



**Replicated LESA Irrigated Cotton Variety Demonstration  
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Gaines County  
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**Summary**

Significant differences were observed for all yield, economic, and HVI fiber quality parameters measured. Lint turnout ranged from a low of 34.7% and a high of 41.8% for Stoneville 4288B2F and PhytoGen 375WRF, respectively. Lint yield varied with a low of 1253 lb/acre (All-Tex ApexB2RF) and a high of 1708 (FiberMax 9170B2F). Lint loan values ranged from a low of \$0.5507/lb (All-Tex 65207B2RF) to a high of \$0.5738/lb (FiberMax 9170B2F). Net value/acre among varieties ranged from a high of \$973.05 (FiberMax 9170B2F) to a low of \$683.29 (All-Tex 65207B2RF), a difference of \$289.80. Micronaire values ranged from a low of 4.0 for Phytogen 367WRF to a high of 4.7 for Stoneville 4288B2F. Staple averaged 35.6 across all varieties with a low of 34.8 for Deltapine 0935B2RF and a high of 38.0 for FiberMax 9170B2F. Percent uniformity ranged from a high of 82.8% for NexGen 3348B2RF to a low of 80.2% for Deltapine 1032B2RF. Strength values averaged 28.6 g/tex with a high of 30.9 g/tex for FiberMax 9170B2F and a low of 26.2 g/tex for All-Tex ApexB2RF. These data indicate that substantial differences can be obtained in terms of net value/acre due to variety and technology selection.

**Objective**

The objective of this project was to compare agronomic characteristics, yields, gin turnout, fiber quality, and economic returns of transgenic cotton variety under irrigated production in Gaines County.

**Materials and Methods**

Varieties: All-Tex 65207B2RF, All-Tex ApexB2RF, Dyna-Gro 2570B2RF, Deltapine 0935B2RF, Deltapine 1032B2RF, FiberMax 1740B2F, FiberMax 9170B2F, NexGen 3348B2RF, PhytoGen 367WRF, PhytoGen 375WRF, Stoneville 4288B2F, Stoneville 5458B2RF

Experimental design: Randomized complete block with 3 replications

Seeding rate: 4.2 seeds/row-ft in 36-inch row spacing

Plot size: 6 rows by variable length of field (465ft to 722ft long)

Planting date: 6-May

Soil Texture: 90% sand, 3% silt, and 7% clay

Soil pH: 7.6

Fertilization: 2-April applied 39 gallons of 7-12-6-3. Applied 19 gal of 32-0-0 on 5-June, 17-June, and 23-June. 5 oz/acre of Zinc applied on 7-August.

Weed Management: A preplant application of Trifluralin (1pt/acre) on 12-April. 2.1 oz/acre Staple and 40 oz/acre of Makaze applied on 7-July.

Plant Growth Regulators: 2 oz/acre Potenza applied on 22-June, 7-July, and 21-July. 4 oz/acre of Pentza applied on 7-August.

Irrigation: This location was under a LESA center pivot. This trial received approximately 25.66 inches of irrigation and rainfall from 6-May to 22-October.

Date	Inches of Irrigation/Rainfall
<b>6-May to 10-June</b>	3.36
<b>11-June to 15-July</b>	11.35
<b>16-July to 27-August</b>	6.15
<b>28-August to 22-October</b>	4.8

Insecticides/  
Nematicides: Temik 15G was applied infurrow at planting at a rate of 5 lb/acre. 8 oz of Vydate C-LV applied in a band on 9-June and 22-June.

Harvest Aides: Applied 1<sup>1</sup>/<sub>2</sub> pt/acre of Bollbuster, 1 oz/acre Aim on 4-September. Applied 1 pt/acre of Gramoxone on 15-September.

Harvest: Plots were harvested on 22-October using a commercial picker harvester. Harvest material was transferred into a weigh wagon with integral electronic scales to determine individual plot weights. Plot yields were 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 Fiber and Biopolymer Research Institute at Texas Tech University for HVI analysis, and USDA Commodity

Credit Corporation (CCC) Loan values were determined for each variety by plot.

