



2011 Irrigated Cotton Variety Demonstration near Dumas, TX

Cooperator: David/Adam Ford

**Marcel Fischbacher¹, Jake Becker², Brent Bean³, Rex Brandon²,
Jake Robinson² Mark Kelley⁴**

Southwest Moore County

Summary: Fifteen varieties were tested at this location. The top four varieties in this trial based on net value were Deltapine 1219B2RF, FiberMax 9103GT, PhytoGen 375WRF and PhytoGen 367WRF. The net value per acre of these four varieties ranged from \$742 to \$668. Net value takes into account lint and seed yield, lint quality, loan value, and ginning and seed/technology costs. Lint yield ranged from 1,247 lb/A to 836 lb/A and the average loan value was \$0.5514/lb with the highest loan value being \$0.5735/lb. There was a difference of \$252/A in net value between cotton varieties planted in this trial.

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

Materials and Methods:

Varieties: Deltapine 1219B2RF (EXP 10R011), 0912B2RF and 104B2RF; FiberMax 9103GT, 2011GT, 9058F, 9180B2RF and 1740B2F; PhytoGen 375WRF and 367WRF; NexGen 4010B2RF, 2549B2RF, 2051B2RF and 1551RF; All-Tex Dinero B2RF

Experimental design: Randomized complete block with 3 replications

Seeding rate: 72,000 seed/A on 30 inch rows

Plot Size: 8 rows by approximately 600 ft (0.28 acres)

Planting date: 11-May

¹ Moore County Extension Agent

² Texas AgriLife Research Assistant

³ Texas AgriLife Extension and Research Agronomist, b-bean@tamu.edu

⁴ Texas AgriLife Extension Agronomist - Cotton

Rainfall/Irrigation:	Approximately 2 inches of rainfall was accumulated during the growing season. Irrigation amount totaled 12 inches and was applied through a center pivot using a LESA system.
Herbicides:	Pre: Caparol+glyphosate, Post: Two applications of Assure II + glyphosate, One application of Dual+glyphosate, Two applications of glyphosate alone
Insecticides:	Two applications of acephate
Fertilizer:	100 lbs N + 50 lbs P ₂ O ₅
Plant Growth Regulators:	None
Harvest aids:	Prep + Folex
Harvest:	Plots were harvested on November 19 th 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/A.
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 \$300/ton. Ginning costs did not include checkoff.
Seed and Technology fees:	Seed and technology costs were calculated using the appropriate seeding rate (4.13 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/

Results and Discussion:

Lint turnout was generally good ranging from a low of 32.6% to a high of 37.2% with FiberMax 1740B2RF (Table 1). Average turnout was 35.3%. Lint loan values averaged \$0.5514/lb, but three varieties NexGen 1551RF, Deltapine 0912B2RF and NexGen 2549B2RF were below \$0.53/lb. When the net value of each variety was calculated (lint and seed value minus ginning and seed/tech costs) the top four varieties were Deltapine 1219B2RF, FiberMax 9103GT, PhytoGen 375WRF and PhytoGen367WRF. These top varieties ranged in net value from \$742 to \$668 per acre. The next three varieties in net value were All-Tex Dinero B2RF, NexGen 4010B2RF and FiberMax 2011GT, all with net values greater than \$600 per acre.

Micronaire values ranged from a low of 4.2 for Deltapine 1219B2RF to a high of 5.3 with Deltapine 0912B2RF (Table 2). Micronaire values averaged 4.7. Staple length averaged 35.0 across all varieties with a low of 32.6 for NexGen 2549B2RF to a high of 36.9 for FiberMax 9180B2F. Uniformity was similar with all varieties averaging 81.4%. Strength values averaged 28.7 g/tex with a high of 30.9 g/tex for FiberMax 9180B2RF and a low of 27.0 g/tex for PhytoGen 367WRF. Elongation averaged 7.7% and leaf grades averaged 1.2. Values for reflectance (Rd) and yellowness (+b) averaged 82.6 and 7.3, respectively.

These data indicate that substantial differences can be obtained in terms of net value/A due to variety and technology selection. Net values ranged from \$742 to \$490/A, a difference of \$252/A. 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.

Acknowledgements:

Appreciation is expressed to David and Adam Ford for the use of their land, equipment and labor for this demonstration. Further assistance with this project was provided by Dr. Jane Dever - Texas AgriLife Research and Extension Center, Lubbock, and Dr. Eric Hequet, Associate Director, Fiber and Biopolymer Research Institute, Texas Tech University.

Disclaimer Clause:

Trade names of commercial products used in this report are included only for better understanding and clarity. Reference to commercial products or trade names is made with the understanding that no discrimination is intended and no endorsement by the Texas A&M System is implied. Readers should realize that results from one experiment do not represent conclusive evidence that the same response would occur where conditions vary.

Table 1. Harvest results from the 2011 Cotton Variety Trial, David Ford Farm, Southwest Moore County.

