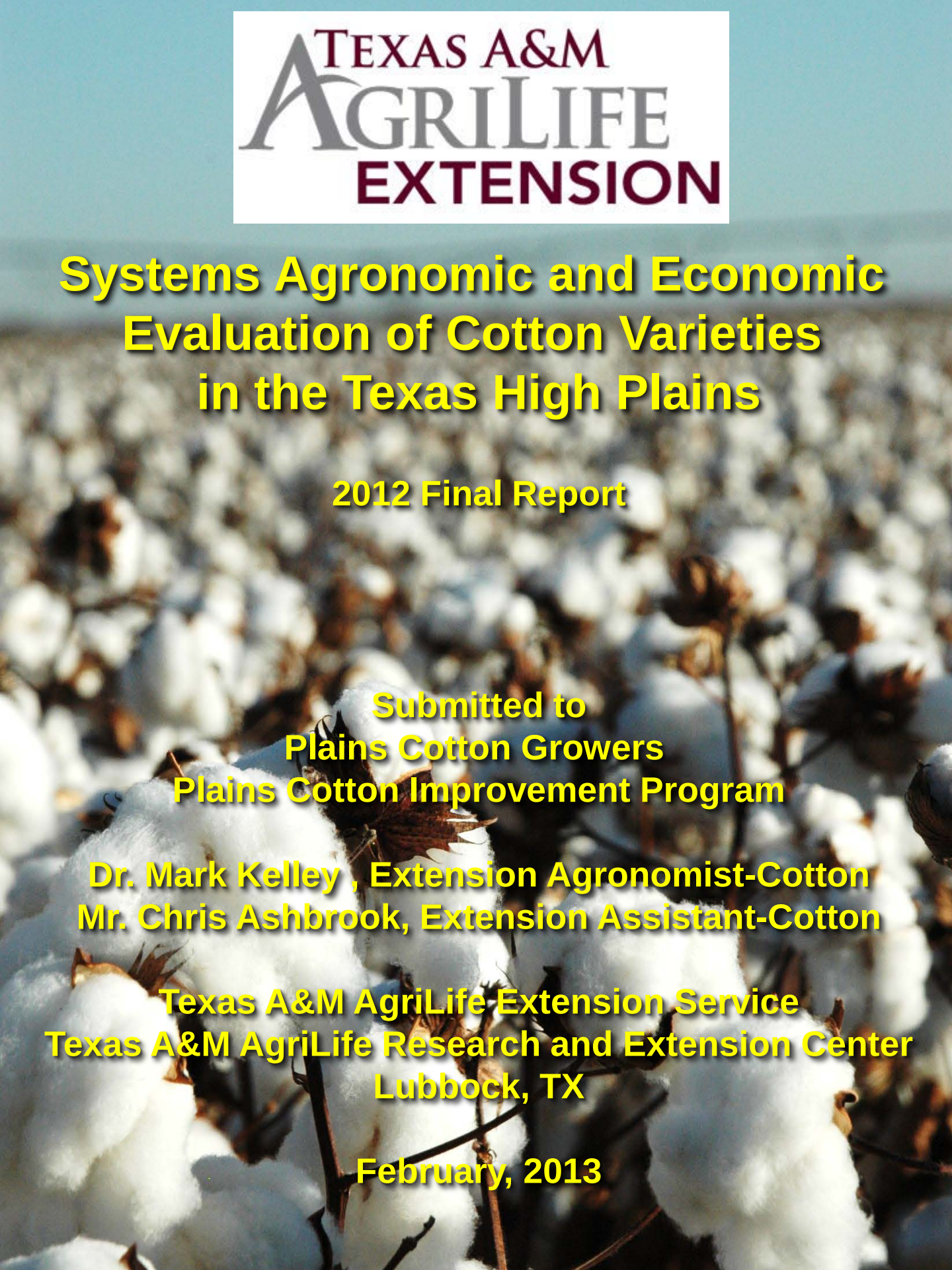

Systems Agronomic and Economic Evaluation of Cotton Varieties in the Texas High Plains

2012 Final Report

Submitted to
Plains Cotton Growers
Plains Cotton Improvement Program

Dr. Mark Kelley , Extension Agronomist-Cotton
Mr. Chris Ashbrook, Extension Assistant-Cotton

Texas A&M AgriLife Extension Service
Texas A&M AgriLife Research and Extension Center
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Agronomic and Economic Evaluation of Cotton Varieties

January 2013

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Characteristics commonly evaluated in small-plot testing include lint yield, turnout percentages, fiber quality, and earliness. Current small-plot variety testing programs are inadequate in scale and design to investigate the economic impact of new transgenic varieties with value-added traits. The objective of this project was to evaluate the profitability of cotton varieties in producers' fields in the Texas High Plains. Three replications of each variety were included at the Farwell and Plains locations with four replications at the Blanco location. At harvest, plot weights were determined using a boll buggy with integral electronic scales. Grab samples were taken from each plot for ginning and fiber quality analysis.

In 2012, yields were below what would normally be expected due to continued drought conditions across the Texas High Plains region. A total of three irrigated locations were initiated in 2012. These locations included Blanco, Farwell, and Plains, and the numbers of varieties at each location were 14, 12, and 20, respectively. All locations were well maintained by the cooperating producers, but the continued drought conditions took a toll on variety yields. At the Farwell location, during the growing season, all plots received light dose application (drift or tank contamination) of a sorghum herbicide but the damage was minimal. All locations were subjected to an early freeze event on 8-October. However, the Plains location was the only one that indicated significant effects with the earlier maturity varieties benefitting most. Lint yields averaged 817 lb/acre, 902 lb/acre and 456lb/acre at Farwell, Plains and Blanco respectively. At the Farwell location, loan values ranged from a high of $0.5658/lb (FiberMax 1944GLB2) to a low of $0.4900/lb (Croplan Genetics 3156B2RF) with a test average of $0.5392. A test average net value of $458.18/acre was observed, however, differences among varieties were not significant. Loan values at Plains averaged $0.5551/lb with a high of $0.5810/lb and a low of $0.5270 for NexGen 4111RF and Croplan Genetics 3156B2RF, respectively. After adding lint and seed values and subtracting ginning costs and seed/technology fees, net values averaged $530.37/acre. Individual variety net values ranged from a high of $619.63/acre for NexGen 1511B2RF to a low of $461.57/acre for FiberMax 9058F, a difference of $158.06. Four varieties were included in the statistical upper tier at Plains. These included NexGen 1511RF, Croplan Genetics 3787B2RF, Deltapine 1212B2RF, and All-Tex Nitro-44 B2RF with net values ($/acre) of $619.63, $587.32, $576.96, and $572.46, respectively. Lint loan values derived from grab samples taken at harvest at the Blanco site averaged $0.5326/lb and ranged from a high of $0.5630/lb for Croplan 3787B2RF to a low of $0.5003/lb for All-Tex Edge B2RF. After adding lint and seed values, and subtracting ginning and seed/technology fee costs, the average net value across varieties was $285.84/acre. Five varieties were included in the statistical upper tier for net value at Blanco. These included PhytoGen 499WRF ($335.21/acre), FiberMax 9170B2F ($310.45/acre), Croplan Genetics 3787B2RF ($308.22/acre), NexGen 1511B2RF ($305.23/acre), and Deltapine 1219B2RF ($304.66/acre).

These data indicate that substantial differences can be observed in terms of net value/acre due to variety and technology selection. The differences in net value/acre, were not significant at the Farwell location. However, when comparing the top and bottom varieties at the Plains and Blanco locations, differences were approximately $158 and $84, respectively. Additional multi-site and multi-year applied research is needed to evaluate varieties across a series of environments.

Agronomic and Economic Evaluation of Cotton Varieties

January 2013

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Mr. Chris Ashbrook, Extension Assistant - Cotton
Texas A&M AgriLife Extension Service
Lubbock, TX

Introduction

Small-plot cotton variety testing generally includes evaluation of genetic components but not genetics in concert with management programs. Characteristics commonly evaluated in small-plot testing include lint yield, turnout percentages, fiber quality, and earliness. Over the last several years, High Plains cotton producers have increased planted acreage of transgenic cotton (glyphosate- and glufosinate-herbicide tolerant and Bt insect-resistant types) from approximately 300 thousand in 1997 to approximately 3 million in 2010.

Industry continues to increase the number of herbicide-tolerant, insect-resistant, and "stacked gene" varieties. Liberty Link Ignite herbicide-tolerant varieties (from Bayer CropScience) were first marketed in 2004. The first commercial "stacked Bt gene" system (Bollgard II from Monsanto) was launched in 2004. Varieties containing Monsanto's Roundup Ready Flex gene system were commercialized in 2006. Widestrike "stacked Bt gene" technology from Dow AgroSciences was available in some PhytoGen varieties in 2005, with additional Roundup Ready Flex "stacked" types in the market in 2006. Liberty Link with Bollgard II types were also commercialized in 2006. In 2011, Bayer CropScience made Glytol and Glytol stacked with Liberty Link available to producers in limited quantities. Furthermore, in 2012, Bayer introduced several Glytol/Liberty Link varities stacked with Bollgard II technology. New transgenic varieties continue to be marketed in the High Plains by All-Tex, Americot/NexGen, Croplan Genetics, Delta and Pine Land/Monsanto, Dyna-Gro, the Bayer CropScience FiberMax/Stoneville brands, and the Dow AgroSciences PhytoGen brand. More transgenic varieties are expected to be released by these companies in the future. Additional cotton biotechnologies are also anticipated in the near future. These technologies include Extend from Monsanto/Deltapine and Enlist from Dow AgroSciences/PhytoGen. Extend technology with impart resistance to three herbicide molecules, dicamba, glyphosate, and glufosinate. Varieties with Enlist technology will be resistant to a new formulation of the 2,4-D herbicide. The proliferation of transgenic varieties in the marketplace is expected to continue over the next several years.

Current small-plot variety testing programs are inadequate in scale and design to investigate the economic impact of new transgenic varieties with value-added traits. The objective of this project was to evaluate the profitability of cotton varieties in producers' fields in the Texas High Plains.

Materials and Methods

For scientific validity, three replications of each variety were included at the Farwell and Plains locations, with four replications included at Blanco. In previous years, plots were of sufficient size to enable the combining of all replications of each individual variety into a single module at harvest. Variety modules would then be followed through the commercial ginning process. After several years of comparing results from commercial ginning and ginning of grab samples, a strong relationship was observed. Therefore, the decision was made by Extension personnel and the producers to forgo moduling and utilize grab samples from each plot at each location. A

randomized complete block design was used at all three locations. Weed and insect control measures, if needed, and harvest aid applications were performed commercially or by cooperating producers. During the growing season, it was determined that the plots at Farwell were subjected to light chemical damage (tank contamination or drift) from a sorghum herbicide. However, none of the varieties were significantly affected and harvest was performed. Plots were harvested with commercial harvesters by producers with assistance provided by program personnel at all locations. Individual location information was as follows:

Location 1: Farwell, TX – Parmer County

At the Farwell location, twelve varieties were planted to 30" straight rows on the flat in a terminated rye cover-crop on 18-May with a seeding rate of approximately 60,000 seed per acre. This location was under a Low Elevation Spray Application (LESA) center pivot irrigation system. Plot size was 8 rows by variable length due to center pivot. Plots were harvested on 7-November and grab samples were taken by plot and ginned at the Texas A&M AgriLife Research and Extension Center at Lubbock. Resulting lint samples were submitted to the Texas Tech University – Fiber and Biopolymer Research Institute for HVI fiber analysis and CCC loan values were calculated.