Ginning cost and seed values:

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 (4.2 seed/row-ft) for the 36 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**

Significant differences were observed for all yield, economic, and HVI fiber quality parameters measured (Tables 1 and 2). Lint turnout ranged from a low of 34.7% and a high of 41.8% for Stoneville 4288B2F and PhytoGen 375WRF, respectively. Seed turnout ranged from a high of 56.0% for Stoneville 4288B2F to a low of 51.7% for Deltapine 1032B2RF. Bur cotton yields averaged 3792lb/acre with a high of 4594 lb/acre for FiberMax 9170B2F, and a low of 3401 lb/acre for Dyna-Gro 2570B2RF. Lint yield varied with a low of 1253 lb/acre (All-Tex ApexB2RF) and a high of 1708 (FiberMax 9170B2F). Lint loan values ranged from a low of \$0.5507/lb (All-Tex 65207B2RF) to a high of \$0.5738/lb (FiberMax 9170B2F). After adding lint and seed value, total value/acre for varieties ranged from a low of \$858.46 for All-Tex 65207B2RF to a high of \$1196.23 for FiberMax 9170B2F. When subtracting ginning, seed and technology fee costs, the net value/acre among varieties ranged from a high of \$973.05 (FiberMax 9170B2F) to a low of \$683.29 (All-Tex 65207B2RF), a difference of \$289.80.

Micronaire values ranged from a low of 4.0 for Phytogen 367WRF to a high of 4.7 for Stoneville 4288B2F. Staple averaged 35.6 across all varieties with a low of 34.8 for Deltapine 0935B2RF and a high of 38.0 for FiberMax 9170B2F. Percent uniformity ranged from a high of 82.8% for NexGen 3348B2RF to a low of 80.2% for Deltapine 1032B2RF. Strength values averaged 28.6 g/tex with a high of 30.9 g/tex for FiberMax 9170B2F and a low of 26.2 g/tex for All-Tex ApexB2RF. Elongation ranged from a high of 8.5% for Dyna-Gro 2570B2F to a low of 6.1% for FiberMax 9170B2F. Leaf grades ranged from 1 to 3, with a test average of 2.0. Values for reflectance (Rd) and yellowness (+b) averaged 82.1 and 7.8, respectively.

## **Conclusions**

These data indicate that substantial differences can be obtained in terms of net value/acre due to variety and technology selection. It should be noted that no inclement weather was encountered at this location prior to harvest and therefore, no pre-harvest losses were observed. Additional multi-site and multi-year applied research is needed to evaluate varieties and technology across a series of environments.

