27	1028.89 ab
FiberMax 1320GL	35.7	33.1	4589	1638	1521	0.5703	934.05	152.11	1086.16	126.20	77.38	882.57 d
NexGen 3517B2XF	34.2	52.1	5320	1819	2774	0.5763	1048.34	277.39	1325.73	146.28	87.02	1092.43 a
NexGen 3500XF	34.1	51.7	5111	1746	2644	0.5787	1010.03	264.37	1274.41	140.54	70.80	1063.06 a
NexGen 3406B2XF	34.8	50.8	5145	1789	2616	0.5643	1009.36	261.59	1270.95	141.49	87.02	1042.45 ab
NexGen 3405B2XF	35.6	50.8	5115	1824	2599	0.5677	1035.52	259.92	1295.44	140.68	87.02	1067.75 a
PhytoGen 333WRF	35.8	50.4	5106	1827	2572	0.5642	1030.53	257.20	1287.74	140.40	73.97	1073.37 a
PhytoGen 222WRF	33.8	51.9	4731	1598	2457	0.5692	909.45	245.69	1155.15	130.11	73.97	951.07 bcd
PhytoGen 243WRF	31.6	52.2	5091	1610	2659	0.5428	874.19	265.87	1140.05	140.00	73.97	926.09 cd
Croplan 3226B2XF	34.9	50.0	5113	1784	2557	0.5532	986.96	255.70	1242.66	140.62	94.53	1007.52 abc
Test average	34.5	49.5	5086.81	1752.95	2526.59	0.5635	987.69	252.66	1240.35	139.89	81.66	1018.80
CV, %	7.4	16.6	5.0	5.0	4.9	1.8	5.1	4.9	5.0	5.0	--	5.4
OSL	0.7536	0.3392	0.0492	0.0090	<0.0001	0.0041	0.0055	<0.0001	0.0021	0.0494	--	0.0020
LSD	NS	NS	433.5	149.8	211.5	0.0	84.7	21.1	105.6	11.9	--	93.7

For net value/acre, means within a column with the same letter are not significantly different at the 0.05 probability level.

CV - coefficient of variation.

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

LSD - least significant difference at the 0.05 level, NS - not significant.

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

2016 base loan value for upland cotton is \$0.52/pound.

Assumes:

\$2.75/cwt ginning cost.

\$200/ton for seed.

Table 6. HVI fiber property results from the 2016 Deaf Smith trial (Frank Bezner Farm, Hereford, Texas).

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32 ^{nds} inch	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
Deltapine 1518 B2XF	3.3	39.0	82.8	31.0	7.5	4.0	80.1	7.5	3.0	1.0
Deltapine 1612 B2XF	3.9	38.7	83.3	31.9	8.0	3.0	80.7	7.3	3.0	1.0
Stoneville 4747GLB2	3.8	38.7	81.6	30.5	6.4	3.7	80.9	7.1	2.7	1.0
FiberMax 1320GL	3.8	38.0	83.0	33.8	8.6	3.0	80.0	7.7	2.7	1.0
NexGen 3517B2XF	4.0	38.5	82.6	32.2	7.7	2.3	80.9	7.7	2.3	1.0
NexGen 3500XF	4.2	38.1	83.8	32.8	7.8	1.7	80.6	7.8	2.3	1.0
NexGen 3406B2XF	3.8	37.2	82.1	30.4	9.9	2.0	80.1	7.7	3.0	1.0
NexGen 3405B2XF	4.1	37.4	82.3	30.1	9.0	2.0	80.9	7.9	2.3	1.0
PhytoGen 333WRF	3.9	38.4	83.5	31.0	7.7	3.3	78.8	8.0	3.0	1.0
PhytoGen 222WRF	4.3	37.3	83.4	30.9	9.6	2.7	79.5	7.8	3.0	1.0
PhytoGen 243WRF	3.5	38.4	81.7	31.4	8.1	4.7	79.5	7.3	3.0	1.0
Croplan 3226B2XF	3.8	35.6	82.4	30.5	9.2	2.7	79.3	7.8	3.0	1.0
Test average	3.9	38.0	82.7	31.4	8.3	2.9	80.1	7.6	2.8	1.0
CV, %	5.7	2.4	0.6	3.6	8.4	26.9	1.1	5.0	--	--
OSL	0.2711	0.0082	<0.0001	0.0153	0.0001	0.0034	0.1161	0.2135	--	--
LSD	NS	1.5	0.8	1.9	1.2	1.3	NS	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, NS - not significant

Table 7. Harvest results from the 2016 Hartley County Trial (Middlewater Farms, Middlewater, TX, 2016).