Varieties planted at Farwell (LESA irrigation system):

1. All-Tex Epic RF
2. Americot 1551RF
3. FiberMax 2011GT
4. FiberMax 9250GL
5. All-Tex Edge B2RF
6. NexGen 2051B2RF
7. FiberMax 1944GLB2
8. Croplan Genetics 3156B2RF
9. Deltapine 1212B2RF
10. PhytoGen 367WRF
11. Deltapine 1219B2RF
12. PhytoGen 499WRF

Location 2: Plains, TX – Yoakum County

Twenty commercially available varieties were included at the Plains location. Most varieties planted on 23-May contained Roundup Ready Flex technology stacked with Bollgard II or Widestrike insect technologies. Plots were variable length due to LESA center pivot irrigation and included 12 – 40" rows. The seeding rate at Plains was approximately 49,000 seeds/acre. Harvesting of plots was performed on 30 and 31-October using producer provided equipment. Plot weights were taken using weigh trailers with integral digital scale systems. During harvest, grab samples were taken by plot for ginning at the Texas A&M AgriLife Research and Extension Center near Lubbock. Lint samples were collected during ginning and submitted to the Texas Tech University – Fiber and Biopolymer Research Institue for HVI fiber analysis. After lint quality determination, CCC loan values were calculated for each plot.

Varieties planted at Plains (LESA irrigation system):

1 FiberMax 2011GT
2 FiberMax 9058F
3 NexGen 4111RF
4 PhytoGen 499WRF
5 Stoneville 4288B2F
6 FiberMax 2484B2F
7 FiberMax 1944GLB2
8 Stoneville 5458B2RF
9 PhytoGen 367WRF
10 Deltapine 1219B2RF
11 Deltapine 1212B2RF
12 Deltapine 1032B2RF
13 All-Tex Edge B2RF
14 Croplan Genetics 3156B2RF
15 Croplan Genetics 3787B2RF
16 Dyna-Gro 2570B2RF
17 FiberMax 2989GLB2
18 NexGen 1511B2RF (tested as Americot 1511B2RF)
19 NexGen 4010B2RF
20 All-Tex Nitro-44 B2RF

Location 3: Mt Blanco, TX – Crosby County

Fourteen varieties were planted to 40" raised bed rows on 16-May with an approximate seeding rate of 42,000 seed per acre. The rows were circular due to center pivot LEPA irrigation system (sprinklers utilized for stand establishment). Plot sizes were 8 rows wide by variable length due to circular rows. Harvest of reps 1 and 3 occurred on 24 and 25-October using the producer/cooperator harvesting equipment. During that time, it was determined that replication 2 needed more time due to significant green foliage remaining on the plant. Subsequently, the final rep was harvested on 29-October following a freeze event. Harvest material was transferred to a West Texas Lee Weigh Wagon for plot weight determination. Gin turnouts, HVI fiber quality and CCC lint loan values were determined from grab samples taken at harvest.

Varieties planted at Blanco (LEPA irrigation system):

1 Deltapine 1219B2RF
2 PhytoGen 367WRF
3 NexGen 1511B2RF (tested as Americot 1511B2RF)
4 NexGen 4012B2RF
5 All-Tex Edge B2RF
6 FiberMax 2989GLB2
7 FiberMax 9170B2F
8 All-Tex Nitro 44 B2RF
9 Croplan Genetics 3156B2RF
10 Croplan Genetics 3787B2RF
11 Deltapine 1044B2RF
12 PhytoGen 499WRF
13 FiberMax 2011GT
14 FiberMax 9250GL

Results

Agronomic and economic results by variety for all locations are included in tables 1 - 11.

Location 1 - Farwell

Plant population and nodes above white flower (NAWF) data are presented in Table 1. Plant stands averaged 39,839 plants/acre on 26-June. No significant differences were observed among varieties for plant population. NAWF counts were conducted on 23-July, 30-July, and 8-August. Differences were observed for counts taken 30-July and 8-August, but not on 23-July. The test average on 23-July was 7.1 NAWF. Average NAWF decreased to 4.8 on 30-July with several varieties reaching cutout (NAWF=5). By 8-August, all varieties had reached cutout and a test average of 3.0 was observed.

At the Farwell location, lint turnouts of field-cleaned bur cotton averaged 33.1% (Table 2). Bur cotton yields averaged 2469 lb/acre and ranged from high of 2671 lb/acre for PhytoGen 499WRF to a low of 2229 lb/acre for NexGen 1551RF. Lint yields ranged from 874 lb/acre for Deltapine 1219B2RF to 713 lb/acre for NexGen 1551RF, and seed yields averaged 1292 lb/acre. Loan values derived from grab samples ranged from $0.5658 for FiberMax 1944GLB2 to $0.4900 for Croplan Genetics 3156B2RF. After applying loan values to lint yields, the test average lint value was $439.93/acre. When subtracting ginning and seed/technology costs from total value (lint value + seed value) net value averaged $458.18/acre across varieties. No significant differences were observed among varieties for net value ($/acre) at this location (OSL = 0.1008).

Classing data from grab samples are reported in Table 3. Micronaire ranged from 4.3 for NexGen 1551RF to 3.0 for Deltapine 1912B2RF. Staple was highest for FiberMax 1944GLB2 (36.7) and lowest for Croplan Genetics 3156B2RF (33.2). The highest uniformity, 80.9%, was observed in PhytoGen 499WRF and PhytoGen 367WRF while Deltapine 1219B2RF had the lowest with 78.9%. Fiber strength values ranged from a high of 32.7 g/tex for PhytoGen 367WRF to a low of 27.6 g/tex for Croplan Genetics 3156B2RF. Leaf grades were mostly 1 and 2, and color grades were mostly 21 with a few 31 grades observed.

Location 2 – Plains

In-season agronomic plant measurements are presented in Table 4. No significant differences were observed among varieties for plant population with a test average of 3.8 plants/row foot, 49,683 plants/acre. Weekly observations for NAWF were conducted on 26-July, 2-August, and 9-August. Significant differences were observed among varieties for all observation dates. On 26-July, the test average was 8.3 NAWF and ranged from a high of 9.5 NAWF for FiberMax 2989GLB2 to a low of 7.8 for All-Tex Nitro-44 B2RF and Deltapine 1212B2RF. The test average on 2-August was 6.5 NAWF and Deltapine 1219B2RF had a high of 7.6 NAWF and Deltapine 1212B2RF had a low of 5.5. By 9-August, all varieties had reached physiological cutout (NAWF=5) with a test average of 2.4.

At the Plains location, NexGen 1511B2RF had the highest lint turnout of 36.0% and All-Tex Edge B2RF had the lowest with 28.9% (Table 5). Seed turnout averaged 51.9% across varieties. Bur cotton yields averaged 2806 lb/acre and ranged from a high of 3161 lb/acre for All-Tex Nitro-44 B2RF to a low of 2516 lb/acre for FiberMax 9058F. This resulted in lint yields ranging from 1045 lb/acre (NexGen 1511B2RF) to 775 lb/acre (FiberMax 9058F) and an average seed yield of 1455 lb/acre. Loan values derived from

grab samples ranged from a high of $0.5810 for NexGen 4111RF to a low of $0.5270 for Croplan Genetics 3156B2RF. After applying lint loan values to lint yield, lint values ($/acre) ranged from $586.55 for NexGen 1511B2RF to $434.15 for FiberMax 9058F. When subtracting ginning and seed/technology fee costs from total value (lint value + seed value) net value averaged $530.37/acre across varieties. Significant differences were observed among varieties for net value with a range of from $619.63/acre for NexGen 1511B2RF to $461.57/acre for FiberMax 9058F, a difference of $158.06. Four varieties were in the statistical upper tier at Plains. These included NexGen 1511B2RF ($619.63/acre), Croplan Genetics 3787B2RF ($587.32/acre), Deltapine 1212B2RF ($576.96/acre), and All-Tex Nitro-44 B2RF ($572.46/acre).

Classing data derived from grab samples are reported in Table 6. Micronaire was highest for NexGen 1511B2RF and Deltapine 1212B2RF with 4.0 and lowest for Dyna-Gro 2570B2RF at 3.1. Staple averaged 36.2 and was highest for All-Tex Nitro-44 B2RF and FiberMax 2484B2F (37.9) and lowest for Croplan Genetics 3156B2RF (34.7). The highest uniformity was observed in NexGen 4111RF with 82.5% while the lowest value of 79.4% was observed in FiberMax 2989GLB2. Strength values ranged from a high of 35.4 g/tex for All-Tex Nitro-44 B2RF to a low of 29.6 g/tex for Croplan Genetics 3787B2RF. Leaf grades of mostly 1 and 2 were observed across varieties with some leaf grades 3 for a few. Most varieties resulted in color grades of 21 and 31.

Location 3 – Mount Blanco

Plant population, NAWF and storm resistance data are presented in Table 7. Plant stands averaged 36,572 plants/acre on 21-June and no significant differences were observed among varieties. NAWF counts were conducted on 24-July, 31-July, and 10-August. No differences were observed for counts taken on 24-July and 10-August. On 31-July, differences were significant at the 0.10 level. The test averages were 7.9, 7.1 and 3.6 on 24-July, 31-July and 10-August, respectively. All varieties had reached cutout by the 10-August observation date.

On 11-September, final plant map data were collected and results are included in Table 8. Significant differences were observed among varieties for most plant map parameters measured. Plant height averaged 20.0 inches and was greatest for NexGen 1511B2RF (23.8”) and lowest for FiberMax 2011GT (16.9). Node of first sympodium averaged 6.4 and FiberMax 9170B2F had the highest with 7.3. NexGen 4012B2RF had the highest total mainstem nodes with 17.5 and the lowest was observed for FiberMax 2011GT with 14.2. The test average for total mainstem nodes was 15.9. For height to node ratio, the test average was 1.3. Total fruiting branches differences were significant at the 0.10 level and value was highest for NexGen 1511B2RF with 11.6 and lowest for FiberMax 2011GT with 9.2. A test average open boll percent of 72.1% was observed and values ranged from a high of 89.3% for FiberMax 9250GL to a low of 53.7 for Deltapine 1219B2RF. Fruiting and fruit retention values were also recorded on 11-September and reported in table 9. Parameters measured included percent of total fruit from positions 1 and 2, total fruit (actual count), positions 1 and 2 retention percent, and total fruit retention (%). Significant differences were observed among varieties at the 0.10 level for most parameters reported. Total fruit retention averaged 31.9% and ranged from a high of 39.5% for PhytoGen 367WRF to a low of 19.1 for FiberMax 9250GL.

