



**Replicated Limited Irrigated Cotton Variety Demonstration
N 35.4° W 101.14° Elevation – 3334 ft
White Deer, TX – 2010**

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Summary: The planting date of June 2nd clearly influenced the results of this trial. The varieties with the highest net value were NexGen 1551RF at \$440.15 and FiberMax 9058F at \$424.65. The variety with the third highest net value was Deltapine 0912B2RF at \$390.18. These three varieties had a net value of \$51/acre or more than all other varieties. When subtracting ginning, seed and technology fee costs, the average net value/acre of all varieties was \$343.52. Lint yield ranged from a low of 559 lb/acre with Deltapine 1028B2RF to a high of 915 lb/acre with NexGen 1551RF. Lint turnout varied considerably, ranging from 29% (FiberMax 1740B2F) to 37.4% (Nexgen 2549B2RF). Lint loan values ranged from a low of \$0.3765/lb (FiberMax 1740B2F) to a high of \$0.5452/lb (Deltapine 1028B2RF) followed by FiberMax 9180B2F at \$0.5412/lb. NexGen 1551RF had the highest Micronaire value at 4.0 followed by NexGen 2549B2RF at 3.9. Average staple length was 34.8, with very little variation between varieties. The highest percent uniformity was observed with NexGen 1551RF (81.1%) and FiberMax 9180B2F had the lowest (78%). Strength values ranged from 30.8 g/tex (FiberMax 1740B2F) to 27.2 g/tex (All-Tex Summit B2RF and NexGen 2549B2RF). NexGen 1551RF had the highest Leaf grade and color 1 grade at 5.5 and 2.5, respectively, followed by FiberMax 1740B2F with a leaf grade at 4.7. NexGen 2549B2RF had the lowest leaf and color 1 grade both at 1.7.

Objective: The objective of this project was to compare agronomic characteristics, yield, gin turnout, fiber quality, and economic returns of transgenic cotton varieties under limited irrigated production in the Texas Panhandle.

Materials and Methods:

Varieties: Deltapine 1028B2RF, Deltapine 0912B2RF, Deltapine 104B2RF, Deltapine 1032B2RF FiberMax 9180B2RF, FiberMax 1740B2F, FiberMax 9058F, NexGen 1551RF, NexGen 2549B2RF, All-Tex Summit B2RF

Experimental design: Randomized complete block with 3 replications

Seeding rate: 3.2 seeds/row-ft in 30-inch row spacing (55,000 seeds/acre)

Plot Size: 8 rows by approximately 600 ft

Planting date: 2-June

Rainfall/Irrigation: Approximately 6.2 in. of rainfall was accumulated from 2-June through 2-November. During the growing season, 4 in. of irrigation was applied through a LESA center pivot.

Herbicides: 88 oz. Roundup applied three times during the season. 1.33 pints Dual and 9 oz. clethodium.

Insecticides: 4 lbs/acre Temik was applied in-furrow at planting.

Fertilizer: None applied due to sufficient N in soil profile.

Soil Profile N:	Nitrogen NO ₃ -N, lb/ac			
	0-6 in	6-12 in	12-24 in	24-36 in
Pre-plant	6	78	84	112
Post harvest	13	5	7	11

Plant Growth Regulators: 16 oz/acre Pix

Harvest aids: 0.5 oz blizzard, 0.5 prep + 1 qt COC

Harvest: Plots were harvested on 22-November using a commercial John Deere 7460 stripper harvester 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 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 (3.2 seed/row-ft) for the 30-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 29% to a high of 37.4% for FiberMax 1740B2F and NexGen 2549B2RF, respectively (Table 1). Highest lint yields were with NexGen 1551RF and FiberMax 9058F, with both yielding over 900 lb/acre. Lint loan values ranged from a low of \$0.3765/lb (FiberMax 1740B2F) to a high of \$0.5452/lb (Deltapine 1028B2RF). After adding lint and seed value, total value/acre for varieties ranged from a low of \$387.33 for Deltapine 1028B2RF to a high of \$601.04 for NexGen 1551RF. After subtracting ginning, seed and technology fee costs, the net value/acre among varieties ranged from a high of \$440.15 with NexGen 1551RF and a low of \$260.96 with Deltapine 1028B2RF, a difference of \$179.19.

Micronaire values ranged from a low of 2.9 for FiberMax 1740B2F to a high of 4.0 for NexGen 1551RF (Table 2). Most micronaire values were clustered around the mean of 3.5. Staple length averaged 34.8 across all varieties with a low of 33.2 for Deltapine 1032B2RF to a high of 35.9 for Deltapine 104B2RF. The highest percent uniformity was observed for NexGen 1551RF (81.1%) and FiberMax 9180B2F had the lowest (78%). Strength values averaged 28.7 g/tex with a high of 30.8 g/tex for FiberMax 1740B2F and a low of 27.2 for All-Tex Summit B2RF and NexGen 2549B2RF. Elongation ranged from a high of 8.2% for NexGen 2549B2RF to a low of 5.6% for Deltapine 104B2RF. Leaf grades were relatively high for NexGen 1551RF at 5.5 and FiberMax 1740B2F at 4.7. Values for reflectance (Rd) and yellowness (+b) averaged 81.8 and 7.7, respectively.

