



**Replicated Dryland Cotton Variety Demonstration,  
Seminole, TX - 2009**

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**Gaines County**

**Summary:** This location was initially LESA irrigated for stand establishment. No subsequent irrigations were applied. Significant differences were observed for all yield, economic, and HVI fiber quality parameters measured. Lint turnout ranged from a low of 31.4% and a high of 38.5% for Deltapine 164B2F and All-Tex EpicF, respectively. Lint yields varied with a low of 426 lb/acre (Deltapine 164B2F) and a high of 557 lb/acre (All-Tex EpicF). Lint loan values ranged from a low of \$0.5017/lb (FiberMax 1740B2F) to a high of \$0.5683/lb (Deltapine 164B2F). Net value/acre among varieties ranged from a high of \$285.92 (All-Tex EpicF) to a low of \$209.19 (FiberMax 9180B2F), a difference of \$76.73. Micronaire values ranged from a low of 4.0 for NexGen 3410F to a high of 4.8 for FiberMax 1740B2F. Staple averaged 34.2 across all varieties with a low of 32.0 for FiberMax 1740B2F and a high of 35.4 for Deltapine 164B2F. Percent uniformity ranged from a high of 81.1% for FiberMax 9160B2F to a low of 79.6% for FiberMax 1740B2F. Strength values averaged 29.1 g/tex with a high of 30.9 g/tex for FiberMax 9180B2F and a low of 27.4 g/tex for FiberMax 1740B2F. 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 varieties under dryland production in Gaines County.

**Materials and Methods:**

**Varieties:** All-Tex EpicF, Americot 1532B2F, Deltapine 174F, Deltapine 164B2F, Deltapine 0924B2F, DynaGro 2570B2F, FiberMax 1740B2F, FiberMax 9180B2F, FiberMax 9160B2F, NexGen 3348B2F, NexGen 3410F, Phytogen 375WF

Soil Texture and pH: 88% sand, 3% silt, and 9% clay; pH of 7.4

Experimental design: Randomized complete block with 3 replications

Seeding rate: 2.5 seeds/row-ft in 36-inch row spacing

Plot size: 6 rows by variable length of field (757 - 2243 ft long)

Planting date: 1 June

Irrigation: This site was irrigated twice using LESA center pivot irrigation to aid in stand establishment, and no further irrigation was applied.

Irrigation & Rainfall: Pre-bloom irrigation and rainfall totaled ~5.47 inches  
Bloom to harvest rainfall totaled ~2.05 inches

Insecticides: Applied 5.0lbs/acre Temik in-furrow at planting.

Weed Management: 7 oz of Cotton Pro and 7 oz of Diuron were applied on 5 June. 40 oz of Glystar was applied on 25 June. 36 oz of Glyphosate was applied on 11 August.

Fertilizer management: 20 Gallons per acre of 28-0-0-4 was coultured on in-between the rows at the end of June.

Harvest aids: 1 ½ pt of Boll Buster and 1 oz of Aim was applied on 23 October.

Harvest: Plots were harvested on 10-November using a commercial stripper harvester with field cleaner. Harvested material was transferred to a weigh wagon with integral electronic scales to determine individual 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 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 \$160/ton. Ginning costs did not include checkoff.

Seed and technology fees: Seed and technology costs were calculated using the appropriate seeding rate (2.5 seed/row-ft) for the 36-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:**

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 31.4% and a high of 38.5% for Deltapine 164B2F and All-Tex EpicF, respectively. Seed turnout ranged from a high of 54.7% for All-Tex EpicF to a low of 49.1% for FiberMax 9180B2F. Bur cotton yields averaged 1397 lb/acre with a high of 1520 lb/acre for FiberMax 1740B2F, and a low of 1320 lb/acre for Phytogen 375WF. Lint yields varied with a low of 426 lb/acre (Deltapine 164B2F) and a high of 557 lb/acre (All-Tex EpicF). Lint loan values ranged from a low of \$0.5017/lb (FiberMax 1740B2F) to a high of \$0.5683/lb (Deltapine 164B2F). After adding lint and seed value, total value/acre for varieties ranged from a low of \$298.17 for FiberMax 9180B2F to a high of \$368.77 for All-Tex EpicF. When subtracting ginning, seed and technology fee costs, the net value/acre among varieties ranged from a high of \$285.92 (All-Tex EpicF) to a low of \$209.19 (FiberMax 9180B2F), a difference of \$76.73.

Micronaire values ranged from a low of 4.0 for NexGen 3410F to a high of 4.8 for FiberMax 1740B2F. Staple averaged 34.2 across all varieties with a low of 32.0 for FiberMax 1740B2F and a high of 35.4 for Deltapine 164B2F. Percent uniformity ranged from a high of 81.1% for FiberMax 9160B2F to a low of 79.6% for FiberMax 1740B2F. Strength values averaged 29.1 g/tex with a high of 30.9 g/tex for FiberMax 9180B2F and a low of 27.4 g/tex for FiberMax 1740B2F. Elongation ranged from a high of 11.6% for Dyna-Gro 2570B2F to a low of 9.0% for FiberMax 9160B2F. Leaf grades ranged from 1 to 3, with a test average of 1.6. Values for reflectance (Rd) and yellowness (+b) averaged 80.7 and 8.8, respectively. This resulted in color grades of mostly 11s and 21s.