At Blanco, lint turnouts of field-cleaned bur cotton ranged from a high of 33.1% for FiberMax 2011GT to a low of 30.1% for NexGen 4012B2RF (Table 10). Seed turnout averaged 49.1% across all varieties. An average bur cotton yield of 1727 lb/acre was also observed. Differences among varieties for seed turnout and bur cotton yield were

not significant at this location. However, lint yields averaged 546 lb/acre and differences were significant at the 0.10 level. PhytoGen 499WRF had the highest lint yield with 610 lb/acre. Seed yields, also significant at the 0.10 level, averaged 847 lb/acre across varieties. Loan values derived from grab samples ranged from $0.5630 for Croplan Genetics 3787B2RF to $0.5003 for All-Tex Edge B2RF. After applying lint loan values to lint yield, lint values ($/acre) ranged from a high of $339.31 for PhytoGen 499WRF to a low of $258.67 for FiberMax 9250GL. After subtracting ginning and seed/technology costs from total value (lint value + seed value) net value ranged from a high of $335.21/acre (PhytoGen 499WRF) to a low of $251.11/acre (Croplan Genetics 3156B2RF) and averaged $285.84/acre across varieties. Four other varieties were included in the statistical upper tier with PhytoGen 499WRF. These varieties were FiberMax 9170B2F, Croplan Genetics 3787B2RF, NexGen 1511B2RF and Deltapine 1219B2RF with net values of $310.45/acre, $308.22/acre, $305.23/acre, and $304.66/acre, respectively.

Classing data derived from grab samples are reported in Table 11. All-Tex Edge B2RF had the highest micronaire of 4.7 and the lowest was observed in Deltapine 1219B2RF with 3.6. Staple length averaged 34.2 and was highest for All-Tex Nitro-44 B2RF (35.4) and lowest for FiberMax 9250GL (32.6). The highest uniformity value of 80.5% was observed in PhytoGen 499WRF. Strength values averaged 30.0 g/tex and ranged from a high of 32.2 g/tex for All-Tex Nitro-44 B2RF to a low of 27.5 g/tex for FiberMax 9250GL.

Summary and Conclusions

Characteristics commonly evaluated in small-plot testing include lint yield, turnout percentages, fiber quality, and earliness. Current small-plot variety testing programs are inadequate in scale and design to investigate the economic impact of new transgenic varieties with value-added traits. The objective of this project was to evaluate the profitability of cotton varieties in producers' fields in the Texas High Plains. Three replications of each variety were included at the Farwell and Plains locations with four replications at the Mount Blanco location. In previous years, plots were of sufficient size to enable the combining of all replications of each individual variety into a single module at harvest. Variety modules would then be followed through the commercial ginning process. After several years of comparing results from commercial ginning and ginning of grab samples, a strong relationship was observed. Therefore, the decision was made by Extension personnel and the producers to forgo moduling and utilize grab samples from each plot at each location. Plot weights were determined at harvest using a West Texas Lee Weigh Wagaon with integral electronic scales and bur cotton yields were subsequently calculated by plot. After grab samples from each location and each plot were ginned, lint and seed turnout values were applied to bur cotton yields to determine lint and seed yeilds/acre. Lint samples resulting from the grab samples were submitted to the Texas Tech University - Fiber and Biopolymer Research Institute for HVI fiber analyses and CCC lint loan values were calculated.

In 2012, yields were below what would normally be expected due to continued drought condtions across the Texas High Plains region. A total of three irrigated locations were initiated in 2012 at Farwell, Plains and Blanco. The number of varieties at each location were 12, 20, and 14, respectively. All locations were well maintained by the cooperating producers, but the continued drought conditions took a toll on variety yields. At the Farwell location, during the growing season, all plots received a light dose of a sorghum herbicide (drift or tank contamination) but the damage was insignificant. All locations were subjected to an early freeze event on 8-October. However, the Plains location was the only one that indicated significant effects with the earlier season varieties benefitting

most. Lint yields averaged 902 lb/acre, 817 lb/acre and 456 lb/acre at Plains, Farwell and Blanco, respectively. At the Farwell location, loan values ranged from a high of $0.5658/lb (FiberMax 1944GLB2) to a low of $0.4900/lb (Croplan Genetics 3156B2RF) with a test average of $0.5392. A test average net value of $458.18/acre was observed, however, differences among varieties were not significant. Loan values at Plains averaged $0.5551/lb with a high of $0.5810/lb and a low of $0.5270 for NexGen 4111RF and Croplan Genetics 3156B2RF, respectively. After adding lint and seed values and subtracting ginning costs and seed/technology fees, net values averaged $530.37/acre. Values ranged from a high of $619.63/acre for NexGen 1511B2RF to a low of $461.57/acre for FiberMax 9058F, a difference of $158.06. Four varieties were included in the statistical upper tier at Plains. These included NexGen 1511RF, Croplan Genetics 3787B2RF, Deltapine 1212B2RF, and All-Tex Nitro 44 B2RF with net values ($/acre) of $619.63, $587.32, $576.96, and $572.46, respectively. Lint loan values derived from grab samples taken at harvest at the Blanco site averaged $0.5326/lb and ranged from a high of $0.5630/lb for Croplan 3787B2RF to a low of $0.5003/lb for All-Tex Edge B2RF. After adding lint and seed values, and substracting ginning and seed/technology fee costs, the average net value across varieties was $285.84/acre. Five varieties were included in the statistical upper tier at Blanco. These included PhytoGen 499WRF ($335.21/acre), FiberMax 9170B2F ($310.45/acre), Croplan Genetics 3787B2RF ($308.22/acre), NexGen 1511B2RF ($305.23/acre), and Deltapine 1219B2RF ($304.66/acre).

These data indicate that substantial differences can be observed in terms of net value/acre due to variety and technology selection. The differences in net value/acre, were not significant at the Farwell location. However, when comparing the top and bottom varieties at the Plains and Blanco locations, differences were approximately $158 and $84, respectively. Additional multi-site and multi-year applied research is needed to evaluate varieties across a series of environments.

Acknowledgments

We wish to express our appreciation to the producer-cooperators: Mark and Ryan Williams of Farwell, Mark and David Appling of Blanco, and Rickey Bearden of Plains for providing the land, equipment and time to conduct these projects. Furthermore, we thank Dr. Jane Dever – Texas A&M AgriLife Research for use of her ginning facilities and Dr. Eric Hequet – Texas Tech University Fiber and Biopolymer Research Institure for HVI fiber quality analyses. And finally, our deepest gratitude to Plains Cotton Growers – Plains Cotton Improvement Program and Cotton Incorporated – Texas State Support Committee for their generocity in funding for this and other research projects.

Table 1. Inseason plant measurement results from the irrigated large plot replicated systems variety demonstration, Mark and Ryan Williams Farm, Farwell, TX, 2012.

Entry	Plant population		Nodes Above White Flower (NAWF) for week of		
			23-Jul	30-Jul	8-Aug
	plants/row ft	plants/acre			
NexGen 1551RF	2.9	37,752	6.2	3.5	2.7
All-Tex Edge B2RF	3.2	41,927	6.9	4.0	2.5
All-Tex Epic RF	3.1	40,475	7.5	5.1	4.9
Croplan Genetics 3156B2RF	3.0	39,749	7.1	5.2	2.6
Deltapine 1212B2RF	3.0	39,749	7.5	4.9	2.7
Deltapine 1219B2RF	3.1	40,112	7.6	6.0	2.9
FiberMax 1944GLB2	3.1	40,475	6.9	4.9	3.1
FiberMax 2011GT	3.0	38,660	6.9	5.1	2.5
FiberMax 9250GL	3.1	40,475	6.9	4.6	3.1
NexGen 2051B2RF	3.0	39,567	6.8	3.9	3.3
PhytoGen 367WRF	3.0	39,749	7.0	4.7	2.6
PhytoGen 499WRF	3.0	39,386	7.6	5.8	3.0
Test average	3.0	39,839	7.1	4.8	3.0
CV, %	5.1	4.7	11.0	13.7	7.4
OSL	0.7380	0.5339	0.6128	0.0032	<0.0001
LSD	NS	NS	NS	1.1	0.4

For NAWF, numbers represent an average of 5 plants per variety per rep (15 plants per variety)
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

Table 2. Harvest results from the irrigated large plot replicated systems variety demonstration, Mark and Ryan Williams Farm, Farwell, TX, 2012.

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 ----------					
Deltapine 1212B2RF	32.5	51.7	2666	867	1379	0.5405	468.82	172.41	641.23	79.98	73.91	487.33
FiberMax 9250GL	34.1	52.9	2491	850	1318	0.5428	461.52	164.81	626.33	74.72	66.89	484.71
PhytoGen 367WRF	33.6	52.5	2477	832	1301	0.5638	469.22	162.64	631.86	74.30	76.15	481.41
Deltapine 1219B2RF	33.5	51.5	2611	874	1344	0.5152	450.17	167.98	618.15	78.33	71.21	468.61
All-Tex Epic RF	35.2	52.1	2384	839	1243	0.5228	438.73	155.35	594.08	71.52	59.23	463.33
FiberMax 2011GT	36.0	51.1	2265	815	1156	0.5527	450.57	144.56	595.13	67.94	64.53	462.67
All-Tex Edge B2RF	32.1	53.6	2483	798	1331	0.5527	441.02	166.38	607.40	74.50	70.65	462.25
FiberMax 1944GLB2	32.1	53.6	2441	784	1308	0.5658	443.86	163.56	607.41	73.24	77.22	456.96
PhytoGen 499WRF	31.2	50.8	2671	833	1357	0.5322	443.53	169.63	613.15	80.14	76.15	456.87
Croplan Genetics 3156B2RF	34.3	49.7	2503	858	1245	0.4900	420.24	155.59	575.84	75.09	72.30	428.45
NexGen 1551RF	32.0	54.4	2229	713	1213	0.5520	393.77	151.59	545.36	66.88	54.89	423.59
NexGen 2051B2RF	30.7	54.5	2404	737	1311	0.5395	397.73	163.87	561.59	72.12	67.55	421.92
Test average	33.1	52.4	2469	817	1292	0.5392	439.93	161.53	601.46	74.06	69.22	458.18
CV, %	3.9	1.5	5.5	5.5	5.5	3.7	5.4	5.5	5.4	5.5	--	6.3
OSL	0.0010	<0.0001	0.0104	0.0038	0.0337	0.0052	0.0094	0.0330	0.0454	0.0104	--	0.1008
LSD	2.2	1.4	230	76	121	0.0336	40.36	15.15	55.48	6.90	--	NS

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.
$250/ton for seed.
Value for lint based on CCC loan value from grab samples and FBRI HVI results.