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 1219B2RF	37.0	47.6	3,367	1,247	1,604	0.5662	705.78	240.64	946.42	101.01	103.49	741.91	a
FiberMax 9103GT	35.9	49.7	3,090	1,109	1,537	0.5645	626.06	230.48	856.54	92.71	85.42	678.41	ab
PhytoGen 375WRF	36.8	48.0	3,144	1,158	1,509	0.5523	639.72	226.34	866.06	94.32	101.36	670.38	ab
PhytoGen 367WRF	38.7	46.7	3,065	1,187	1,432	0.5445	646.40	214.75	861.15	91.95	101.36	667.84	ab
All-Tex Dinero B2RF	34.9	50.3	3,018	1,052	1,518	0.5660	595.39	227.76	823.15	90.54	95.53	637.08	bc
NexGen 4010B2RF	34.0	50.8	3,050	1,038	1,548	0.5647	585.94	232.27	818.20	91.51	90.09	636.60	bc
FiberMax 2011GT	36.2	48.6	2,783	1,006	1,353	0.5643	567.83	202.92	770.74	83.48	85.42	601.85	bcd
FiberMax 9058F	35.0	50.2	2,746	961	1,378	0.5598	538.24	206.77	745.01	82.37	88.89	573.76	cde
FiberMax 9180B2F	33.0	51.3	2,773	916	1,424	0.5735	525.59	213.60	739.19	83.20	100.77	555.22	cde
NexGen 2549B2RF	34.9	49.6	2,857	997	1,418	0.5155	514.21	212.71	726.92	85.70	90.09	551.12	cde
NexGen 2051B2RF	33.9	51.4	2,693	914	1,384	0.5582	510.00	207.60	717.60	80.78	90.09	546.73	de
Deltapine 0912B2RF	36.0	48.7	2,782	1,002	1,356	0.5210	522.25	203.40	725.65	83.46	103.49	538.71	de
FiberMax 1740B2F	37.2	48.2	2,611	971	1,259	0.5462	530.25	188.80	719.05	78.33	102.40	538.32	de
NexGen 1551RF	32.9	52.7	2,585	851	1,361	0.5232	445.43	204.22	649.65	77.54	72.56	499.54	e
Deltapine 104B2RF	32.6	52.5	2,566	836	1,348	0.5510	460.73	202.14	662.88	76.97	96.29	489.61	e
Test average	35.3	49.8	2,875	1,016	1,429	0.5514	560.92	214.29	775.21	86.26	93.82	595.14	
CV, %	4.1	2.3	7.7	7.7	7.7	2.2	7.8	7.7	7.7	7.7	--	9.0	
OSL	0.0003	<0.0001	0.0027	<0.0001	0.0317	<0.0001	<0.0001	0.0315	<0.0001	0.0027	--	<0.0001	
LSD	2.4	1.9	368	131	183	0.0202	72.88	27.46	100.24	11.05	--	89.20	

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, David Ford Farm, Southwest Moore County.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32nds inch	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
All-Tex Dinero B2RF	4.6	35.4	81.5	27.9	7.6	1.0	83.6	7.3	2.0	1.0
Deltapine 0912B2RF	5.3	33.9	81.3	27.4	8.0	1.0	81.4	7.7	2.3	1.0
Deltapine 104B2RF Deltapine 1219B2RF	4.5	34.6	81.8	28.9	8.8	1.0	82.1	7.9	2.0	1.0
FiberMax 1740B2F	4.2	35.7	80.9	30.7	7.8	1.0	82.3	7.1	2.3	1.0
FiberMax 2011GT	4.9	34.2	80.9	28.1	7.7	1.0	82.6	7.4	2.0	1.0
FiberMax 9058F	4.8	35.2	81.6	28.9	7.2	1.0	82.9	7.3	2.0	1.0
FiberMax 9103GT	4.6	35.8	81.6	29.6	6.9	1.0	81.9	6.4	2.7	1.0
FiberMax 9180B2F	4.3	35.8	81.0	29.0	7.3	1.3	82.2	7.3	2.3	1.0
NexGen 1551RF	4.6	36.9	82.6	30.9	7.1	1.0	83.6	6.7	2.3	1.0
NexGen 2051B2RF	5.1	34.6	81.1	29.2	7.5	1.0	80.2	7.6	3.0	1.0
NexGen 2549B2RF	4.5	35.0	80.4	27.4	7.0	2.0	83.1	6.8	2.7	1.0
NexGen 4010B2RF	4.6	32.6	81.0	28.0	8.5	1.0	80.7	7.7	2.7	1.0
PhytoGen 375WRF	4.7	35.6	82.4	30.0	7.9	1.3	80.8	7.5	2.7	1.0
PhytoGen 367WRF	4.6	35.0	81.7	28.1	8.1	1.7	81.7	7.7	2.3	1.0
Test average	4.7	35.0	81.4	28.7	7.7	1.2	82.1	7.3	2.4	1.0
CV, %	3.6	1.3	0.7	2.3	4.2	43.8	1.1	5.6	--	--
OSL	<0.0001	<0.0001	0.0023	<0.0001	<0.0001	0.3468	0.0011	0.0071	--	--
LSD	0.3	0.7	0.9	1.1	0.5	NS	1.5	0.7	--	--

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.