Entry	Lint turnout ----- ----- % -----	Seed turnout ----- ----- % -----	Bur cotton yield ----- ----- lb/acre -----	Lint yield ----- ----- lb/acre -----	Seed yield ----- ----- lb/acre -----	Lint loan value ----- ----- \$/lb -----	Lint value ----- ----- \$/acre -----	Seed value ----- ----- \$/acre -----	Total value ----- ----- \$/acre -----	Ginning cost ----- ----- \$/acre -----	Seed/tech cost ----- ----- \$/acre -----	Net value ----- ----- \$/acre -----
Deltapine 1518 B2XF	26.2	49.7	5727	1501	2845	0.4782	717.63	284.50	1002.13	157.48	89.40	759.86 ef
Deltapine 1612 B2XF	28.9	49.1	5649	1632	2775	0.5005	816.99	277.56	1094.55	155.34	81.51	861.92 abc
Stoneville 4747GLB2	28.7	49.5	5709	1640	2828	0.4472	733.42	282.76	1016.18	157.02	92.46	771.49 def
FiberMax 1320GL	30.0	49.2	5629	1687	2770	0.4593	774.68	276.94	1051.62	154.79	80.15	820.82 bcde
NG 3517B2XF	28.2	52.0	5078	1430	2639	0.4790	685.06	263.91	948.97	139.63	90.12	723.87 f
NG 3500XF	30.3	49.2	4967	1505	2443	0.4523	680.48	244.32	924.80	136.59	73.33	718.68 f
NG 3406B2XF	30.3	49.5	5339	1618	2644	0.4512	729.99	264.41	994.41	146.83	90.12	762.11 ef
NG 3405B2XF	30.1	49.1	5479	1646	2690	0.5177	852.27	268.97	1121.24	150.69	90.12	885.09 a
PhytoGen 333WRF	28.3	49.2	5618	1590	2766	0.5132	816.13	276.62	1092.75	154.50	76.61	865.61 ab
PhytoGen 222WRF	29.5	51.0	5650	1668	2883	0.4618	770.33	288.35	1058.67	155.37	76.61	830.65 abcd
PhytoGen 243WRF	27.9	51.2	5465	1523	2795	0.4900	746.39	279.51	1025.90	150.28	76.61	802.98 cde
Croplan 3226B2XF	27.2	49.6	5309	1444	2632	0.5112	738.25	263.20	1001.45	145.99	97.90	762.62 ef
Test average	28.8	49.9	5468.18	1573.71	2725.88	0.4801	755.13	272.59	1027.72	150.38	80.21	797.14
CV, %	5.2	1.4	4.2	4.3	4.2	9.3	4.2	4.2	4.2	4.2	--	4.6
OSL	0.0472	0.0003	0.0063	0.0006	0.0070	0.4642	<0.0001	0.0070	0.0003	0.0063	--	<0.0001
LSD	2.5	1.2	392.8	115.2	194.4	NS	53.9	19.4	73.4	10.8	--	62.6

For net value/acre, means within a column with the same letter are not significantly different at the 0.05 probability level.

CV - coefficient of variation.

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

LSD - least significant difference at the 0.05 level, NS - not significant.

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

2016 base loan value for upland cotton is \$0.52/pound.

Assumes:

\$2.75/cwt ginning cost.

\$200/ton for seed.

Table 8. HVI fiber property results from the 2016 Hartley County Trial (Middlewater Farms, Middlewater, TX).

