



**Replicated LESA Irrigated Cotton Variety Demonstration,  
36°06'N 101°45'W Elevation-3468 ft  
Sunray, TX – 2010  
Cooperator: Tommy Cartrite**

**Rex Brandon, Marcel Fischbacher, Brent Bean, Randy Boman, Mark Kelley,  
and Jake Becker - AgriLife Research Assistant, CEA-ANR Moore County,  
Extension Agronomist - Amarillo, Extension Agronomist - Cotton - Lubbock,  
Extension Program Specialist II - Cotton, AgriLife Research Assistant**

**Sherman County**

**Summary:** Average lint yield was 1,052 lb/acre and varied from a low of 926 lb/acre for Deltapine 104B2RF to a high of 1,293 lb/acre for Deltapine 0912B2RF. Average lint turnout was 29.7%. Lint loan values averaged \$0.5414. When subtracting ginning, seed and technology fee costs, the average net value/acre across varieties was \$523.76. Net value per acre ranged from a high of \$645.58 for Deltapine 0912B2RF to a low of \$450.48 for Deltapine 104B2RF, a difference of \$195.08. Micronaire averaged 3.4 with Deltapine 1028B2RF being the highest at 3.7. Average staple was 36.3 across all varieties. The highest uniformity was observed for NexGen 1551RF (81.8%), and FiberMax 9058F had the lowest at 79.6%. Strength values ranged from a low of 27.6 g/tex (Deltapine 1028B2RF) to a high of 32.1 g/tex (NexGen 1551RF). Performance and rankings of varieties tested varied greatly in 2010 compared to 2008 and 2009, largely due to excellent weather conditions in 2010.

**Objective:** The objective of this project was to compare yields, gin turnout, fiber quality, and economic returns of transgenic cotton varieties under LESA center pivot irrigated production in the Texas Panhandle.

**Materials and Methods:**

**Varieties:** Deltapine 1028B2RF, Deltapine 0912B2RF, Deltapine 104B2RF, Deltapine 1032B2RF, Deltapine 0920B2RF, FiberMax 9180B2RF, FiberMax 1740B2F, FiberMax 9058F, NexGen 1551RF, NexGen 2549B2RF, AllTex Summit B2RF

**Experimental design:** Randomized complete block with 3 replications

**Seeding rate:** 3 seeds/row-ft in 20-inch row spacing (78,000 seed/acre)  
**Plot Size:** 12 rows approximately 600 ft in length

**Planting date:** 25-May

Weed management: Pre: 9-May, 2.5 pts Prowl H2O. Post: 16-May, 26 oz Roundup. 27-May, 32 oz Powermax + 1.5 gallon of 100 Bronco Plus. 21-July, PowerMax + 6 oz Interlock (drift retardant)

Rainfall and Irrigation: 7.75 inches irrigation with a LESA center pivot system. 13.26 inches rainfall during the growing season (data from Etter, TX weather station)

Insecticides: 27-June, 3 oz/acre acephate. 10-July, 4 oz/acre acephate

Fertilizer management: Fertigation: 13-August 3 gal/ac 16-22-0

**Soil Profile N:**

**Nitrogen NO3-N, lb/ac**

	<b>0-6"</b>	<b>6-12"</b>	<b>12-24"</b>	<b>24-36"</b>
Pre-plant	6	36	42	62
Post harvest	14	5	<4	<4

Plant growth regulators: 10-July, 3 oz/ac Stance + Surfactant. 21-July, 3 oz/ac Stance (applied with PowerMax for weed control)

Harvest aids: 13-Oct, 2 pts Boll Buster + 1 pt Folex + Nonionic adjuvant

Harvest: Plots were harvested on 23-November using a commercial John Deere 7460 stripper with field cleaner. Harvested material was transferred to a weigh wagon with integral electronic scales to determine plot weights. Plot yields were subsequently adjusted to lb/acre.

Gin turnout: Grab samples were taken by plot and ginned at the Texas AgriLife Research and Extension Center at Lubbock to determine gin turnouts.

Fiber analysis: Lint samples were submitted to the Texas Tech University Fiber and Biopolymer Research Institute for HVI analysis, and Commodity Credit Corporation (CCC) loan values were determined for each variety by plot.

Ginning cost and seed value: Ginning costs were based on \$3.00 per cwt. of bur cotton and seed value/acre was based on \$175/ton. Ginning costs did not include checkoff.

Seed and technology fees: Seed and technology costs were calculated using the appropriate seeding rate (3 seed/row-ft) for the 20-inch row spacing and entries using the online Plains Cotton Growers Seed Cost Comparison Worksheet available at: <http://www.plainscotton.org/Seed/PCGseed10.xls>.

## **Results and Discussion:**

Lint turnout ranged from a low of 26.7% to a high of 32.8% for All-Tex Summit B2RF and Deltapine 1032B2RF, respectively (Table 1). Lint yields varied from a low of 926 lb/acre with Deltapine 104B2RF to a high of 1,293 lb/acre with Deltapine 0912B2RF.

Lint loan values averaged \$0.5414/lb. Deltapine 0920B2RF had the highest lint loan value at \$0.5648. After adding lint and seed value, total value/acre ranged from a low of \$661.76 for Deltapine 104B2RF to a high of \$871.46 for Deltapine 0912B2RF. When subtracting ginning, seed and technology fee costs the net value/acre among varieties ranged from a low of \$450.48 for Deltapine 104B2RF to a high of \$645.58 for Deltapine 0912B2RF, a difference of \$195.08.

