



Replicated Dryland Transgenic Cotton Variety Demonstration, Littlefield, TX - 2006

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Summary: Significant differences were observed among varieties for most parameters measured (Tables 1 and 2). It should be noted that this location was planted to a 2 in/1 out skip-row pattern; however, all yield and economic values reported are on a land-acre basis. Lint turnout ranged from 28.5% to 34.7% for PhytoGen 125RF and FiberMax 9060F, respectively. Lint yields varied with a low of 319 lb/acre (PhytoGen 125RF) and a high of 414 lb/acre (FiberMax 9060F). Lint loan values ranged from a low of \$0.5578/lb for AFD 5064F and PhytoGen 125RF, to a high of \$0.5768/lb for FiberMax 989RR. After adding lint and seed value, total value/acre ranged from a low of \$214.85 for PhytoGen 125RF to a high of \$275.41 for FiberMax 9060F. When subtracting ginning and seed/technology costs, the net value/acre among varieties ranged from a high of \$220.39 (FiberMax 9060F) to a low of \$160.14 (PhytoGen 125RF), a difference of \$60.25. Significant differences were observed among varieties for all measured fiber quality parameters except micronaire. 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 yields, gin turnout, fiber quality, and economics of Roundup Ready and Roundup Ready Flex cotton varieties under skip-row (2 in/1 out) dryland production systems.

Materials and Methods:

Varieties: AFD 3070F, AFD 3074F, AFD 5064F, Deltapine 147RF, FiberMax 9058F, FiberMax 9060F, FiberMax 989RR, PhytoGen 125RF, Stoneville 4664RF, and Stoneville NexGen 3550RF

Experimental design: Randomized complete block with 3 replications

Seeding rate: 3.7 seed per row-ft in planted rows on 40-inch row spacing

Plot size: 6 planted rows out of 9 (2 in/1 out skip-row pattern)

Planting date: 18-May

Weed management: Trifluralin was applied preplant incorporated at 1.3 pt/acre. Diuron was applied at planting in a 13 inch band at a rate of 32 oz/acre. Roundup Original Max herbicide was applied over-the-top on 10-June at a rate of 32 oz/acre with ammonium sulfate (15 lbs/100 gallons of spray mix). Another application of Roundup Original Max was post directed at a rate of 32 oz/acre with ammonium sulfate (15 lbs/100 gallons of spray mix).

Rainfall and Irrigation: According to personal communication with cooperator, 11.0 inches of rainfall accumulated during the growing season.

Insecticides: Temik was applied in-furrow at planting at 3.0 lb/acre. No other insecticides were used at this site during the growing season.

Fertilizer management: None used at this site during the growing season.

Plant growth regulators: None used at this site during the growing season.

Harvest aids: Plots were left to freeze.

Harvest: Plots were harvested on 21-November using a commercial John Deere 7445 stripper harvester with field cleaner. Harvested material was transferred into a weigh wagon with integral electronic scales to determine individual plot weights. Plot yields were adjusted to lbs/acre.

Gin turnout: Grab samples were taken by plot and ginned at the Texas A&M University Agricultural Research and Extension Center at Lubbock to determine gin turnouts.

Fiber analysis: Lint samples were submitted to the International Textile Center at Texas Tech University for HVI analysis, and Commodity Credit Corporation (CCC) loan values were determined for each variety by plot.

Ginning cost and seed values: Ginning costs were based on \$2.45 per cwt. of bur cotton and seed value/acre was based on \$125/ton of seed. Ginning costs did not include checkoff.

Seed and technology cost: Seed and technology costs were calculated using the appropriate seeding rate (seed/row-ft) for the row spacing and entries using the online Plains Cotton Growers Seed Cost Comparison Worksheet with Monsanto Cap Cost Thresholds. available at: <http://www.plainscotton.org/Seed/seedindex.html>

Results and Discussion:

Significant differences were observed among varieties for most parameters measured (Tables 1 and 2). It should be noted that this location was planted to a 2 in/1 out skip-row pattern; however, all yield and economic values reported are on a land-acre basis. Lint turnout ranged from 28.5% to 34.7% for PhytoGen 125RF and FiberMax 9060F, respectively. Lint yields varied with a low of 319 lb/acre (PhytoGen 125RF) and a high of 414 lb/acre (FiberMax 9060F). Lint loan values ranged from a low of \$0.5578/lb for AFD 5064F and PhytoGen 125RF, to a high of \$0.5768/lb for FiberMax 989RR. After adding lint and seed value, total value/acre ranged from a low of \$214.85 for PhytoGen 125RF to a high of \$275.41 for FiberMax 9060F. When subtracting ginning and seed/technology costs, the net value/acre among varieties ranged from a high of \$220.39 (FiberMax 9060F) to a low of \$160.14 (PhytoGen 125RF), a difference of \$60.25. No significant differences were observed among varieties for micronaire with a test average value of 4.0. Staple length averaged 35.9 across all varieties with a low of 34.8 for AFD 5064F and a high of 37.0 for FiberMax 9058F. Uniformity was highest for PhytoGen 125RF (83.3%) and lowest for Deltapine 147RF (80.3%). A test average strength of 28.3 g/tex was observed with a high of 31.1 g/tex (PhytoGen 125RF) and a low of 26.6 g/tex (Deltapine 147RF). Percent elongation ranged from a high of 7.6 to a low of 5.5 for Stoneville 4664RF and FiberMax 9060F, respectively. The highest average leaf grade (3.7) was observed for PhytoGen 125RF and the lowest (2.3) was observed for FiberMax 9060F. Test averages for reflectance (Rd) and yellowness (+b) were 80.5 and 7.4, respectively. Color grades were mostly 21's and 31's at this location. 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 no inclement weather was encountered at this location prior to harvest. 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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Disclaimer Clause:

