



**Replicated LESA Irrigated Cotton Variety Demonstration
Under Low to Moderate Root-knot Nematode Pressure without Temik
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Summary Significant differences were observed for most of the yield, economic, and HVI fiber quality parameters measured. Bur cotton yields averaged 2900lb/acre with a high of 3151 lb/acre for Stoneville 5458B2F and a low of 2467 lb/acre for FiberMax 9180B2RF. After multiplying lint yield and lint loan value, gross return value/acre for varieties ranged from a low of \$421.19 for FiberMax 9180B2RF to a high of \$557.85 for Stoneville 5458B2F. Net return ranged from a high of \$614.23 for Stoneville 5458B2F to a low of \$455.24 for FiberMax 9180B2RF. These data indicate that substantial differences can be obtained in terms of net value/acre due to variety and technology selection under root-knot nematode pressure when Temik 15G is not applied in-furrow at planting.

Objective The objective of this project was to compare agronomic characteristics, yields, gin turnout, fiber quality, and economic returns of transgenic cotton variety under root-knot nematode pressure when Temik 15G is not applied in-furrow at planting.

Materials and Methods

Varieties: Deltapine 174RF, Dyna-Gro 2570B2RF, FiberMax 9180B2RF, PhytoGen 367WRF, Stoneville 4288B2F, Stoneville 5458B2RF

Experimental design: Randomized complete block with 3 replications

Seeding rate: 3.5 seeds/row-ft in 36-inch row spacing

Plot size: Variable length of field (1866ft to 2400ft long) by 8 rows

Planting date: 21-May

Soil Texture: 78% sand, 7% silt, and 15% clay

Soil pH: 8.0

Harvest: Plots were harvested on 18-November using a commercial stripper harvester. Harvest material was transferred into a weigh wagon with integral electronic scales to determine individual plot weights. Plot yields were 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 Fiber and Biopolymer Research Institute at Texas Tech University for HVI analysis, and USDA Commodity Credit Corporation (CCC) Loan values were determined for each variety by plot.

Ginning cost and seed values: Ginning cost 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 (3.5 seed/row-ft) for the 36 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 most of the yield, economic, and HVI fiber quality parameters measured (Tables 1 and 2). Lint turnout ranged from a low of 30.0% to a high of 34.9% for FiberMax 9180B2RF and DynaGro 2570B2RF, respectively. Seed turnout ranged from a high of 48.8% for Stoneville 4288B2F to a low of 45.1% for Phytogen 367WRF. Bur cotton yields averaged 2900lb/acre with a high of 3151 lb/acre for Stoneville 5458B2F and a low of 2467 lb/acre for FiberMax 9180B2RF. Lint yield varied with a low of 740 lb/acre (FiberMax 9180B2RF) and a high of 1012 lb/acre (Stoneville 5458B2F). After multiplying lint yield and lint loan value, gross return value/acre for varieties ranged from a low of \$421.19 for FiberMax 9180B2RF to a high of \$557.85 for Stoneville 5458B2F. Seed value ranged from a high of \$130.26 for Stoneville 4288B2F to a low of \$105.17 for FiberMax 9180B2RF. Net returns ranged from a high of \$614.23 for Stoneville 5458B2F to a low of \$455.24 for FiberMax 9180B2RF.

Micronaire values ranged from a 4.27 to 4.77 for Phytogen 367WRF and Stoneville 4288B2RF, respectively. Length was lowest for Deltapine 174RF (1.07 in) and greatest for DynaGro 2570B2RF and Phytogen 367WRF (1.11 in). Percent uniformity ranged from a high of 81.8% for FiberMax 9180B2RF to a low

of 80.3% for Deltapine 174RF. Strength values ranged from a low of 28.1 g/tex for Stoneville 4288B2RF and a high of 30.2 g/tex for FiberMax 9180B2RF. Elongation ranged from a high of 8.0% for DynaGro 2570B2RF to a low of 6.3% for FiberMax 9180B2RF. Values for reflectance (Rd) and yellowness (+b) averaged 82.1 and 8.4, respectively.

Conclusions

These data indicate that substantial differences can be obtained in terms of net value/acre due to variety and technology selection under low to moderate root-knot nematode pressure when Temik 15G is not applied in-furrow at planting. Additional research evaluating varieties, technology, and use of nematicides such as Vydate C-LV are needed.

Acknowledgements

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Table 1. Harvest results from the cotton variety trial, Roy Johnsons Farm, Seminole, TX, 2010.

Entry	Lint turnout	Seed turnout	Bur cotton yield	Lint yield	Lint loan value	Gross return	Seed value	Technology cost	Net return
	----- % -----		----- lb/acre -----		\$/lb		----- \$/acre -----		
ST 5458B2F	32.1 bc	46.3 bc	3150.7 a	1011.5 a	0.5520 bc	557.85 a	127.50 ab	71.12	614.23 a
DG 2570B2RF	34.9 a	48.5 ab	2826.1 b	985.1 a	0.5658 ab	557.36 a	119.87 c	69.59	607.67 a
PG 367WRF	30.9 cd	45.1 c	3085.0 a	955.2 a	0.5673 a	542.04 a	121.81 bc	69.78	594.08 a
ST 4288B2F	30.4 cd	48.8 a	3053.5 a†	928.1 a	0.5600 ab	519.72 a	130.26 a	71.12	578.86 a
DP 174RF	34.2 ab	45.5 c	2822.9 b	961.7 a	0.5430 c	522.66 a	112.10 d	61.60	573.08 a
FM 9180B2F	30.0 d	48.7 a	2467.1 c	740.0 b	0.5690 a	421.19 b	105.17 d	71.12	455.24 b
CV	3.6	2.6	3.5	5.0	1.4	4.2	3.5	---	4.3
LSD	0.02	2.2	184.8	84.1	0.0139	39.3	7.5	---	44.6
p-value	0.0024	0.0173	<0.0001	0.0005	0.0155	0.0001	<0.0001	---	0.0001

† Means within a column followed by the same letter are not significantly different according to Fisher's Protected LSD.

‡ Assumptions include ginning costs of \$3.00/cwt and seed value of \$175/ton.

Table 2. HVI fiber property results from the cotton variety trial, Roy Johnson Farm, Seminole, TX, 2010.

Entry	Micronaire	Length	Uniformity	Strength	Elongation	Rd	+b
	units	inches	%	g/tex	%	reflectance	yellowness
DG 2570B2RF	4.53 b	1.11 ab	82	29.4 b	8.00 a	82.3 b	8.6 b
DP 174RF	4.50 b	1.07 c	80.3	27.1 d	7.30 b	81.4 c	8.5 b
FM 9180B2F	4.30 c	1.12 a	81.8	30.2 a	6.30 c	84.2 a	7.6 c
PG 367WRF	4.27 c	1.11 ab	81.4	28.8 b	7.47 b	82.1 b	8.4 b
ST 4288B2F	4.77 a	1.09 bc	80.8	28.1 c	7.20 b	82.0 b	8.5 b
ST 5458B2F	4.63 ab	1.09 bc	80.5	29.2 b	7.00 b	80.7 d	8.9 a
CV	2.3	1.1	1.0	1.2	4.0	0.3	1.9
LSD	0.19	0.02	NS	0.7	0.5	0.5	0.29
p-value	0.0021	0.0101		<0.0001	0.0	<0.0001	<0.0001

† Means within a column followed by the same letter are not significantly different according to Fisher's Protected LSD.