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.

## **Acknowledgments:**

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Table 1. Harvest results from the replicated dryland cotton variety demonstration, Jud Chevront Farms, Seminole, TX, 2009

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		
AT EpicF	38.5	54.7	1447	557	791	0.5475	305.47	63.29	368.77	43.41	39.44	285.92 a
DG 2570B2F	35.1	51.5	1454	510	749	0.5408	275.99	59.94	335.93	43.61	47.02	245.30 b
FM 1740B2F	36.5	49.4	1520	555	750	0.5017	278.34	60.02	338.36	45.62	48.26	244.48 bc
NG 3348B2F	34.9	50.4	1448	504	730	0.5383	271.45	58.41	329.86	43.43	47.33	239.10 bcd
DP 174F	35.3	49.3	1333	471	657	0.5472	257.52	52.54	310.07	40.00	40.71	229.36 bcde
DP 0924B2F	34.1	51.0	1430	487	729	0.5348	260.35	58.34	318.69	42.89	47.89	227.91 bcde
NG 3410F	33.6	50.7	1351	453	685	0.5565	252.22	54.83	307.05	40.53	39.42	227.10 bcde
FM 9160B2F	34.8	50.1	1344	468	673	0.5507	258.23	53.81	312.04	40.32	48.26	223.45 cde
AM 1532B2F	32.8	51.8	1401	459	725	0.5543	254.29	58.03	312.32	42.04	47.33	222.94 de
PHY 375WF	36.0	49.9	1320	476	659	0.5253	249.89	52.69	302.58	39.61	47.00	215.97 e
DP 164B2F	31.4	53.5	1355	426	725	0.5683	242.32	57.96	300.28	40.65	47.05	212.58 e
FM 9180B2F	32.4	49.1	1357	440	667	0.5568	244.82	53.34	298.17	40.71	48.26	209.19 e
Test average	34.6	50.9	1397	484	712	0.5435	262.57	56.94	319.51	41.90	45.66	231.94
CV, %	3.9	3.6	3.9	3.8	3.9	1.7	4.6	3.9	4.4	3.9	--	5.5
OSL	0.0002	0.0250	0.0027	<0.0001	<0.0001	0.0250	0.0001	<0.0001	0.0001	0.0027	--	<0.0001
LSD	2.3	3.1	91	31	47	0.0152	20.51	3.76	24.03	2.74	--	21.49

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.

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

Assumes:

\$3.00/cwt ginning cost.

\$160/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 dryland cotton variety demonstration, Jud Cheuvront Farms, Seminole, TX, 2009.

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
AT EpicF	4.5	34.3	80.6	29.3	11.0	1.0	80.9	9.3	1.0	1.0
DG 2570B2F	4.5	34.1	80.7	29.5	11.6	1.0	79.7	9.5	1.3	1.0
FM 1740B2F	4.8	32.0	79.6	27.4	10.6	1.0	80.7	8.6	1.7	1.0
NG 3348B2F	4.4	33.8	80.9	29.4	9.8	2.7	80.0	8.5	2.0	1.0
DP 174F	4.4	34.4	80.4	28.2	10.6	1.3	79.9	8.8	2.0	1.0
DP 0924B2F	4.6	33.9	80.7	29.5	11.1	1.0	80.2	9.2	1.7	1.0
NG 3410F	4.0	34.7	80.8	30.2	10.0	3.0	79.2	8.7	2.3	1.0
FM 9160B2F	4.3	34.4	81.1	29.9	9.0	1.3	82.1	8.4	1.3	1.0
AM 1532B2F	4.3	34.6	80.7	27.4	10.7	1.7	81.5	8.8	1.0	1.0
PHY 375WF	4.6	33.4	80.2	28.4	10.6	2.0	80.3	9.2	2.0	1.0
DP 164B2F	4.3	35.4	80.5	29.7	9.7	1.0	81.5	8.7	1.3	1.0
FM 9180B2F	4.6	34.8	80.8	30.9	9.8	1.7	82.6	8.1	1.3	1.0
Test average	4.4	34.2	80.6	29.1	10.4	1.6	80.7	8.8	1.6	1.0
CV, %	2.1	1.0	0.5	1.9	2.9	44.6	0.7	3.4	--	--
OSL	<0.0001	<0.0001	0.0303	<0.0001	<0.0001	0.0153	<0.0001	0.0003	--	--
LSD	0.2	0.6	0.7	0.9	0.5	1.2	0.9	0.5	--	--

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.