



## 2011 Irrigated Cotton Variety Demonstration near Sunray, TX

Cooperator: Tommy Cartrite

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### Southeast Sherman County

**Summary:** Fifteen cotton varieties were planted on May 6<sup>th</sup> at a seeding rate of 55,000 seed/A on 30 inch rows. Lint yield averaged 984 lb/A and ranged from 1,126 to 845 lb/A. Net value ranged from a high of \$698/A to a low of \$472/A, a difference of \$226/A. The three top varieties in the trial were NexGen 4010B2RF, Deltapine 1219B2RF and FiberMax 9058F, each with a net value of over \$646/A. Two other varieties, FiberMax 9180B2F and FiberMax 9103GT, were close behind with net values of approximately \$592/A. Lint loan values ranged from \$0.5678/lb to \$0.4887/lb.

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

### Materials and Methods:

Varieties: Deltapine 1219B2RF (EXP 10R011), 0912B2RF and 104B2RF; FiberMax 9103GT, 9250GL, 9101GT, 9058F, 9180B2RF and 1740B2F; PhytoGen 367WRF; NexGen 4010B2RF, 2549B2RF, 2051B2RF and 1551RF; All-Tex Dinero B2RF

Experimental design: Randomized complete block with 3 replications

Seeding rate: 3.15 seeds/row-ft in 30-inch row spacing (55,000 seed/acre)

Plot Size: 8 rows approximately 600 ft in length

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Planting date:	May 6th
Weed management:	2.5 pt Prowl H2O and three applications of WeatherMax
Rainfall and Irrigation:	No significant rainfall. Irrigation – 2 inches preplant and 10 inches during the season
Insecticides:	Acephate
Fertilizer management:	50 lb N as Anhydrous and 5 gal 10-34-0
Plant growth regulators:	None
Harvest aids:	Generic Prep + Def
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 \$300/ton. Ginning costs did not include checkoff.
Seed and technology fees:	Seed and technology costs were calculated using the appropriate seeding rate (3.15 seed/row-ft) for the 30-inch row spacing and entries using the online Plains Cotton Growers Seed Cost Comparison Worksheet available at: <a href="http://www.plainscotton.org/">http://www.plainscotton.org/</a> .

## Results and Discussion:

Lint turnout of each variety was clustered around the mean of 36.3% with the exception of NexGen 2051B2RF with a turnout of only 31.4% (Table 1). When the net value of each variety was calculated (lint and seed value minus ginning and seed/tech costs) the top three varieties were NexGen 4010B2RF, Deltapine 1219B2RF and FiberMax 9058F with net values/A of \$698, \$672 and \$647, respectively. These three varieties had the highest lint yields and also had some of the highest lint loan values. The next two varieties in net value were FiberMax

9180B2F and FiberMax 9103GT, with net values of \$592/A. Lint loan values of all varieties ranged from \$0.5648/lb to \$0.4883/lb and averaged 0.5418/lb.

Significant differences were observed among varieties for all HVI quality grade parameters with the exception of % uniformity (Table 2). Micronaire was generally above 4.5 units and ranged from 5.1 to 4.2. Staple averaged 34.2, uniformity averaged 80.8%, and strength averaged 29.2 g/tex. Percent elongation ranged from 8.7% to 5.9%. Leaf grade ranged from 4.3 (FiberMax 9101GT) to 1.7 (three varieties). Rd or reflectance averaged 81.4 and +b or yellowness averaged 8.2.

These data indicate that substantial differences can be obtained in terms of net value/A due to variety and technology selection. In this trial NexGen 4010B2RF gave the highest net value, returning \$226 more per acre than the variety returning the least amount of net value. It should be noted that heat unit accumulation for the region was exceptional in 2011 and likely contributed to the ranking of these varieties. 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 2011 Cotton Variety Trial, Tommy Cartrite Farm, Sunray, TX.