Table 3. HVI fiber property results from the irrigated large plot replicated systems variety demonstration, Mark and Ryan Williams Farm, Farwell, TX, 2012.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32^{nds} inch	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
All-Tex Edge B2RF	3.8	34.9	79.3	31.0	9.2	1.7	80.2	7.5	2.3	1.0
All-Tex Epic RF	3.2	34.2	79.4	30.0	10.8	1.0	79.9	8.6	2.3	1.0
Croplan Genetics 3156B2RF	3.3	33.2	79.2	27.6	9.4	1.3	80.9	7.6	2.3	1.0
Deltapine 1212B2RF	3.3	34.9	79.6	30.6	10.6	1.3	78.5	8.9	2.0	1.0
Deltapine 1219B2RF	3.0	35.5	78.9	31.5	9.7	1.0	82.8	7.8	1.7	1.0
FiberMax 1944GLB2	3.5	36.7	80.4	31.0	8.6	1.0	82.1	7.4	2.3	1.0
FiberMax 2011GT	3.5	35.1	80.4	30.8	9.0	1.3	80.9	7.7	2.3	1.0
FiberMax 9250GL	3.5	35.1	79.4	28.9	8.5	1.0	80.8	7.9	2.0	1.0
NexGen 1551RF	4.3	34.0	80.5	31.3	9.5	1.0	78.0	9.2	2.0	1.0
NexGen 2051B2RF	3.8	34.8	79.3	27.8	9.0	2.3	80.3	7.6	3.0	1.0
PhytoGen 367WRF	3.8	36.1	80.9	32.7	11.3	1.7	78.4	8.6	2.7	1.0
PhytoGen 499WRF	3.2	35.1	80.9	31.9	10.8	2.3	79.2	8.5	2.3	1.0
Test average	3.5	35.0	79.9	30.4	9.7	1.4	80.2	8.1	2.3	1.0
CV, %	8.2	1.7	0.9	2.8	3.1	37.4	1.2	3.1	--	--
OSL	0.0017	<0.0001	0.0139	<0.0001	<0.0001	0.0261	0.0001	<0.0001	--	--
LSD	0.5	1.0	1.2	1.4	0.5	0.9	1.7	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.

Table 4. Inseason plant measurement results from the irrigated large plot replicated systems variety demonstration, Rickey Bearden Farm, Plains, TX, 2012.

Entry	Plant population		Nodes Above White Flower (NAWF) for week of		
			26-Jul	2-Aug	9-Aug
	plants/row ft	plants/acre			
All-Tex Edge B2RF	4.1	53,966	8.6	6.3	2.6
All-Tex Nitro-44 B2RF	3.7	48,884	7.8	6.2	2.1
Croplan Genetics 3156B2RF	4.1	53,966	8.5	6.3	2.5
Croplan Genetics 3787B2RF	3.4	44,528	8.1	5.9	2.6
Deltapine 1032B2RF	3.6	47,674	8.3	6.5	2.8
Deltapine 1212B2RF	4.0	51,788	7.8	5.5	2.5
Deltapine 1219B2RF	3.6	46,464	8.8	7.6	2.7
Dyna-Gro 2570B2RF	3.7	48,642	9.1	6.7	2.4
FiberMax 1944GLB2	3.8	49,852	8.1	6.7	2.1
FiberMax 2011GT	5.0	65,098	7.9	6.5	2.0
FiberMax 2484B2F	3.7	48,642	8.3	6.5	2.3
FiberMax 2989GLB2	3.6	46,948	9.5	6.7	2.7
FiberMax 9058F	3.7	48,884	8.2	6.6	2.5
NexGen 1511B2RF	3.8	49,368	8.4	6.3	2.4
NexGen 4010B2RF	3.6	47,674	8.1	5.7	2.3
NexGen 4111RF	3.4	45,012	8.0	6.3	2.3
PhytoGen 367WRF	3.6	47,190	8.2	6.7	2.3
PhytoGen 499WRF	3.7	48,400	7.9	6.9	2.2
Stoneville 4288B2F	3.9	51,304	8.3	6.9	2.4
Stoneville 5458B2RF	3.8	49,368	8.2	5.9	2.3
Test average	3.8	49,683	8.3	6.5	2.4
CV, %	17.5	17.4	5.6	7.8	11.2
OSL	0.7401	0.7183	0.0078	0.0057	0.0717†
LSD	NS	NS	0.8	0.8	0.4

For NAWF, numbers represent an average of 5 plants per variety per rep (15 plants per variety)
CV - coefficient of variation.
OSL - observed significance level, or probability of a greater F value.
LSD - least significant difference at the 0.05 level, †indicates significance at the 0.10 level, NS - not significant

Table 5. Harvest results from the irrigated large plot replicated systems variety demonstration, Rickey Bearden Farm, Plains, TX, 2012.

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 ----------					
NexGen 1511B2RF	36.0	51.2	2902	1045	1486	0.5615	586.55	185.71	772.26	87.05	65.57	619.63 a
Croplan Genetics 3787B2RF	34.5	50.5	2906	1004	1469	0.5570	559.06	183.59	742.65	87.19	68.13	587.32 ab
Deltapine 1212B2RF	32.5	53.1	2932	954	1556	0.5662	540.07	194.50	734.57	87.96	69.65	576.96 abc
All-Tex Nitro-44 B2RF	30.4	51.7	3161	961	1633	0.5523	530.82	204.17	734.98	94.84	67.69	572.46 abcd
Stoneville 4288B2F	30.9	53.1	2965	917	1574	0.5722	524.86	196.71	721.57	88.96	71.25	561.35 bcde
NexGen 4111RF	32.8	53.5	2637	865	1410	0.5810	502.55	176.25	678.80	79.11	51.73	547.96 bcde
FiberMax 2011GT	33.1	50.0	2738	905	1369	0.5612	507.98	171.10	679.08	82.13	60.80	536.15 bcdef
Deltapine 1032B2RF	34.3	50.9	2725	934	1388	0.5515	514.90	173.47	688.37	81.74	72.00	534.63 cdefg
FiberMax 2484B2F	32.1	51.1	2846	914	1453	0.5560	508.39	181.64	690.03	85.37	71.25	533.41 cdefg
FiberMax 2989GLB2	31.9	50.7	2905	926	1472	0.5463	505.68	183.96	689.64	87.14	72.77	529.73 cdefg
PhytoGen 367WRF	31.1	50.9	2923	908	1489	0.5470	496.67	186.08	682.75	87.68	71.75	523.31 defg
All-Tex Edge B2RF	28.9	53.7	3028	876	1627	0.5447	477.20	203.39	680.58	90.84	66.57	523.17 defg
FiberMax 1944GLB2	30.5	52.3	2875	878	1503	0.5587	490.49	187.86	678.35	86.26	72.77	519.33 efg
Dyna-Gro 2570B2RF	31.7	51.7	2891	918	1496	0.5283	484.75	186.97	671.72	86.74	71.33	513.65 efg
NexGen 4010B2RF	30.8	55.5	2679	825	1486	0.5705	470.80	185.77	656.57	80.38	63.66	512.53 efgh
PhytoGen 499WRF	32.8	51.2	2586	848	1324	0.5605	475.38	165.49	640.86	77.57	71.75	491.54 fgh
Deltapine 1219B2RF	33.6	52.0	2541	854	1321	0.5495	469.11	165.15	634.26	76.22	67.10	490.94 fgh
Stoneville 5458B2RF	31.3	51.6	2706	848	1396	0.5505	466.80	174.55	641.35	81.19	71.25	488.92 fgh
Croplan Genetics 3156B2RF	33.2	49.9	2658	883	1326	0.5270	465.10	165.70	630.80	79.75	68.13	482.92 gh
FiberMax 9058F	30.8	52.8	2516	775	1329	0.5602	434.15	166.08	600.22	75.49	63.17	461.57 h
Test average	32.2	51.9	2806	902	1455	0.5551	500.56	181.91	682.47	84.18	67.92	530.37
CV, %	3.5	2.3	5.6	5.3	5.6	3.1	5.2	5.7	5.3	5.6	--	5.9
OSL	<0.0001	0.0001	0.0004	<0.0001	<0.0001	0.0668†	<0.0001	<0.0001	<0.0001	0.0004	--	<0.0001
LSD	1.9	2.0	259	79	136	0.0237	43.15	16.99	59.71	7.76	--	52.04

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, †indicates signficance at the 0.10 level.
Note: some columns may not add up due to rounding error.

Assumes:
$3.00/cwt ginning cost.
$250/ton for seed.
Value for lint based on CCC loan value from grab samples and FBRI HVI results.

Table 6. HVI fiber property results from the irrigated large plot replicated Systems variety demonstration, Rickey Bearden Farm, Plains, TX, 2012.

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 Edge B2RF	3.3	36.5	81.4	32.8	9.5	3.0	81.2	7.3	2.7	1.0
All-Tex Nitro-44 B2RF	3.3	37.9	82.3	35.4	10.3	2.3	81.5	7.8	2.0	1.0
Croplan Genetics 3156B2RF	3.2	34.7	80.7	29.7	9.2	2.3	82.7	7.5	2.0	1.0
Croplan Genetics 3787B2RF	3.5	35.5	81.0	29.6	11.5	1.3	83.0	8.2	1.3	1.0
Dyna-Gro 2570B2RF	3.1	35.1	80.0	30.6	11.2	1.7	82.4	8.5	1.0	1.0
Deltapine 1032B2RF	3.3	35.8	80.4	30.9	9.5	1.0	82.7	7.9	1.7	1.0
Deltapine 1212B2RF	4.0	37.1	81.0	33.3	10.9	2.0	79.4	8.4	2.3	1.0
Deltapine 1219B2RF	3.3	36.8	80.6	33.1	9.5	1.3	82.4	8.2	1.0	1.0
FiberMax 1944GLB2	3.3	37.2	80.9	31.4	8.7	1.0	83.7	7.4	2.0	1.0
FiberMax 2011GT	3.6	35.4	81.5	30.9	9.3	1.7	81.1	7.9	2.0	1.0
FiberMax 2484B2F	3.2	37.9	82.1	33.3	8.8	1.0	83.8	7.3	1.7	1.0
FiberMax 2989GLB2	3.3	35.6	79.4	30.0	8.6	1.0	82.5	7.7	1.7	1.0
FiberMax 9058F	3.6	36.7	80.1	30.8	8.8	1.7	81.8	7.5	2.3	1.0
NexGen 1511B2RF	4.0	35.0	81.6	32.4	11.4	2.3	80.7	8.4	2.0	1.0
NexGen 4010B2RF	3.7	36.5	82.1	33.4	9.8	1.7	80.8	8.3	2.0	1.0
NexGen 4111RF	3.8	36.7	82.5	35.1	10.5	1.0	79.6	8.8	2.0	1.0
PhytoGen 367WRF	3.3	35.6	80.8	30.7	11.2	1.0	79.8	8.7	2.0	1.0
PhytoGen 499WRF	3.4	35.8	81.8	32.5	11.6	2.0	80.6	8.2	2.0	1.0
Stoneville 4288B2F	3.6	36.6	81.1	32.0	10.3	1.7	81.2	8.2	1.7	1.0
Stoneville 5458B2RF	3.4	35.8	80.6	31.6	9.9	2.0	80.6	8.3	2.3	1.0
Test average	3.5	36.2	81.1	32.0	10.0	1.7	81.6	8.0	1.9	1.0
CV, %	6.6	1.8	1.1	3.3	3.1	44.8	0.8	2.9	--	--
OSL	0.0005	<0.0001	0.0062	<0.0001	<0.0001	0.0560†	<0.0001	<0.0001	--	--
LSD	0.4	1.0	1.5	1.7	0.5	1.0	1.1	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, †indicates signficance at the 0.10 level.