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32 ^{nds} inch	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
Deltapine 1518 B2XF	2.4	37.2	79.9	27.0	7.3	4.3	82.3	7.9	1.7	1.0
Deltapine 1612 B2XF	3.0	36.5	80.9	27.9	7.6	3.0	83.2	8.9	1.0	1.0
Stoneville 4747GLB2	2.6	36.4	80.0	27.4	8.2	4.3	81.9	8.8	1.3	1.0
FiberMax 1320GL	3.0	36.7	80.2	25.6	8.0	4.3	83.1	8.2	1.0	1.0
NexGen 3517B2XF	2.5	36.3	80.5	28.1	8.0	3.7	82.3	9.0	1.3	1.0
NexGen 3500XF	2.9	37.3	79.7	26.3	7.4	4.7	82.6	7.9	1.7	1.0
NexGen 3406B2XF	2.2	37.0	79.6	26.3	8.3	4.7	82.7	8.0	1.3	1.0
NexGen 3405B2XF	2.7	36.6	81.0	27.2	8.6	2.3	83.2	8.9	1.0	1.0
PhytoGen 333WRF	3.6	37.8	81.2	27.2	8.0	3.3	83.0	8.4	1.3	1.0
PhytoGen 222WRF	2.4	36.0	80.9	26.0	8.7	3.3	83.5	8.5	1.0	1.0
PhytoGen 243WRF	2.3	37.9	80.9	27.3	7.6	3.7	83.0	8.0	1.0	1.0
Croplan 3226B2XF	3.0	36.7	81.1	29.0	8.2	3.0	83.1	8.9	1.0	1.0
Test average	2.7	36.9	80.5	27.1	8.0	3.7	82.8	8.4	1.2	1.0
CV, %	11.9	3.3	1.4	4.4	8.8	29.0	1.6	6.4	--	--
OSL	0.4876	0.6988	0.6140	0.1001	0.4218	0.2206	0.9362	0.0855†	--	--
LSD	NS	NS	NS	NS	NS	NS	NS	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 9. Harvest results from the 2016 Parmer County Trial (Williams Family Farm, Farwell, Texas).

Entry	Lint turnout ----- % -----	Seed turnout ----- % -----	Bur cotton yield ----- lb/acre -----	Lint yield ----- lb/acre -----	Seed yield ----- lb/acre -----	Lint loan value ----- \$/lb -----	Lint value ----- \$/acre -----	Seed value ----- \$/acre -----	Total value ----- \$/acre -----	Ginning cost ----- \$/acre -----	Seed/tech cost ----- \$/acre -----	Net value
Deltapine 1518 B2XF	30.8	47.8	3343	1029	1597	0.4583	471.48	159.69	631.17	91.93	69.36	469.88 e
Deltapine 1612 B2XF	30.1	48.6	3636	1095	1767	0.4953	542.28	176.72	719.00	99.98	63.24	555.78 bc
Stoneville 4747GLB2	31.5	48.0	4232	1332	2033	0.5062	674.36	203.26	877.62	116.38	71.73	689.51 a
FiberMax 1320GL	30.8	48.0	3567	1098	1713	0.5175	568.41	171.28	739.69	98.10	62.18	579.41 bc
NexGen 3517B2XF	27.5	49.0	3320	911	1628	0.5198	473.54	162.76	636.30	91.31	69.92	475.06 e
NexGen 3500XF	28.6	48.3	3900	1114	1885	0.4893	545.01	188.50	733.51	107.25	56.90	569.36 bc
NexGen 3406B2XF	32.8	47.5	3520	1155	1673	0.4710	544.14	167.34	711.48	96.78	69.92	544.77 cd
NexGen 3405B2XF	31.1	49.1	3307	1027	1623	0.4918	505.14	162.36	667.50	90.94	69.92	506.63 de
PhytoGen 333WRF	30.6	47.7	2883	882	1377	0.4587	404.71	137.67	542.38	79.30	59.44	403.64 f
PhytoGen 222WRF	30.0	47.7	3025	908	1443	0.5180	470.67	144.27	614.94	83.18	59.44	472.33 e
PhytoGen 243WRF	29.0	46.7	3966	1149	1852	0.5048	580.27	185.17	765.44	109.07	59.44	596.93 b
Croplan 3226B2XF	29.3	48.7	2849	836	1388	0.4590	383.58	138.77	522.34	78.36	75.96	368.02 f
Test average	30.2	48.1	3462.32	1044.78	1664.82	0.4908	513.63	166.48	680.11	95.21	65.62	519.28
CV, %	6.9	3.4	4.9	4.8	4.9	10.0	4.8	4.9	4.8	4.9	--	5.4
OSL	0.2420	0.8454	<0.0001	<0.0001	<0.0001	0.7168	<0.0001	<0.0001	<0.0001	<0.0001	--	<0.0001
LSD	NS	NS	287.5	84.1	139.2	NS	41.7	13.9	55.6	7.9	--	47.7

For net value/acre, means within a column with the same letter are not significantly different at the 0.05 probability level.