These data indicate that substantial differences can be obtained in terms of net value/acre due to variety and technology selection. In contrast to other 2010 cotton trials, the late planting date of this trial did not allow some of the later maturing varieties to take advantage of the higher number of heat units available in 2010 compared to 2009. Two varieties that yielded well in both 2009 and 2010 at this location were NexGen 1551RF and FiberMax 9058F. It should also be noted that the producer did not apply any nitrogen fertilizer to this field, but rather relied on an abundance of residual nitrogen in the soil. Additional multi site and multi year applied research is needed to evaluate varieties and technology across a series of environments.

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Table 1. Harvest results from the cotton variety demonstration, D. Ponhert Farm, Carson Co., 2010.

Variety	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 1551RF	33.6	50.1	2733	915	1364	0.5281	481.71	119.33	601.04	82.00	78.89	440.15 a
FiberMax 9058F	34.4	47.3	2604	904	1228	0.5082	473.58	107.44	581.03	78.13	78.25	424.65 a
Deltapine 0912B2RF	30.9	51.0	2620	808	1335	0.5107	425.03	116.86	541.88	78.60	73.11	390.18 b
All-Tex Summit B2RF	30.6	52.4	2449	749	1283	0.4900	367.03	112.23	479.26	73.46	66.98	338.82 c
NexGen 2549B2RF	37.4	50.6	1989	744	1007	0.5055	376.29	88.09	464.39	59.68	73.94	330.77 c
FiberMax 9180B2F	34.1	50.0	2329	794	1165	0.5412	391.29	101.98	493.27	69.87	66.31	357.10 c
Deltapine 104B2RF	31.8	51.1	2397	762	1225	0.5032	383.58	107.20	490.78	71.90	66.98	351.91 c
Deltapine 1032 B2RF	30.5	50.7	2313	707	1173	0.4654	328.29	102.66	430.94	69.40	70.76	290.80 d
FiberMax 1740B2F	29.0	53.6	2571	745	1376	0.3765	280.52	120.45	400.97	77.13	73.94	249.91 e
Deltapine 1028B2RF	29.7	54.2	1895	559	1034	0.5452	296.86	90.47	387.33	56.85	69.52	260.96 e
Test average	32.2	51.1	2390	769	1219	0.4974	380.42	106.67	487.09	71.70	71.87	343.52
CV, %	2.0	3.8	4.5	4.6	4.5	18.7	4.6	4.5	4.6	4.5	5.4	5.9
OSL	<0.0001	0.0301	<0.0001	<0.0001	<0.0001	0.6129	<0.0001	<0.0001	<0.0001	<0.0001	0.0131	<0.0001
LSD	0.9	2.8	155	51	79	NS	25.57	6.93	32.43	4.64	5.65	29.55

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 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, D. Ponhert Farm, Carson Co., 2010.

Variety	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32 ^{nds} inches	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
NexGen 1551RF	4.0	34.5	81.1	28.3	7.6	5.5	80.3	7.6	2.5	1.0
FiberMax 9058F	3.7	34.7	79.0	27.6	6.9	2.6	82.0	7.9	2.0	1.0
Deltapine 0912B2RF	3.4	35.5	79.8	29.7	6.4	2.3	83.2	7.2	2.0	1.0
All-Tex Summit B2RF	3.3	34.5	80.3	27.2	7.2	2.3	82.1	7.9	2.0	1.0
NexGen 2549B2RF	3.9	34.3	80.3	27.2	8.2	1.7	80.9	8.4	1.7	1.0
FiberMax 9180B2F	3.4	35.1	78.0	28.5	6.5	2.3	82.6	7.6	2.0	1.0
Deltapine 104B2RF	3.3	35.9	79.0	28.2	5.6	3.7	82.7	7.0	2.0	1.0
Deltapine 1032 B2RF	3.0	33.2	80.6	29.7	7.5	3.7	81.2	7.7	2.0	1.0
FiberMax 1740B2F	2.9	35.5	81.0	30.8	7.2	4.7	81.8	7.5	2.0	1.0
Deltapine 1028B2RF	3.9	35.1	81.0	29.9	6.8	2.9	81.0	8.1	2.0	1.0
Test average	3.5	34.8	80.0	28.7	7.0	3.2	81.8	7.7	2.0	1.0
CV, %	3.2	2.0	11.1	2.7	3.8	39.1	0.7	1.5	--	--
OSL	<0.0001	0.0103	0.0085	0.0003	<0.0001	0.0376	0.0003	<0.0001	--	--
LSD	0.2	1.0	1.3	1.1	0.4	1.8	0.8	0.2	--	--

CV - coefficient of variation.

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

LSD - least significant difference at the 0.05 level.