Table 7. Inseason plant measurement results from the irrigated large plot replicated systems variety demonstratrion, Mark Appling Farm, Blanco, TX, 2012.

Entry	Plant population		Nodes Above White Flower (NAWF) for week of		
	plants/row ft	plants/acre	24-Jul	31-Jul	10-Aug
NexGen 1511B2RF	2.6	34,122	8.6	7.5	3.8
All-Tex Edge B2RF	2.8	35,937	7.7	6.9	3.6
All-Tex Nitro-44 B2RF	3.0	39,749	8.0	6.8	3.1
Croplan Genetics 3156B2RF	3.0	39,023	7.6	6.5	2.9
Croplan Genetics 3787B2RF	2.5	32,670	7.5	7.3	3.7
Deltapine 1044B2RF	2.7	34,848	8.1	7.1	3.5
Deltapine 1219B2RF	3.0	38,841	8.7	7.7	4.0
FiberMax 2011GT	2.8	36,845	7.3	6.8	3.4
FiberMax 2989GLB2	2.7	35,393	7.8	7.1	3.6
FiberMax 9170B2F	2.9	37,389	7.5	6.7	3.5
FiberMax 9250GL	3.0	38,660	7.5	6.5	3.1
NexGen 4012B2RF	2.6	33,941	7.7	7.4	4.3
PhytoGen 367WRF	2.9	38,478	7.9	7.4	3.7
PhytoGen 499WRF	2.8	36,119	8.3	7.4	4.1
Test average	2.8	36,572	7.9	7.1	3.6
CV, %	9.9	9.9	7.5	6.6	18.9
OSL	0.4791	0.3985	0.1618	0.0576†	0.4720
LSD	NS	NS	NS	0.6	NS

For NAWF, numbers represent an average of 5 plants per variety per rep (15 plants per variety)
CV - coefficient of variation.
OSL - observed significance level, or probability of a greater F value.
LSD - least significant difference at the 0.05 level, †indicates significance at the 0.10 level, NS - not significant

Table 8. Final plant map results from the irrigated large plot replicated systems variety demonsrtation, Mark Appling Farm, Blanco, TX, 2012.

Entry	Final plant map 11-Sept					
	plant height (inches)	node of first fruiting branch	total mainstem nodes	height to node ratio	total fruiting branches	open boll (%)
All-Tex Edge B2RF	19.3	6.2	15.9	1.2	10.6	80.5
All-Tex Nitro-44 B2RF	19.5	6.6	15.8	1.2	10.3	73.6
Croplan Genetics 3156B2RF	17.5	6.1	14.6	1.2	9.5	88.7
Croplan Genetics 3787B2RF	20.9	6.2	15.1	1.4	9.8	58.6
Deltapine 1044B2RF	20.4	5.9	16.3	1.3	11.4	63.8
Deltapine 1219B2RF	21.7	6.2	15.9	1.4	10.7	53.7
FiberMax 2011GT	16.9	5.6	14.2	1.3	9.2	82.1
FiberMax 2989GLB2	20.1	6.6	16.1	1.3	10.5	67.5
FiberMax 9170B2F	18.2	7.3	16.2	1.1	9.9	75.8
FiberMax 9250GL	17.6	6.2	15.8	1.1	10.6	89.3
NexGen 1511B2RF	23.8	6.4	17.1	1.4	11.6	66.4
NexGen 4012B2RF	22.8	7.1	17.5	1.3	11.4	65.2
PhytoGen 367WRF	21.5	6.0	16.3	1.3	11.3	77.0
PhytoGen 499WRF	20.1	6.6	15.9	1.3	10.3	66.7
Test average	20.0	6.4	15.9	1.3	10.5	72.1
CV, %	10.3	8.0	6.2	11.6	8.5	16.7
OSL	0.0098	0.0328	0.0317	0.5119	0.0587†	0.0284
LSD	3.5	0.9	1.7	NS	1.2	20.2

For Final plant map, numbers represent and average of 6 plants per variety per rep (18 plants per variety)
CV - coefficient of variation.
OSL - observed significance level, or probability of a greater F value.
LSD - least significant difference at the 0.05 level, †indicates significance at the 0.10 level, NS - not significant

Table 9. Final plant map results from the irrigated large plot replicated systems variety demonsrtation, Mark Appling Farm, Blanco, TX, 2012.

Entry	Fruiting and Retention 11-Sept					
	% of fruit from 1st position	% of fruit from 2nd position	total fruit	1st position retention (%)	2nd position retention (%)	total retention (%)
All-Tex Edge B2RF	77.7	22.3	5.7	40.5	21.0	32.6
All-Tex Nitro-44 B2RF	73.5	26.5	5.7	38.8	22.0	31.7
Croplan Genetics 3156B2RF	89.4	10.6	3.4	30.8	6.4	20.7
Croplan Genetics 3787B2RF	76.5	23.5	6.1	46.2	24.2	37.7
Deltapine 1044B2RF	83.5	16.5	7.2	51.1	16.7	37.2
Deltapine 1219B2RF	81.7	18.3	6.6	47.9	19.7	37.3
FiberMax 2011GT	87.5	12.5	3.8	40.0	6.5	30.0
FiberMax 2989GLB2	83.6	16.4	4.9	39.0	12.4	28.7
FiberMax 9170B2F	88.1	11.9	5.3	45.6	10.3	30.7
FiberMax 9250GL	94.1	5.9	3.5	30.3	3.4	19.1
NexGen 1511B2RF	77.2	22.8	7.8	47.1	24.4	38.0
NexGen 4012B2RF	82.6	17.4	5.9	40.9	13.9	29.7
PhytoGen 367WRF	70.4	29.6	7.8	45.4	30.3	39.5
PhytoGen 499WRF	83.0	17.0	5.7	44.8	15.7	32.2
Test average	82.0	18.0	5.7	42.0	16.2	31.8
CV, %	10.2	46.5	29.7	18.1	56.0	23.4
OSL	0.0921†	0.0921†	0.0448	0.0761†	0.0370	0.0556†
LSD	11.6	11.6	2.8	10.6	15.2	10.3

For Final plant map, numbers represent and average of 6 plants per variety per rep (18 plants per variety)
CV - coefficient of variation.
OSL - observed significance level, or probability of a greater F value.
LSD - least significant difference at the 0.05 level, †indicates significance at the 0.10 level, NS - not significant

Table 10. Harvest results from the irrigated large plot replicated systems variety demonstration, Mark Appling Farm, Blanco, TX, 2012.

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 ----------					
PhytoGen 499WRF	32.7	49.2	1869	610	919	0.5558	339.31	114.93	454.24	56.06	62.97	335.21 a
FiberMax 9170B2F	32.3	48.0	1798	580	863	0.5500	319.05	107.87	426.91	53.93	62.53	310.45 ab
Croplan Genetics 3787B2RF	32.1	49.7	1727	555	859	0.5630	312.45	107.37	419.82	51.81	59.79	308.22 ab
NexGen 1511B2RF	31.9	48.1	1778	567	856	0.5457	309.14	106.97	416.11	53.34	57.55	305.23 ab
Deltapine 1219B2RF	30.8	50.0	1787	551	894	0.5548	305.45	111.72	417.17	53.62	58.88	304.66 abc
NexGen 4012B2RF	30.1	48.7	1806	544	879	0.5417	294.73	109.85	404.58	54.17	55.86	294.54 bcd
Deltapine 1044B2RF	30.3	49.6	1828	553	907	0.5227	289.21	113.35	402.55	54.85	58.88	288.82 bcde
FiberMax 2011GT	33.1	48.9	1619	535	792	0.5423	290.31	99.02	389.33	48.57	53.36	287.40 bcde
PhytoGen 367WRF	32.3	49.1	1770	571	869	0.5057	288.82	108.57	397.39	53.10	62.97	281.32 bcde
All-Tex Nitro-44 B2RF	30.3	50.0	1702	515	851	0.5210	268.38	106.37	374.75	51.06	59.40	264.29 cde
All-Tex Edge B2RF	31.9	49.9	1665	531	830	0.5003	265.47	103.79	369.26	49.95	58.42	260.89 de
FiberMax 2989GLB2	30.5	49.2	1645	502	809	0.5347	268.52	101.16	369.67	49.34	63.86	256.48 de
FiberMax 9250GL	32.0	49.1	1590	509	780	0.5083	258.67	97.53	356.20	47.71	55.31	253.18 e
Croplan Genetics 3156B2RF	32.5	47.5	1591	517	755	0.5107	264.25	94.37	358.62	47.72	59.79	251.11 e
Test average	31.6	49.1	1727	546	847	0.5326	290.98	105.92	396.90	51.80	59.25	285.84
CV, %	2.6	2.8	7.0	7.0	7.0	3.4	7.0	7.0	7.0	7.0	--	8.4
OSL	0.0007	0.5159	0.1086	0.0822†	0.0596†	0.0011	0.0009	0.0603†	0.0054	0.1084	--	0.0038
LSD	1.4	NS	NS	53	82	0.0301	34.23	10.27	46.58	NS	--	40.53

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, †indicates significance at the 0.10 level, NS - not significant.
Note: some columns may not add up due to rounding error.

Assumes:
$3.00/cwt ginning cost.
$250/ton for seed.
Value for lint based on CCC loan value from grab samples and FBRI HVI results.