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 -----				
NexGen 4010B2RF	37.1	48.7	3,039	1,126	1,480	0.5648	636.16	222.02	858.18	91.16	68.82	698.20	a
Deltapine 1219B2RF	37.1	47.8	2,974	1,104	1,422	0.5678	626.82	213.31	840.13	89.21	79.06	671.87	ab
FiberMax 9058F	35.1	49.4	2,977	1,046	1,470	0.5577	583.55	220.43	803.98	89.32	67.90	646.76	abc
FiberMax 9180B2F	35.2	49.6	2,742	966	1,360	0.5673	548.09	204.06	752.15	82.27	76.98	592.90	bcd
FiberMax 9103GT	35.9	49.9	2,702	970	1,347	0.5523	535.79	202.07	737.86	81.06	65.25	591.55	bcd
Deltapine 104B2RF	35.6	50.4	2,770	985	1,395	0.5428	534.66	209.32	743.98	83.09	73.56	587.33	cd
NexGen 2549B2RF	35.6	48.9	2,864	1,019	1,400	0.5177	527.73	210.05	737.78	85.91	68.82	583.05	cd
FiberMax 1740B2F	38.4	47.3	2,611	1,003	1,235	0.5493	550.84	185.26	736.10	78.32	78.23	579.56	cd
FiberMax 9101GT	38.0	46.3	2,698	1,025	1,249	0.5213	534.17	187.39	721.56	80.94	65.25	575.37	cd
NexGen 1551RF	36.9	50.1	2,654	978	1,331	0.5213	509.90	199.61	709.50	79.61	55.43	574.46	cd
PhytoGen 367WRF	37.9	43.7	2,709	1,027	1,184	0.5280	542.48	177.57	720.05	81.27	77.43	561.35	de
FiberMax 9250GL	36.0	49.8	2,512	905	1,251	0.5482	496.08	187.61	683.69	75.35	67.75	540.60	def
NexGen 2051B2RF	31.4	52.7	2,692	845	1,418	0.5543	468.29	212.74	681.03	80.77	68.82	531.44	def
All-Tex Dinero B2RF	37.5	48.0	2,276	853	1,091	0.5452	465.24	163.71	628.95	68.28	72.98	487.69	ef
Deltapine 0912B2RF	36.4	47.6	2,509	914	1,195	0.4887	446.71	179.23	625.94	75.27	79.06	471.61	f
<b>Test average</b>	<b>36.3</b>	<b>48.7</b>	<b>2,715</b>	<b>984</b>	<b>1,322</b>	<b>0.5418</b>	<b>533.77</b>	<b>198.29</b>	<b>732.06</b>	<b>81.46</b>	<b>71.02</b>	<b>579.58</b>	
CV, %	4.9	4.8	7.5	7.6	7.4	1.9	7.5	7.4	7.5	7.5	--	8.4	
OSL	0.0103	0.0285	0.0088	0.0024	0.0007	<0.0001	<0.0001	0.0007	0.0005	0.0088	--	0.0003	
LSD	3.0	3.9	342	125	164	0.0172	67.15	24.59	91.67	10.27	--	81.41	

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.

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

**Assumes:**

\$3.00/cwt ginning cost.

\$300/ton for seed.

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

**Table 2. HVI fiber property results from the 2011 Cotton Variety Trial, Tommy Cartrite Farm, Sunray, TX.**

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32nds inch	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
<b>All-Tex Dinero B2RF</b>	4.7	34.2	80.7	28.2	7.6	1.7	81.9	8.2	2.0	1.0
<b>Deltapine 0912B2RF</b>	5.1	32.2	80.8	27.3	8.4	2.0	80.8	8.6	2.0	1.0
<b>Deltapine 104B2RF</b>	4.2	33.8	81.5	29.9	8.7	2.0	81.9	8.1	2.0	1.0
<b>Deltapine 1219B2RF</b>	4.4	35.0	81.0	30.8	7.5	1.0	82.4	8.4	1.0	1.0
<b>FiberMax 1740B2F</b>	4.8	34.1	81.2	29.4	7.3	1.7	81.6	8.3	2.0	1.0
<b>FiberMax 9058F</b>	4.6	35.0	80.2	28.7	6.6	2.0	83.1	7.6	1.7	1.0
<b>FiberMax 9101GT</b>	4.6	34.0	80.4	27.9	5.9	4.3	80.7	7.9	2.3	1.0
<b>FiberMax 9103GT</b>	4.4	34.7	80.6	29.0	7.1	2.3	81.6	8.0	2.0	1.0
<b>FiberMax 9180B2F</b>	4.6	35.0	81.5	30.6	7.1	2.0	83.2	7.6	2.0	1.0
<b>FiberMax 9250GL</b>	4.6	34.8	80.2	29.0	6.1	3.0	82.0	7.6	2.3	1.0
<b>NexGen 1551RF</b>	4.8	33.4	80.0	30.4	7.1	2.3	79.0	9.1	2.0	1.3
<b>NexGen 2051B2RF</b>	4.3	35.0	80.6	27.9	6.8	2.7	82.1	7.6	2.0	1.0
<b>NexGen 2549B2RF</b>	4.5	32.7	81.2	29.4	8.3	3.3	79.7	8.5	2.3	1.0
<b>NexGen 4010B2RF</b>	4.6	34.9	81.2	31.2	7.8	1.7	81.0	8.7	2.0	1.0
<b>PhytoGen 367WRF</b>	4.6	33.6	80.5	28.5	8.4	2.3	79.6	9.0	2.0	1.0
<b>Test average</b>	<b>4.6</b>	<b>34.2</b>	<b>80.8</b>	<b>29.2</b>	<b>7.4</b>	<b>2.3</b>	<b>81.4</b>	<b>8.2</b>	<b>2.0</b>	<b>1.0</b>
CV, %	3.1	1.6	0.9	2.3	2.6	30.1	1.1	3.4	--	--
OSL	<0.0001	<0.0001	0.2470	<0.0001	<0.0001	0.0007	<0.0001	<0.0001	--	--
LSD	0.2	0.9	NS	1.1	0.3	1.2	1.5	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, NS - not significant