CV - coefficient of variation.

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

LSD - least significant difference at the 0.05 level, NS - not significant.

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

2016 base loan value for upland cotton is \$0.52/pound.

Assumes:

\$2.75/cwt ginning cost.

\$200/ton for seed.

Table 10. HVI fiber property results from the 2016 Parmer County Trial (Williams Family Farm, Farwell, Texas).

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32 ^{nds} inch	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
Deltapine 1518 B2XF	2.5	37.7	80.6	29.7	8.1	6.3	75.0	6.6	4.0	1.0
Deltapine 1612 B2XF	3.1	37.6	81.1	31.3	9.6	6.3	76.8	7.3	3.7	1.0
Stoneville 4747GLB2	3.4	38.3	79.9	28.3	6.6	5.0	78.4	6.7	3.3	1.0
FiberMax 1320GL	3.1	37.6	81.3	31.6	8.4	4.3	78.9	7.2	3.0	1.0
NexGen 3517B2XF	3.0	38.5	81.4	33.7	8.5	4.7	79.1	7.5	3.0	1.0
NexGen 3500XF	3.7	37.1	82.5	32.0	8.1	6.0	76.5	8.1	3.3	1.0
NexGen 3406B2XF	2.9	36.5	80.6	29.9	10.2	5.3	79.4	7.3	3.0	1.0
NexGen 3405B2XF	2.9	36.6	80.8	29.9	9.7	4.0	80.0	7.5	2.7	1.0
PhytoGen 333WRF	4.0	37.7	80.3	30.7	8.0	5.3	77.5	7.7	3.3	1.0
PhytoGen 222WRF	4.3	37.3	81.7	30.4	9.4	4.3	78.4	7.7	3.3	1.0
PhytoGen 243WRF	3.3	38.0	79.0	29.6	7.9	4.3	76.6	6.8	3.7	1.0
Croplan 3226B2XF	3.6	35.1	79.8	29.3	9.7	6.3	76.7	7.5	3.3	1.0
Test average	3.2	37.4	80.7	30.5	8.7	5.2	77.8	7.3	3.3	1.0
CV, %	13.2	2.7	1.7	2.8	4.8	28.7	2.5	5.4	--	--
OSL	0.5017	0.0263	0.2634	<0.0001	<0.0001	0.4417	0.1467	0.0047	--	--
LSD	NS	1.7	NS	1.5	0.7	NS	NS	0.7	--	--

CV - coefficient of variation.

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

LSD - least significant difference at the 0.05 level, NS - not significant

Table 11. Harvest results from the 2016 Sherman County trial (Tommy Cartrite Farm, Sunray, Texas).