Table 11. HVI fiber property results from the irrigated large plot replicated systems variety demonstration, Mark Appling Farm, Blanco, TX, 2012.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32^{nds} inch	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
All-Tex Edge B2RF	4.7	32.7	77.6	28.4	9.1	3.3	74.9	8.8	3.3	1.0
All-Tex Nitro-44 B2RF	3.9	35.4	79.5	32.2	10.1	4.3	74.1	8.5	3.7	1.0
Croplan Genetics 3156B2RF	4.0	32.9	77.4	28.0	8.9	3.0	76.4	8.7	3.0	1.0
Croplan Genetics 3787B2RF	3.8	35.0	79.6	29.5	10.9	1.0	78.5	9.3	2.0	1.0
Deltapine 1044B2RF	4.0	33.6	77.7	29.9	11.3	1.3	76.6	9.3	2.7	1.3
Deltapine 1219B2RF	3.6	34.9	77.3	30.6	9.3	1.7	77.8	9.1	2.0	1.0
FiberMax 2011GT	3.9	35.1	80.3	30.9	8.9	3.3	76.7	8.3	3.3	1.0
FiberMax 2989GLB2	4.4	34.8	77.2	29.4	8.5	3.0	76.4	9.2	2.7	1.3
FiberMax 9170B2F	4.2	35.0	77.9	29.4	8.9	2.7	77.8	8.3	3.0	1.0
FiberMax 9250GL	4.3	32.6	78.1	27.5	8.1	2.3	74.8	9.4	3.0	1.3
NexGen 1511B2RF	4.0	34.5	79.6	31.8	11.0	3.3	76.4	9.1	2.7	1.0
NexGen 4012B2RF	4.2	34.2	78.8	31.1	8.5	1.7	76.0	9.2	3.0	1.0
PhytoGen 367WRF	4.2	33.5	78.4	29.5	10.0	2.3	74.8	9.7	3.0	2.0
PhytoGen 499WRF	4.1	34.8	80.5	31.9	11.0	2.7	76.4	8.9	3.0	1.0
Test average	4.1	34.2	78.6	30.0	9.6	2.6	76.2	9.0	2.9	1.1
CV, %	4.7	1.9	1.1	3.5	2.8	32.7	1.4	3.3	--	--
OSL	<0.0001	<0.0001	0.0002	<0.0001	<0.0001	0.0027	0.0006	<0.0001	--	--
LSD	0.3	1.1	1.5	1.8	0.4	1.4	1.7	0.5	--	--

CV - coefficient of variation.
OSL - observed significance level, or probability of a greater F value.
LSD - least significant difference at the 0.05 level.

Additional Replicated Irrigated Large Plot Demonstrations

Replicated LESA Irrigated RACE Variety Demonstration, Muleshoe, TX - 2012

Cooperator: Chris Bass

**Curtis Preston, Monti Vandiver, Mark Kelley, and Chris Ashbrook,
CEA-ANR Bailey County, EA-IPM Bailey/Parmer Counties
Extension Agronomist – Cotton, and Extension Assistant – Cotton,**

Bailey County

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

Materials and Methods:

Varieties:	All-Tex Nitro-44 B2RF, Croplan Genetics 3156B2RF, Deltapine 1219B2RF, Dyna-Gro 2285B2RF, FiberMax 2011GT, NexGen 2051B2RF, PhytoGen 367WRF, and Stoneville 4288B2F
Experimental design:	Randomized complete block with three (3) replications.
Seeding rate:	3.2 seed/row-ft in 30 inch row spacings. (John Deere 7300 Vacuum planter)
Plot size:	6 rows by variable length (2411-2580 ft long)
Planting date:	4-May
Weed management:	Three applications of glyphosate were applied during the growing season at 32 oz/acre with AMS. Also, 2 oz/acre of Staple was applied during the growing season.
Irrigation:	A total of 17” of irrigation were applied via LESA irrigation during the growing season.

Rainfall: Based on the nearest Texas Tech University- West Texas Mesonet station at Muleshoe, rainfall amounts were:

April:	0.07”	August:	0.57”
May:	1.61”	September:	1.43”
June:	2.36”	October:	0.29”
July:	0.77”		

Total rainfall: 7.1”

Insecticides: Acephate was applied at a rate of 4.0 oz/acre. This location is in an active boll weevil eradication zone, but no applications were made by the Texas Boll Weevil Eradication Program.

Fertilizer management: Applied 100 lbs N/acre preplant.

Plant growth regulators: None were applied at this location.

Harvest aids: A single harvest aid application of ethephon at 32 oz/acre with 2 oz/acre Aim 2EC was sufficient to condition the crop for harvest due to the early freeze event on 8-October.

Harvest: Plots were harvested on 24-October using a commercial John Deere 7450 with field cleaner. Harvested material was transferred to a weigh wagon with integral electronic scales to record individual plot weights. Plot weights were subsequently converted to lb/acre basis.

Gin turnout: Grab samples were taken by plot and ginned at the Texas A&M 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 cost were based on $3.00 per cwt. of bur cotton and seed value/acre was based on $250/ton. Ginning cost did not include check-off.

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/PCGseed12.xls .

Results and Discussion:

Agronomic data including plant population and boll storm resistance data are included in Table 1.

Significant differences were noted for all yield and economic parameters (Table 2). Lint turnout averaged 33.4% with a high of 35.9% and low of 30.0% for FiberMax 2011GT and NexGen 2051B2RF, respectively. Bur cotton yield was significant at the 0.10 level and averaged 3800 lb/acre. Lint yields varied from a low of 1170 lb/acre (Stoneville 4288B2F) to a high of 1332 lb/acre (PhytoGen 367WRF). Lint loan values ranged from a low of $0.5032/lb to a high of $0.5450/lb for Stoneville 4288B2F and All-Tex Nitro-44 B2RF, respectively. When adding lint and seed value the total value ranged from a high of $936.68/acre for PhytoGen 367WRF to a low of $812.49/acre for Stoneville 4288B2F. After subtracting ginning, seed costs and technology fees, the net value/acre among varieties ranged from a high of $747.08/acre (FiberMax 2011GT) to a low of $622.39/acre (Stoneville 4288B2F), a difference of $124.69.

Micronaire values averaged 4.1 units across the trial but no significant differences were observed among varieties (Table 3.) However, significant differences were observed among varieties for the remaining fiber quality parameters at this location. Staple averaged 34.5 across all varieties with a high of 36.3 for All-Tex Nitro-44 B2RFand a low of 32.9 for Croplan Genetics 3156B2RF. Uniformity ranged from a high of 81.8% for All-Tex Nitro-44 B2RF to a low of 79.7% for Deltapine 1219B2RF with a test average of 80.7%. Strength ranged from a low of 27.9 g/tex for Croplan Genetics 3156B2RF to a high of 33.7 g/tex for All-Tex Nitro-44 B2RF. Elongation averaged 10.1% across varieties and leaf grades were mostly 2 and 3. Color grade components of Rd (reflectance) and +b (yellowness) averaged 75.5 and 9.9, respectively and resulted in color grades of mostly 22 and 32.

These data indicate that substantial differences can be obtained in terms of net value/acre due to variety selection. Additional multi-site and multi-year applied research is needed to evaluate varieties across a series of environments.

Acknowledgments:

Appreciation is expressed to Chris Bass for the use of his land, equipment and labor for this demonstration. Further assistance with this project was provided by Dr. Jane Dever - Texas A&M AgriLife Research and Extension Center, Lubbock, and Dr. Eric Hequet - Associate Director, Fiber and Biopolymer Research Institute, Texas Tech University. Furthermore, we greatly appreciate the Texas Department of Agriculture - Food and Fiber Research for funding of HVI testing.

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. Inseason plant measurement results from the Bailey County irrigated RACE variety demonstration, Chris Bass Farm, Muleshoe, TX, 2012.

Entry	Plant population		Storm resistance
	29-May		
	plants/row ft	plants/acre	rating (0-9)
All-Tex Nitro-44 B2RF	2.4	41,624	5.7
Croplan Genetics 3156B2RF	2.4	42,108	5.3
Dyna-Gro 2285B2RF	2.3	39,204	6.3
Deltapine 1219B2RF	1.8	32,105	5.7
FiberMax 2011GT	2.1	36,139	7.0
NexGen 2051B2RF	2.2	38,881	6.3
PhytoGen 367WRF	2.2	38,559	4.7
Stoneville 4288B2F	1.8	30,976	5.0
Test average	2.1	37,450	5.8
CV, %	7.0	7.1	11.1
OSL	0.0008	0.0010	0.0094
LSD	0.3	4,675	1.1

For Storm resistance, ratings based on a scale of 0-9 where 9 represents maximum storm resistance.
CV - coefficient of variation.
OSL - observed significance level, or probability of a greater F value.
LSD - least significant difference at the 0.05 leve

Table 2. Harvest results from the Bailey County irrigated RACE variety demonstration, Chris Bass Farm, Muleshoe, TX, 2012.

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 ----------						
FiberMax 2011GT	35.9	45.3	3701	1328	1678	0.5398	716.63	209.74	926.37	111.04	68.25	747.08	a
PhytoGen 367WRF	34.9	47.3	3814	1332	1805	0.5337	711.02	225.66	936.68	114.42	80.54	741.72	ab
Deltapine 1219B2RF	34.3	47.6	3775	1293	1797	0.5372	694.79	224.59	919.38	113.24	75.32	730.82	ab
Dyna-Gro 2285B2RF	34.5	47.6	3728	1287	1775	0.5428	698.85	221.82	920.67	111.84	80.06	728.77	ab
NexGen 2051B2RF	30.0	48.5	4068	1220	1974	0.5445	664.55	246.81	911.36	122.05	71.45	717.86	abc
Croplan Genetics 3156B2RF	34.7	45.2	3790	1314	1713	0.5083	667.96	214.16	882.12	113.71	76.47	691.93	bc
All-Tex Nitro-44 B2RF	30.8	45.2	3852	1186	1741	0.5450	646.52	217.61	864.13	115.55	75.98	672.61	cd
Stoneville 4288B2F	31.9	48.8	3671	1170	1791	0.5032	588.57	223.91	812.49	110.12	79.98	622.39	d
Test average	33.4	47.0	3800	1266	1784	0.5318	673.61	223.04	896.65	114.00	76.01	706.65	
CV, %	3.1	2.4	3.7	3.7	3.7	2.1	3.7	3.7	3.7	3.7	--	4.1	
OSL	<0.0001	0.0036	0.0822†	0.0030	0.0037	0.0016	0.0004	0.0037	0.0070	0.0828†	--	0.0018	
LSD	1.8	2.0	201	82	116	0.0199	44.06	14.52	58.53	6.04	--	51.19	

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, †indicates signficance at the 0.10 level.
Note: some columns may not add up due to rounding error.

Assumes:
$3.00/cwt ginning cost.
$250/ton for seed.
Value for lint based on CCC loan value from grab samples and FBRI HVI results.

