

Replicated Transgenic Cotton Variety Demonstration Under LEPA Irrigation (Field 5F)

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Objective: The objective was to determine cotton yield, gin turnout and net value of selected Roundup Ready cotton varieties grown under LEPA irrigation in large field plots.

Methodology: Nine varieties, AFD 3511R, Beltwide Cotton Genetics 28R, Deltapine 5415RR, Deltapine X030X177R, FiberMax 960BR, FiberMax 819RR, Stoneville 5303R, Stoneville 4892BR, and Paymaster 2326RR, were planted in three replications of a randomized complete block design. Varieties were planted in 30-inch rows at a rate of 3.2 seed per foot of row with a John Deere Max Emerge II vacuum planter. LEPA irrigation applied 11.46 inches during the growing season. Rain fell at 10.4 inches between April and September, 2003. Normal cultural practices were followed and pests were controlled at standard thresholds.

Ginning costs were based on \$2.25 per cwt. of bur cotton and \$125/ton for seed value. This does not include check off. Systems costs were determined by variety per acre using manufacturer's suggested retail prices for seed, and appropriate technology fees for Bollgard and/or Roundup Ready based on the 3.2 seed per foot of row. The net value was determined by subtracting ginning and systems costs from the total value.

Results and Discussion: These results indicate that variety selection significantly impacts the final net value/acre (Table 1). The net value among varieties ranged from \$464.78/acre (Deltapine X030X177R) to \$722.17/acre (Stoneville 4892BR), a difference of \$257.39/acre. Lint turnout ranged from 23.0 % to 29.0%. Lint yields varied from 947 lb/acre (Deltapine X030X177R) to 1363 lb/acre (Stoneville 4892BR). These data indicate that substantial differences can be obtained in terms of net value/acre due to Roundup Ready variety selection. It should be noted that inclement weather was encountered with high intensity rainfall and high wind events in this trial during the growing season and prior to harvest. Picker type varieties did experience some preharvest losses due to weather conditions. Additional multi-site and multi-year applied research is needed to evaluate varieties across a series of environments.

Table 1. Harvest results from the LEPA irrigated replicated cotton variety demonstration, Helms Farm, 2003.

Variety	Lint turnout %	Lint yield lb/acre	Seed yield lb/acre	Lint loan value \$/lb	Lint value \$/acre	Seed value \$/acre	Total value \$/acre	Ginning cost \$/acre	Seed/tech fee \$/acre	Net value \$/acre
ST 4892BR	27.6	1363	2107	0.5488	748.69	131.69	880.38	118.22	39.98	722.17 a
ST 5303R	28.7	1321	2037	0.5530	730.98	127.33	858.32	110.57	28.06	719.68 a
BCG 28R	27.2	1224	2082	0.5415	663.00	130.12	793.12	105.33	23.60	664.19 ab
FM 960BR	29.0	1240	1919	0.5576	691.50	119.97	811.47	108.59	43.12	659.75 ab
PM 2326RR	25.5	1216	1893	0.5423	660.30	118.30	778.61	103.60	17.05	657.95 ab
DP 5415RR	24.3	1195	2006	0.5460	653.23	125.41	778.65	104.49	24.69	649.47 ab
FM 819RR	27.2	1109	1768	0.5598	620.93	110.51	731.44	99.69	24.73	607.02 b
AFD 3511R	23.8	1065	1967	0.5573	594.03	122.92	716.95	100.47	18.10	598.38 b
DPX03X177R (491RP)	23.0	947	1608	0.5115	484.73	100.53	585.26	95.79	24.69	464.78 c
Test average	26.3	1187	1932	0.5464	649.71	120.75	770.47	105.19	27.11	638.15
CV, %	5.6	6.4	6.4	2.2	7.5	6.4	7.3	6.4	--	7.8
OSL	0.0007	0.0002	0.0031	0.0055	0.0003	0.0031	0.0005	0.0322	--	0.0004
LSD 0.05	2.6	133	215	0.021	84.90	13.41	97.85	11.66	--	86.60