Entry	Lint turnout ----- % -----	Seed turnout ----- % -----	Bur cotton yield ----- lb/acre -----	Lint yield ----- lb/acre -----	Seed yield ----- lb/acre -----	Lint loan value ----- \$/lb -----	Lint value ----- \$/lb -----	Seed value ----- \$/lb -----	Total value ----- \$/acre -----	Ginning cost ----- \$/acre -----	Seed/tech cost ----- \$/acre -----	Net value ----- \$/acre -----
Deltapine 1518 B2XF	26.8	50.8	5408	1452	2748	0.4567	663.08	274.84	937.92	148.71	89.40	699.80 fg
Deltapine 1612 B2XF	30.2	50.2	5819	1757	2923	0.5337	937.34	292.31	1229.65	160.02	81.51	988.12 ab
Stoneville 4747GLB2	26.5	49.8	5989	1588	2985	0.5293	840.78	298.48	1139.26	164.70	92.46	882.10 c
FiberMax 1320GL	30.6	50.3	5617	1719	2827	0.5463	939.16	282.65	1221.81	154.46	80.15	987.20 ab
NexGen 3517B2XF	27.8	52.4	5256	1463	2754	0.5372	785.67	275.39	1061.07	144.55	90.12	826.39 cde
NexGen 3500XF	30.9	50.9	5065	1566	2576	0.5523	864.81	257.57	1122.38	139.29	73.33	909.76 bc
NexGen 3406B2XF	31.7	55.8	5362	1699	2991	0.5463	928.03	299.07	1227.10	147.47	90.12	989.51 ab
NexGen 3405B2XF	30.8	49.4	5453	1679	2694	0.5265	884.19	269.34	1153.53	149.95	90.12	913.46 bc
PhytoGen 333WRF	28.6	49.9	5093	1456	2544	0.4772	694.78	254.40	949.18	140.06	76.61	732.51 efg
PhytoGen 222WRF	28.6	62.6	5836	1668	3652	0.5362	894.32	365.20	1259.53	160.49	76.61	1022.43 a
PhytoGen 243WRF	26.1	52.7	5987	1565	3153	0.4522	707.66	315.26	1022.92	164.64	76.61	781.68 def
Croplan 3226B2XF	28.7	50.8	4754	1365	2415	0.4552	621.32	241.55	862.86	130.74	97.90	634.23 g
FiberMax 2011GT	31.2	50.4	5815	1817	2930	0.5313	965.29	293.02	1258.31	159.91	61.95	1036.44 a
FiberMax 9250GL	27.9	53.2	5648	1575	3002	0.5132	808.36	300.18	1108.54	155.31	79.09	874.13 cd
Test average	29.0	52.1	5507.27	1597.73	2870.91	0.5138	823.91	287.09	1111.00	151.45	82.57	876.98
CV, %	4.6	10.8	6.4	6.4	6.2	4.4	6.1	6.2	6.2	6.4	--	6.7
OSL	<0.0001	0.3690	0.0038	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0038	--	<0.0001
LSD	2.2	NS	590.4	170.7	299.2	0.0	85.0	29.9	114.8	16.2	--	98.6

For net value/acre, means within a column with the same letter are not significantly different at the 0.05 probability level.

CV - coefficient of variation.

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

LSD - least significant difference at the 0.05 level, NS - not significant.

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

2016 base loan value for upland cotton is \$0.52/pound.

Assumes:

\$2.75/cwt ginning cost.

\$200/ton for seed.

Table 12. HVI fiber property results from the 2016 Sherman County trial (Tommy Cartrite Farm, Sunray, Texas).

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32 ^{nds} inch	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
Deltapine 1518 B2XF	2.9	38.5	79.8	28.8	7.8	5.0	80.7	6.5	3.3	1.0
Deltapine 1612 B2XF	3.3	39.5	82.7	29.8	9.1	3.3	82.2	7.5	2.0	1.0
Stoneville 4747GLB2	3.4	38.8	79.2	28.5	6.5	3.7	82.3	6.3	3.0	1.0
FiberMax 1320GL	3.4	38.9	82.3	30.2	8.2	1.7	83.3	7.2	2.0	1.0
NexGen 3517B2XF	3.1	39.5	82.5	31.7	8.0	2.3	83.0	7.2	2.3	1.0
NexGen 3500XF	3.5	36.8	82.5	30.8	7.9	1.7	82.1	8.1	2.0	1.0
NexGen 3406B2XF	3.5	37.6	82.3	28.7	9.1	2.3	83.8	7.4	1.7	1.0
NexGen 3405B2XF	3.3	37.4	81.8	29.0	9.5	2.3	84.0	7.4	1.7	1.0
PhytoGen 333WRF	3.0	38.0	81.0	28.9	7.6	4.0	78.9	8.0	2.7	1.0
PhytoGen 222WRF	3.3	38.1	82.5	29.1	8.8	3.3	81.8	7.2	2.7	1.0
PhytoGen 243WRF	2.5	40.2	80.7	27.5	7.9	4.3	82.9	6.3	3.0	1.0
Croplan 3226B2XF	2.5	35.7	80.4	27.8	8.7	4.3	80.8	7.0	3.0	1.0
FiberMax 2011GT	3.0	39.4	82.6	29.9	7.4	3.0	83.4	6.4	2.7	1.0
FiberMax 9250GL	2.7	39.2	81.3	30.7	6.5	3.0	83.3	6.5	2.7	1.0
Test average	3.0	38.4	81.5	29.4	8.1	3.2	82.3	7.1	2.5	1.0
CV, %	5.8	2.0	1.4	2.4	3.5	25.8	1.2	3.1	--	--
OSL	<0.0001	<0.0001	0.0091	<0.0001	<0.0001	0.0004	<0.0001	<0.0001	--	--
LSD	0.3	1.3	2.0	1.2	0.5	1.4	1.6	0.4	--	--