Table 3. HVI fiber property results from the Bailey County irrigated RACE variety demonstration, Chris Bass Farm, Muleshoe, TX, 2012.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32^{nds} inch	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
All-Tex Nitro-44 B2RF	4.0	36.3	81.8	33.7	10.2	4.3	74.9	9.3	2.7	1.3
Croplan Genetics 3156B2RF	4.2	32.9	79.9	27.9	9.9	2.7	75.7	9.4	2.7	1.7
Dyna-Gro 2285B2RF	4.1	35.1	81.6	31.1	11.3	2.7	75.2	10.6	2.0	2.0
Deltapine 1219B2RF	3.8	34.6	79.7	31.4	9.8	1.3	76.4	10.4	1.7	2.0
FiberMax 2011GT	4.3	34.3	81.0	30.3	9.1	1.3	76.9	9.6	2.0	1.3
NexGen 2051B2RF	4.3	34.6	79.8	28.0	9.2	3.0	77.0	8.5	3.0	1.0
PhytoGen 367WRF	4.0	34.2	81.2	30.3	10.9	2.3	75.3	10.4	2.0	2.0
Stoneville 4288B2F	4.0	34.0	80.2	29.3	10.5	2.0	72.8	11.2	2.3	3.0
Test average	4.1	34.5	80.7	30.2	10.1	2.5	75.5	9.9	2.3	1.8
CV, %	5.8	1.7	1.0	2.2	2.1	32.0	1.2	3.5	--	--
OSL	0.1650	0.0005	0.0225	<0.0001	<0.0001	0.0073	0.0011	<0.0001	--	--
LSD	NS	1.0	1.4	1.2	0.4	1.4	1.6	0.6	--	--

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

Replicated Sub-Surface Drip Irrigated RACE Variety Demonstration, Ralls, TX - 2012

Cooperator: David Crump

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Extension Agronomist – Cotton, Extension Assistant – Cotton, CEA-ANR Crosby County, and EA-IPM Crosby/Floyd Counties

Crosby County

Objective: The objective of this project was to compare agronomic characteristics, yields, gin turnout, fiber quality, and economic returns of transgenic cotton varieties under Sub-Surface Drip irrigated production in the Texas High Plains.

Materials and Methods:

Varieties:	All-Tex Nitro-44 B2RF, Croplan Genetics 3787B2RF, Deltapine 0912B2RF, Deltapine 1044B2RF, Dyna-Gro 2570B2RF, FiberMax 2484B2F, FiberMax 2989GLB2, NexGen 1511B2RF, NexGen 4010B2RF, PhytoGen 367WRF, PhytoGen 499WRF, and Stoneville 5458B2RF
Experimental design:	Randomized complete block with three (3) replications.
Seeding rate:	3.8 seed/row-ft in 40 inch row spacings. (John Deere 1700 Vacuum planter)
Plot size:	8 rows by ~1626' length
Planting date:	17-May
Weed management:	Generic glyphosate was applied over-the-top at 40 oz/acre with AMS on 12-June, 15-July, and 3-August.
Irrigation:	Producer indicated he had a 4 gpm/acre irrigation capacity. This provided for 0.21 acre-inches/day. From 15-May to 15-September a total of approximately 25 inches of irrigation were applied.

Rainfall: Based on the nearest Texas Tech University- West Texas Mesonet station at Ralls, rainfall amounts were:

April:	0.51"	August:	1.44"
May:	0.77"	September:	2.59"
June:	4.98"	October:	0.01”
July:	1.11"		

Total rainfall: 11.44"

Insecticides: This location is in an active boll weevil eradication zone, but no applications were made by the Texas Boll Weevil Eradication Program.

Fertilizer management: Soil test results prior to planting accounted for 94 lbs N available in the soil. The producer applied a total of 50 more lbs N for a total of 144 lbs N/acre.

Plant growth regulators: None were applied at this location.

Harvest aids: 32 oz/acre Gramoxone Inteon with 0.25% v/v non-ionic surfactant on 25-October.

Harvest: Plots were harvested on 5-November using a commercial John Deere 7460 with field cleaner. Harvested material was transferred to a weigh wagon with integral electronic scales to record individual plot weights. Plot weights were subsequently converted to lb/acre basis.

Gin turnout: Grab samples were taken by plot and ginned at the Texas A&M 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 cost was based on $3.00 per cwt. of bur cotton and seed value/acre was based on $250/ton. Ginning cost did not include check-off.

Seed and Technology fees: Seed and technology costs were calculated using the appropriate seeding rate (3.8 seed/row-ft) for the 40-inch row spacing and entries using the online Plains Cotton Growers Seed Cost Comparison Worksheet available at: http://www.plainscotton.org/Seed/PCGseed12.xls .

Results and Discussion:

Agronomic data including plant population, nodes above white flower (NAWF), and boll storm resistance data are included in Table 1.

Significant differences were noted for most yield and economic parameters (Table 2). Lint turnout averaged 31.9% with a high of 34.5% and low of 29.2% for Croplan Genetics 3787B2RF and Deltapine 1044B2RF, respectively. Differences in bur cotton yields among varieties were significant at the 0.10 level and averaged 3936 lb/acre. A test average lint yield of 1254 lbs/acre was observed but differences among varieties were not significant. Lint loan values ranged from a low of $0.4915/lb to a high of $0.5642/lb for Deltapine 1044B2RF and NexGen 4010B2RF, respectively. When adding lint and seed value, total value was significant at the 0.10 level and ranged from a high of $1027.18/acre for FiberMax 2989GLB2 to a low of $790.52/acre for Deltapine 1044B2RF. After subtracting ginning, seed costs and technology fees, net value/acre averaged $737.40/acre. Differences among varieties were significant at the 0.10 level and values ranged from a high of $825.02/acre (FiberMax 2989GLB2) to a low of $608.49/acre (Deltapine 1044B2RF), a difference of $216.53.

Differences were observed among varieties for all fiber quality parameters at this location (Table 3). Micronaire values ranged from a low of 2.8 for Deltapine 1044B2RF to a high of 4.0 for Dyna-Gro 2570B2RF. Staple averaged 35.8 across all varieties with a high of 37.9 for FiberMax 2484B2F and a low of 34.7 for NexGen 1511B2RF. Uniformity ranged from a high of 82.6% for All-Tex Nitro-44 B2RF to a low of 80.1% for Deltapine 1044B2RF with a test average of 81.2%. Strength ranged from a low of 29.4 g/tex for PhytoGen 367WRF to a high of 32.6 g/tex for All-Tex Nitro-44 B2RF. Elongation averaged 10.6% across varieties and average leaf grades varied from a high of 4.3 for All-Tex Nitro-44 B2RF to a low of 1.0 Croplan Genetics 3787B2RF. Color grade components of Rd (reflectance) and +b (yellowness) averaged 79.2 and 8.3, respectively and resulted in color grades of mostly 21 and 31.

These data indicate that substantial differences can be obtained in terms of net value/acre due to variety selection. Additional multi-site and multi-year applied research is needed to evaluate varieties across a series of environments.

Acknowledgments:

Appreciation is expressed to David Crump for the use of his land, equipment and labor for this demonstration. Further assistance with this project was provided by Dr. Jane Dever – Texas A&M AgriLife Research and Extension Center, Lubbock, and Dr. Eric Hequet - Associate Director, Fiber and Biopolymer Research Institute, Texas Tech University. Furthermore, we greatly appreciate the Texas Department of Agriculture - Food and Fiber Research for funding of HVI testing.

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Table 1. Inseason plant measurement results from the Crosby County irrigated RACE variety demonstration, David Crump Farm, Ralls, TX, 2012.

Entry	Plant population		Nodes Above White Flower (NAWF) for week of				Storm resistance
	plants/row ft	plants/acre	24-Jul	31-Jul	8-Aug	14-Aug	rating (0-9)
NexGen 1511B2RF	2.9	38,478	8.2	7.5	4.9	4.5	5.0
All-Tex Nitro-44 B2RF	3.6	46,464	8.1	7.3	4.7	4.1	7.0
Croplan Genetics 3787B2RF	3.3	43,560	8.1	6.7	4.7	4.1	4.7
Dyna-Gro 2570B2RF	3.3	43,560	8.3	7.5	5.0	3.9	5.7
Deltapine 0912B2RF	3.2	42,108	8.1	7.3	5.5	4.3	3.0
Deltapine 1044B2RF	3.5	45,557	8.5	7.6	6.1	4.9	6.7
FiberMax 2484B2F	3.2	42,290	7.7	6.7	5.2	4.1	7.0
FiberMax 2989GLB2	3.3	43,379	8.0	6.5	5.3	4.1	4.0
NexGen 4010B2RF	3.4	44,286	7.5	6.6	4.1	3.7	7.3
PhytoGen 367WRF	3.5	45,375	8.1	7.5	5.3	4.4	4.0
PhytoGen 499WRF	3.3	43,742	8.3	7.6	5.6	4.6	5.0
Stoneville 5458B2RF	3.4	44,831	7.8	7.2	5.1	4.4	5.7
Test average	3.3	43,636	8.1	7.2	5.1	4.3	5.4
CV, %	6.2	6.3	7.7	5.3	9.3	12.4	12.9
OSL	0.1733	0.1325	0.8114	0.0052	0.0071	0.4199	<0.0001
LSD	NS	NS	NS	0.6	0.8	NS	1.2

For NAWF, numbers represent an average of 5 plants per variety per rep (15 plants per variety)
For Storm resistance, ratings based on a scale of 0-9 where 9 represents maximum storm resistance.
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

Table 2. Harvest results from the Crosby County irrigated RACE variety demonstration, David Crump Farm, Ralls, TX, 2012.

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 ----------					
FiberMax 2989GLB2	31.9	51.2	4313	1374	2208	0.5465	751.14	276.04	1027.18	129.39	72.77	825.02 a
PhytoGen 499WRF	33.1	50.0	4239	1402	2119	0.5397	756.41	264.92	1021.34	127.16	71.75	822.42 a
Stoneville 5458B2RF	30.8	50.9	4288	1321	2184	0.5437	718.08	273.03	991.11	128.65	71.25	791.21 ab
FiberMax 2484B2F	31.3	51.1	4249	1331	2170	0.5242	697.82	271.22	969.04	127.47	71.25	770.33 abc
PhytoGen 367WRF	30.5	50.0	4343	1326	2171	0.5178	686.62	271.41	958.03	130.28	71.75	756.00 abc
Dyna-Gro 2570B2RF	33.5	50.3	3710	1242	1865	0.5577	692.35	233.09	925.44	111.29	71.33	742.83 abc
Deltapine 0912B2RF	32.1	51.6	3855	1239	1989	0.5497	680.90	248.65	929.55	115.65	72.00	741.90 abc
Croplan Genetics 3787B2RF	34.5	49.5	3511	1212	1737	0.5532	670.65	217.08	887.74	105.32	68.13	714.28 bcd
NexGen 4010B2RF	30.7	53.7	3695	1133	1985	0.5642	639.27	248.18	887.45	110.85	63.66	712.94 bcd
All-Tex Nitro-44 B2RF	31.5	51.1	3769	1186	1925	0.5303	628.90	240.56	869.47	113.06	67.69	688.72 bcd
NexGen 1511B2RF	34.0	49.5	3432	1167	1698	0.5408	631.04	212.20	843.24	102.95	65.57	674.71 cd
Deltapine 1044B2RF	29.2	50.3	3831	1119	1926	0.4915	549.81	240.71	790.52	114.93	67.10	608.49 d
Test average	31.9	50.8	3936	1254	1998	0.5383	675.25	249.76	925.01	118.08	69.52	737.40
CV, %	3.4	1.9	9.9	9.6	9.9	3.3	9.4	9.9	9.5	9.9	--	10.4
OSL	0.0001	0.0019	0.0582†	0.1006	0.0418	0.0043	0.0359	0.0419	0.0771†	0.0583†	--	0.0788†
LSD	1.8	1.7	546	NS	336	0.0304	107.80	42.01	123.81	16.39	--	107.52

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, †indicates significance at the 0.10 level, NS - not significant.
Note: some columns may not add up due to rounding error.