Significant differences were observed among varieties for all HVI quality grade parameters (Table2). Micronaire values ranged from a low of 3.0 for Deltapine 104B2RF and NexGen 2549B2RF to a high of 3.7 for Deltapine 128B2RF. Staple averaged 36.3 across all varieties with a low of 35.5 for Deltapine 1028B2RF to a high of 37.4 for FiberMax 9058B2F. The highest uniformity was observed for NexGen 1551RF at 81.8% and FiberMax 9058F had the lowest with 79.6%. Strength averaged 29.7 g/tex, with a high of 31.2 g/tex for FiberMax 9180B2F and a low of 27.6 g/tex for Deltapine 1028B2RF. Elongation averaged 7.0% across all varieties. Deltapine 104B2RF had the highest leaf grade at 3.3. Deltapine 1028B2RF was lowest at 1.3. Rd or reflectance averaged 82.8 and +b or yellowness averaged 8.1 within all varieties.

These data indicate that substantial differences can be obtained in terms of net value/acre due to variety and technology selection. In this trial, Deltapine 0912B2RF gave the highest net value, returning \$81 more per acre more than the next highest variety, FiberMax 1740B2F. This is in contrast to last year where Deltapine 0912BRF produced one of the lowest net returns of the varieties tested. Additional multi-site and multi-year applied research is needed to evaluate varieties and technology across a series of environments.

## **Acknowledgments:**

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Table 1. Harvest results from the cotton variety demonstration, Tommy Cartrite Farm, Sherman Co., 2010.

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	32.5	51.8	3974	1293	2059	0.5348	691.31	180.15	871.46	119.22	106.66	645.58 a
FiberMax 1740B2F	31.4	52.3	3596	1129	1879	0.5457	616.29	164.43	780.72	107.88	108.22	564.61 b
Deltapine 0920B2RF	31.2	51.1	3250	1015	1662	0.5648	573.54	145.39	718.92	97.49	78.61	542.82 bc
Deltapine 1032B2RF	32.8	50.0	3545	1164	1774	0.5055	588.63	155.23	743.86	106.35	97.60	539.90 bcd
NexGen 2549B2RF	28.5	54.4	3712	1058	2020	0.5290	559.45	176.71	736.16	111.35	104.90	519.91 bcd
FiberMax 9058F	29.2	53.7	3462	1012	1857	0.5565	563.27	162.53	725.80	103.86	104.90	517.04 bcd
Deltapine 1028B2RF	31.6	49.9	3355	1060	1674	0.5413	574.03	146.46	720.49	100.66	106.66	513.17 bcde
All-Tex Summit B2RF	26.7	54.2	3666	979	1985	0.5533	541.97	173.71	715.68	109.97	106.66	499.05 cde
NexGen 1551RF	27.8	56.5	3458	962	1954	0.5523	531.30	170.95	702.25	103.74	104.90	493.61 cde
FiberMax 9180B2F	28.0	54.4	3455	969	1881	0.5392	522.44	164.59	687.04	103.65	108.22	475.17 de
Deltapine 104B2RF	26.9	56.1	3435	926	1928	0.5327	493.10	168.66	661.76	103.06	108.22	450.48 e
Test average	29.7	53.1	3537	1052	1879	0.5414	568.67	164.44	733.10	106.11	103.23	523.76
CV, %	3.7	1.2	6.3	6.3	6.3	3.6	6.3	6.3	6.3	6.3	--	7.3
OSL	<0.0001	<0.0001	0.0502 <sup>†</sup>	<0.0001	0.0064	0.0796 <sup>†</sup>	0.0002	0.0064	0.0027	0.0502 <sup>†</sup>	--	0.0007
LSD	1.9	1.1	313	112	202	0.0275	60.84	17.68	78.39	9.39	--	65.52

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, <sup>†</sup>indicates significance at the 0.10 level.

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

Assumes:

\$3.00/cwt ginning cost and \$175/ton for seed.

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

Table 2. HVI fiber property results from the replicated cotton variety demonstration, Tommy Carrite Farm, Sherman Co., 2010.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32 <sup>nds</sup> inches	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
Deltapine 0912B2RF	3.6	36.3	80.9	29.0	7.4	3.0	82.2	8.2	1.7	1.0
FiberMax 1740B2F	3.3	36.2	80.4	30.4	6.6	2.7	83.7	7.7	1.3	1.0
NexGen 2549B2RF	3.0	35.2	80.8	30.4	7.1	3.0	81.9	8.1	2.0	1.0
Deltapine 1032B2RF	3.6	36.3	80.4	29.4	6.9	2.0	83.0	8.3	1.0	1.0
Deltapine 1028B2RF	3.7	35.5	81.2	27.6	7.8	1.3	81.6	9.3	1.0	1.0
Deltapine 0920B2RF	3.6	35.7	79.9	28.5	7.3	3.0	82.4	8.3	1.0	1.0
FiberMax 9058F	3.1	37.4	79.6	29.1	5.9	2.0	84.5	7.2	1.3	1.0
NexGen 1551RF	3.6	36.4	81.8	32.1	6.7	2.3	81.4	8.5	1.3	1.0
All-Tex Summit B2RF	3.1	35.8	81.0	27.8	7.3	2.3	83.1	8.1	1.0	1.0
FiberMax 9180B2F	3.3	37.2	80.9	31.2	6.3	2.7	84.1	7.2	1.7	1.0
Deltapine 104B2RF	3.0	36.8	81.3	31.1	7.4	3.3	82.7	7.9	1.3	1.0
Test average	3.4	36.3	80.7	29.7	7.0	2.5	82.8	8.1	1.3	1.0
CV, %	4.6	1.2	0.9	2.7	4.3	27.5	0.6	2.9	--	--
OSL	<0.0001	<0.0001	0.0420	<0.0001	<0.0001	0.0709 <sup>†</sup>	<0.0001	<0.0001	--	--
LSD	0.3	0.7	1.2	1.4	0.5	1.0	0.9	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, <sup>†</sup>indicates significance at the 0.10 level.