CV - coefficient of variation.

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

LSD - least significant difference at the 0.05 level.

Table 13. Harvest results from the 2016 Swisher County Trial (Jeremy Reed Farm, Kress, TX).

Entry	Lint turnout ----- % -----	Seed turnout ----- % -----	Bur cotton yield ----- lb/acre -----	Lint yield ----- lb/acre -----	Seed yield ----- lb/acre -----	Lint loan value ----- \$/lb -----	Lint value ----- \$/acre -----	Seed value ----- \$/acre -----	Total value ----- \$/acre -----	Ginning cost ----- \$/acre -----	Seed/tech cost ----- \$/acre -----	Net value
Stoneville 4747GLB2	30.3	50.9	4346	1318	2214	0.5100	672.08	221.40	893.48	119.51	79.70	694.27 b
FiberMax 1320GL	31.9	47.7	4379	1399	2090	0.5292	740.29	208.95	949.23	120.42	69.09	759.73 a
NG 3517B2XF	31.1	51.1	4005	1246	2046	0.4548	377.74	204.66	582.40	110.15	77.69	394.56 f
NG 3500XF	32.4	49.1	3711	1204	1821	0.4893	588.91	182.10	771.01	102.05	63.22	605.75 c
NG 3406B2XF	32.3	48.9	3912	1262	1914	0.5077	640.59	191.38	831.97	107.57	77.69	646.70 bc
NG 3405B2XF	32.4	49.2	3911	1266	1924	0.4802	608.03	192.44	800.47	107.54	77.69	615.23 c
PhytoGen 333WRF	30.3	48.8	3644	1105	1781	0.4828	533.52	178.06	711.57	100.22	66.04	545.31 d
PhytoGen 222WRF	30.3	50.5	3807	1153	1923	0.5407	623.35	192.32	815.67	104.67	66.04	644.95 bc
PhytoGen 243WRF	27.4	50.6	3521	963	1784	0.4892	471.09	178.35	649.44	96.82	66.04	486.58 e
Croplan 3226B2XF	29.8	48.8	3477	1034	1695	0.5280	364.16	169.52	533.67	95.60	84.40	353.67 f
Test average	30.8	49.6	3871.11	1194.99	1919.17	0.4684	561.98	191.92	753.89	106.46	72.76	574.67
CV, %	3.2	1.8	4.7	4.7	4.8	26.2	4.8	4.8	4.8	4.7	--	5.4
OSL	0.0002	0.0016	<0.0001	<0.0001	<0.0001	0.4413	<0.0001	<0.0001	<0.0001	<0.0001	--	<0.0001
LSD	1.7	1.5	314.8	96.4	156.4	NS	46.3	15.7	61.8	8.7	--	53.2

For net value/acre, means within a column with the same letter are not significantly different at the 0.05 probability level.

CV - coefficient of variation.

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

LSD - least significant difference at the 0.05 level, NS - not significant.

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

2016 base loan value for upland cotton is \$0.52/pound.

Assumes:

\$2.75/cwt ginning cost.

\$200/ton for seed.

Table 14. HVI fiber property results from the 2016 Swisher County Trial (Jeremy Reed Farm, Kress, TX).