## **Acknowledgements**

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## **Disclaimer Clause:**

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Table 1. Harvest results from the cotton variety trial under center pivot irrigation, Jud Chevront Farm, Seminole, TX, 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/technology cost	Net value
	----- % -----		----- lb/acre -----			\$/lb			----- \$/acre -----			
FiberMax 9170B2F	37.2	53.8	4594	1708	2471	0.5738	980.06	216.17	1196.23	137.83	85.35	973.05 a
PhytoGen 367WRF	37.5	52.8	4033	1512	2130	0.5655	855.14	186.41	1041.55	120.98	83.73	836.83 b
FiberMax 1740B2F	37.6	53.5	3964	1491	2121	0.5635	840.11	185.61	1025.72	118.91	85.35	821.46 bc
Stoneville 4288B2F	34.7	56.0	4162	1443	2328	0.5613	810.24	203.74	1013.98	124.85	85.35	803.78 bcd
PhytoGen 375WRF	41.8	52.4	3460	1448	1814	0.5615	812.88	158.73	971.60	103.81	83.73	784.06 bcd
Deltapine 0935B2RF	38.2	53.7	3765	1437	2020	0.5577	801.25	176.75	978.01	112.94	85.46	779.60 bcd
Deltapine 1032B2RF	39.6	51.7	3584	1418	1853	0.5658	802.23	162.14	964.37	107.53	86.68	770.16 bcde
NexGen 3348B2RF	35.3	55.9	3841	1356	2147	0.5577	756.24	187.83	944.07	115.22	76.31	752.54 cdef
Stoneville 5458B2RF	36.0	54.9	3721	1338	2042	0.5637	754.29	178.66	932.95	111.62	85.35	735.98 def
Dyna-Gro 2570B2RF	37.9	54.5	3401	1289	1855	0.5610	722.99	162.33	885.32	102.03	83.47	699.82 ef
All-Tex Apex B2RF	35.7	55.8	3505	1253	1954	0.5663	709.43	170.96	880.40	105.14	77.59	697.67 f
All-Tex 65207B2RF	36.2	54.8	3473	1257	1903	0.5507	691.93	166.53	858.46	104.19	70.99	683.29 f
Test average	37.3	54.1	3792	1412	2053	0.5624	794.73	179.65	974.39	113.75	82.45	778.19
CV, %	5.1	1.1	5.1	4.9	5.2	1.2	4.9	5.2	5.0	5.1	--	5.5
OSL	0.0089	<0.0001	<0.0001	<0.0001	<0.0001	0.0549†	<0.0001	<0.0001	<0.0001	<0.0001	--	<0.0001
LSD	3.2	1.0	326	118	180	0.0093	65.95	15.76	81.69	9.78	--	71.92

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, †indicates significance at the 0.10 level.

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

Assumes:

\$3.00/cwt ginning cost.

\$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 cotton variety trial under center pivot irrigation, Jud Chevront Farm, Seminole, TX, 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
All-Tex 65207B2RF	4.3	35.0	82.0	27.9	7.3	3.0	81.3	8.0	2.0	1.0
All-Tex Apex B2RF	4.3	35.6	81.1	26.2	7.3	1.7	82.3	7.7	2.0	1.0
Dyna-Gro 2570B2RF	4.3	35.0	81.7	28.6	8.5	1.3	81.8	8.2	1.7	1.0
Deltapine 0935B2RF	4.2	34.8	80.4	28.7	7.1	1.3	83.1	7.9	1.7	1.0
Deltapine 1032B2RF	4.4	35.4	80.2	28.8	6.8	1.3	83.0	7.4	2.0	1.0
FiberMax 1740B2F	4.3	35.3	81.5	28.8	6.8	1.7	83.1	7.4	2.0	1.0
FiberMax 9170B2F	4.2	38.0	81.6	30.9	6.1	1.0	83.9	7.1	2.0	1.0
NexGen 3348B2RF	4.0	35.9	82.8	29.4	7.1	3.3	80.7	7.9	2.0	1.0
PhytoGen 367WRF	4.0	36.4	81.2	29.2	7.7	2.7	81.3	8.3	2.0	1.0
PhytoGen 375WRF	4.1	35.0	80.7	28.2	7.3	1.7	82.6	7.5	2.0	1.0
Stoneville 4288B2F	4.7	35.2	81.3	27.7	7.8	2.3	81.6	8.2	2.0	1.0
Stoneville 5458B2RF	4.4	35.7	80.5	28.7	7.1	2.7	80.8	8.2	2.0	1.0
Test average	4.3	35.6	81.2	28.6	7.2	2.0	82.1	7.8	1.9	1.0
CV, %	3.1	1.5	0.9	2.2	2.7	32.9	0.5	2.1	--	--
OSL	0.0002	<0.0001	0.0068	<0.0001	<0.0001	0.0025	<0.0001	<0.0001	--	--
LSD	0.2	0.9	1.2	1.0	0.3	1.1	0.7	0.3	--	--

CV - coefficient of variation.

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

LSD - least significant difference at the 0.05 level.