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Table 1. Harvest results from the dryland replicated transgenic cotton variety demonstration, Greg White Farm, Littlefield, TX, 2006

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 [†]	lb/acre [†]	\$/lb	\$/acre [†]	\$/acre [†]	\$/acre [†]	\$/acre [†]	\$/acre [†]	\$/acre [†]
FiberMax 9060F	34.7	50.0	1192	414	596	0.5762	238.15	37.26	275.41	29.19	25.83	220.39 a
FiberMax 989RR	34.5	49.7	1149	397	571	0.5768	228.96	35.69	264.64	28.15	22.39	214.10 ab
FiberMax 9058F	33.6	50.2	1195	402	600	0.5728	230.24	37.52	267.75	29.27	25.83	212.65 ab
Stoneville 4664RF	34.5	51.1	1140	393	582	0.5745	226.08	36.42	262.50	27.93	28.95	205.62 abc
AFD 5064F	31.6	52.7	1213	384	639	0.5578	214.06	39.96	254.02	29.72	24.70	199.59 bc
Deltapine 147RF	33.0	50.8	1148	378	583	0.5687	214.93	36.45	251.38	28.11	29.21	194.06 c
Stoneville NexGen 3550RF	32.5	53.1	1115	362	592	0.5740	207.71	37.00	244.71	27.32	24.47	192.92 cd
AFD 3070F	28.8	54.0	1156	333	624	0.5708	189.87	39.03	228.90	28.31	23.83	176.75 de
AFD 3074F	28.9	52.2	1107	320	578	0.5635	180.11	36.14	216.25	27.12	23.45	165.69 ef
PhytoGen 125RF	28.5	52.6	1121	319	590	0.5578	178.00	36.85	214.85	27.46	27.25	160.14 f
Test average	32.1	51.7	1153	370	596	0.5693	210.81	37.23	248.04	28.26	25.59	194.19
CV, %	2.3	1.8	4.2	4.6	4.5	1.4	4.3	4.4	4.2	4.2	--	4.9
OSL	<0.0001	0.0001	0.1638	<0.0001	0.1140	0.0413	<0.0001	0.1136	<0.0001	0.1656	--	<0.0001
LSD	1.3	1.6	NS	29	NS	0.0133	15.62	NS	17.91	NS	--	16.37

[†] Note: all values reported are on a land-acre basis.

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 - nonsignificant.

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

Assumes:

\$2.45/cwt ginning cost.

\$125/ton for seed.

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

Table 2. HVI fiber property results from the dryland replicated transgenic cotton variety demonstration, Greg White Farm, Littlefield, TX, 2006.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32 ^{nds} inches	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
FiberMax 9060F	4.1	36.9	80.9	28.0	5.5	2.3	81.8	7.0	3.0	1.0
FiberMax 989RR	4.0	35.6	81.7	28.8	6.2	3.0	82.3	7.1	2.0	1.0
FiberMax 9058F	4.0	37.0	81.5	26.7	5.6	3.0	81.8	7.2	3.0	1.0
Stoneville 4664RF	3.7	35.4	82.0	27.7	7.6	3.0	80.7	8.3	2.0	1.0
AFD 5064F	4.2	34.8	81.3	27.5	7.0	3.0	80.2	7.5	2.7	1.0
Deltapine 147RF	3.8	36.5	80.3	26.6	5.9	3.0	80.4	7.2	2.7	1.0
Stoneville NexGen 3550RF	4.0	35.5	81.1	29.9	6.5	3.0	79.7	7.6	3.0	1.0
AFD 3070F	4.0	36.1	81.8	27.2	6.3	3.0	79.9	7.6	3.0	1.0
AFD 3074F	3.9	35.6	81.7	29.2	7.4	3.3	79.6	7.3	3.0	1.0
PhytoGen 125RF	4.1	35.3	83.3	31.1	6.8	3.7	79.0	7.1	3.0	1.0
Test average	4.0	35.9	81.6	28.3	6.5	3.0	80.5	7.4	2.7	1.0
CV, %	5.3	1.3	0.8	3.2	3.5	9.6	1.4	3.1	--	--
OSL	0.2111	0.0001	0.0022	0.0001	<0.0001	0.0070	0.0346	0.0001	--	--
LSD	NS	0.8	1.1	1.6	0.4	0.5	2.0	0.4	--	--

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 - nonsignificant.