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32 ^{nds} inch	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
Stoneville 4747GLB2	2.9	36.9	80.9	27.5	7.8	4.0	80.8	7.8	2.3	1.0
FiberMax 1320GL	3.8	36.5	81.3	27.2	9.0	4.0	80.7	7.9	2.3	1.0
NG 3517B2XF	3.2	36.7	79.9	25.8	8.5	6.5	77.9	7.4	3.7	1.0
NG 3500XF	2.6	36.1	81.7	26.0	9.2	4.3	80.6	7.8	2.3	1.0
NG 3406B2XF	3.0	36.4	80.9	26.9	8.9	5.0	79.9	7.5	3.0	1.0
NG 3405B2XF	3.4	36.2	80.2	25.8	8.0	5.0	81.2	7.3	2.7	1.0
PhytoGen 333WRF	2.7	36.9	81.2	27.2	8.0	5.3	78.8	8.0	3.0	1.0
PhytoGen 222WRF	3.3	36.5	81.9	27.9	8.4	3.0	81.0	8.1	2.0	1.0
PhytoGen 243WRF	3.1	36.8	81.7	28.1	8.1	5.0	79.4	7.6	3.0	1.0
Croplan 3226B2XF	3.0	36.8	80.6	27.2	8.2	4.0	79.4	7.4	3.3	1.0
Test average	3.3	36.6	81.0	27.0	8.4	4.8	80.0	7.7	2.8	1.0
CV, %	8.5	2.5	1.3	4.8	8.2	36.5	1.4	6.0	--	--
OSL	0.5571	0.9505	0.3590	0.3329	0.2735	0.5868	0.0215	0.4581	--	--
LSD	NS	NS	NS	NS	NS	NS	1.9	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, NS - not significant

Table 15. 2016 Varieties ranked by lint yield (lb/ac).

Variety	Deaf Smith County, Hereford, TX		Hartley County, Middlewater, TX		Parmer County, Farwell, TX		Sherman County, Sunray, TX	
	Rank	Lint Yield (lbs/ac)	Rank	Lint Yield (lbs/ac)	Rank	Lint Yield (lbs/ac)	Rank	Lint Yield (lbs/ac)
Deltapine 1518 B2XF	1	1884	10	1501	7	1029	11	1452
Deltapine 1612 B2XF	9	1735	5	1632	6	1095	1	1757
Stoneville 4747GLB2	7	1782	4	1640	1	1332	6	1588
FiberMax 1320GL	10	1638	1	1687	5	1098	2	1719
NexGen 3517B2XF	4	1819	12	1430	9	911	9	1463
NexGen 3500XF	8	1746	9	1505	4	1114	7	1566
NexGen 3406B2XF	5	1789	6	1618	2	1155	3	1699
NexGen 3405B2XF	3	1824	3	1646	8	1027	4	1679
PhytoGen 333WRF	2	1827	7	1590	11	882	10	1456
PhytoGen 222WRF	12	1598	2	1668	10	908	5	1668
PhytoGen 243WRF	11	1610	8	1523	3	1149	8	1565
Croplan 3226B2XF	6	1784	11	1444	12	836	12	1365

Table 16. 2016 Varieties ranked by net return (\$/ac).

Variety	Deaf Smith County, Hereford, TX		Hartley County, Middlewater, TX		Parmer County, Farwell, TX		Sherman County, Sunray, TX	
	Rank	Net Value (\$/ac)	Rank	Net Value (\$/ac)	Rank	Net Value (\$/ac)	Rank	Net Value (\$/ac)
Deltapine 1518 B2XF	4	1063.99	10	759.86	10	469.88	11	699.80
Deltapine 1612 B2XF	8	1026.43	3	861.92	5	555.78	3	988.12
Stoneville 4747GLB2	7	1028.89	7	771.49	1	689.51	7	882.10
FiberMax 1320GL	12	882.57	5	820.82	3	579.41	4	987.20
NexGen 3517B2XF	1	1092.43	11	723.87	8	475.06	8	826.39
NexGen 3500XF	5	1063.06	12	718.68	4	569.36	6	909.76
NexGen 3406B2XF	6	1042.45	9	762.11	6	544.77	2	989.51
NexGen 3405B2XF	3	1067.75	1	885.09	7	506.63	5	913.46
PhytoGen 333WRF	2	1073.37	2	865.61	11	403.64	10	732.51
PhytoGen 222WRF	10	951.07	4	830.65	9	472.33	1	1022.43
PhytoGen 243WRF	11	926.09	6	802.98	2	596.93	9	781.68
Croplan 3226B2XF	9	1007.52	8	762.62	12	368.02	12	634.23