Assumes:
$3.00/cwt ginning cost.
$250/ton for seed.
Value for lint based on CCC loan value from grab samples and FBRI HVI results.

Table 3. HVI fiber property results from the Crosby County irrigated RACE variety demonstration, David Crump Farm, Ralls, TX, 2012.

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 Nitro-44 B2RF	3.4	37.3	82.6	32.6	10.5	4.3	76.5	8.0	3.0	1.0
Croplan Genetics 3787B2RF	3.6	35.5	81.5	28.9	11.0	1.0	80.3	8.7	2.0	1.0
Dyna-Gro 2570B2RF	4.0	34.9	80.9	29.7	11.4	2.0	78.2	8.9	2.3	1.0
Deltapine 0912B2RF	3.8	34.8	81.8	29.9	10.7	2.7	79.1	8.4	2.3	1.0
Deltapine 1044B2RF	2.8	36.2	80.1	29.5	11.4	3.3	80.7	8.0	2.3	1.0
FiberMax 2484B2F	2.9	37.9	81.3	31.1	9.2	1.3	82.9	7.4	2.0	1.0
FiberMax 2989GLB2	3.5	36.2	80.9	30.4	8.9	1.3	81.3	7.7	2.3	1.0
NexGen 1511B2RF	3.5	34.7	81.2	30.5	11.4	2.7	79.1	8.2	3.0	1.0
NexGen 4010B2RF	3.7	35.3	81.9	31.1	10.0	2.7	78.9	8.8	2.0	1.0
PhytoGen 367WRF	3.1	35.9	80.7	29.4	11.0	2.7	78.0	8.6	2.7	1.0
PhytoGen 499WRF	3.5	35.9	81.6	31.3	11.2	2.7	78.0	8.4	2.7	1.0
Stoneville 5458B2RF	3.5	35.6	80.2	30.1	10.0	3.3	77.8	8.4	2.7	1.0
Test average	3.4	35.8	81.2	30.4	10.6	2.5	79.2	8.3	2.4	1.0
CV, %	9.1	1.9	0.7	2.5	2.5	32.1	1.1	3.0	--	--
OSL	0.0024	0.0002	0.0015	0.0003	<0.0001	0.0018	<0.0001	<0.0001	--	--
LSD	0.5	1.2	1.0	1.3	0.4	1.4	1.5	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.

Replicated LEPA Irrigated RACE Variety Demonstration, Lamesa, TX - 2012

Cooperator: Lamesa Cotton Growers/Texas A&M AgriLife Research/ Texas A&M AgriLife Extension

Mark Kelley, Chris Ashbrook, Tommy Doederline and Gary Roschetzky
Extension Agronomist – Cotton, Extension Assistant – Cotton, EA-IPM Dawson/Lynn Counties and CEA-ANR Dawson County

Dawson County

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

Materials and Methods:

Varieties:	All-Tex Nitro-44 B2RF, Deltapine 0912B2RF, Dyna-Gro 2570B2RF, FiberMax 2484B2F, NexGen 1511B2RF, NexGen 4012B2RF, PhytoGen 499WRF, and Stoneville 5458B2RF
Experimental design:	Randomized complete block with three (3) replications.
Seeding rate:	4.0 seed/row-ft in 40 inch row spacings. (John Deere MaxEmerge XP Vacuum planter)
Plot size:	4 rows by variable length (253-872 ft)
Planting date:	22-May
Weed management:	Prowl H2O was applied preplant incorporated at 3 pt/acre across all varieties. Roundup PowerMax was applied over-the-top before planting at 32 oz/acre on 13-April, and at 28 oz/acre on 11-May. In-season Roundup PowerMax applications were on 20-June at 32oz plus Warrant at 3 pints/acre, 28 oz/acre on 13-July, and 32 oz on 28-August.
Irrigation:	3.75" inches of irrigation were applied preplant, with 8.4” applied during the growing season for a total of 12.15” of irrigation applied.

Rainfall: Based on the nearest Texas Tech University – West Texas Mesonet station at Lamesa, rainfall amounts were:

April:	0.58"	August:	1.55"
May:	3.04"	September:	4.21"
June:	0.11"	October:	0.25”
July:	0.51"		

Total rainfall: 10.25"

Insecticides: This location is in an active boll weevil eradication zone, but no applications were made by the Texas Boll Weevil Eradication Program.

Fertilizer management: Soil test results prior to planting accounted for 107 lbs N available in the soil. An additional 52 lbs N was applied during the growing season for a total of 159 lbs N/acre.

Plant growth regulators: None were applied at this location.

Harvest aids: Harvest aids included 3 pt/acre Prep + 2.0 oz/acre ET with 1% v/v crop oil on 3-October followed by 1 qt/acre Gramoxone Inteon with 0.25% v/v NIS on 17-October.

Harvest: Plots were harvested on 23-November using a commercial John Deere 9996 basket picker. Harvested 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 A&M 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 cost were based on $3.00 per cwt. of bur cotton and seed value/acre was based on $250/ton. Ginning cost did not include check-off.

Seed and Technology fees: Seed and technology costs were calculated using the appropriate seeding rate (4.0 seed/row-ft) for the 40-inch row spacing and entries using the online Plains Cotton Growers Seed Cost Comparison Worksheet available at: http://www.plainscotton.org/Seed/PCGseed12.xls .

Results and Discussion:

Agronomic data including plant population, nodes above white flower (NAWF) and final plant map data are included in Tables 1-3.

Significant differences were noted for some yield and economic parameters (Table 4). Picker harvested lint turnout ranged from a low of 34.6% for All-Tex Nitro-44 B2RF to a high of 38.7% for PhytoGen 499WRF. Seed turnouts averaged 52.9 with a high of 54.7 for Stoneville 5458B2RF and low of 50.1 for NexGen 1511B2RF. There were no significant differences in bur cotton yield and the test average was 1876 lb/acre. Lint yields were significant (alpha 0.10) and ranged from a low of 533 lb/acre (NexGen 4012B2RF) to a high of 782 lb/acre (Stoneville 5458B2RF and NexGen 1511B2RF). Lint loan values ranged from a low of $0.4837/lb to a high of $0.5747/lb for Deltapine 0912B2RF and FiberMax 2484B2F, respectively. Lint value was not significant with a test average of $367.83/acre. When subtracting ginning and seed and technology costs, the net value/acre averaged $361.08, and no significant differences were observed among varieties.

Significant differences were observed for most fiber quality parameters at this location (Table 5). Micronaire values ranged from a low of 4.2 for All-Tex Nitro-44B2RF to a high of 5.2 for Deltapine 0912B2RF. Staple averaged 35.0 across all varieties with a low of 32.9 (Deltapine 0912B2RF) and a high of 37.5 (All-Tex Nitro-44 B2RF). Uniformity was not significant and averaged 81.8%. Strength ranged from a low of 29.3 g/tex for Deltapine 0912B2RF to a high of 35.4 g/tex for All-Tex Nitro-44 B2RF. Significant differences were observed among varieties for percent elongation (10.3% avg), Rd or reflectance (75.9 avg), and +b or yellowness (9.1 avg). Leaf grades were mostly 1 and 2, and color grades were mostly 31.

These data indicate that substantial differences can be obtained in terms of net value/acre due to variety selection. Additional multi-site and multi-year applied research is needed to evaluate varieties across a series of environments.

Acknowledgments:

Appreciation is expressed to Dr. Danny Carmichael, AgriLife Research Associate - AG-CARES, Lamesa. Further assistance with this project was provided by Dr. Jane Dever - Texas A&M AgriLife Research and Extension Center, Lubbock, and Dr. Eric Hequet - Associate Director, Fiber and Biopolymer Research Institute, Texas Tech University. Furthermore, we greatly appreciate the Texas Department of Agriculture - Food and Fiber Research for funding of HVI testing.

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Table 1. Inseason plant measurement results from the picker harvested Dawson County irrigated RACE variety demonstration, AG-CARES Farm, Lamesa, TX, 2012.

Entry	Plant population		Nodes Above White Flower (NAWF) for week of			
	plants/row ft	plants/acre	19-Jul	27-Jul	3-Aug	10-Aug
NexGen 1511B2RF	3.9	50,457	7.9	6.6	5.3	3.7
All-Tex Nitro-44 B2RF	4.0	52,272	7.1	6.4	4.9	2.6
Dyna-Gro 2570B2RF	3.8	49,005	8.1	7.1	5.1	3.1
Deltapine 0912B2RF	3.7	48,642	7.7	6.7	4.7	3.1
FiberMax 2484B2F	3.9	50,457	7.9	6.7	4.3	2.8
NexGen 4012B2RF	3.7	47,916	7.9	6.6	4.9	2.7
PhytoGen 499WRF	4.0	52,635	7.6	6.9	4.9	3.3
Stoneville 5458B2RF	3.7	47,916	7.2	7.0	4.9	2.9
Test average	3.8	49,913	7.7	6.8	4.9	3.0
CV, %	5.3	5.2	7.7	6.4	11.2	18.9
OSL	0.2892	0.2344	0.4929	0.5028	0.4692	0.4112
LSD	NS	NS	NS	NS	NS	NS

For NAWF, numbers represent an average of 5 plants per variety per rep (15 plants per variety)
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

Table 2. Final plant map results from the picker harvested Dawson County irrigated RACE variety demonstration, AG-CARES Farm, Lamesa, TX, 2012.

Entry	Final plant map 11-Oct					
	plant height (inches)	node of first fruiting branch	total mainstem nodes	height to node ratio	total fruiting branches	open boll (%)
All-Tex Nitro-44 B2RF	19.9	7.0	15.9	1.3	9.9	96.6
Dyna-Gro 2570B2RF	23.7	7.4	16.3	1.5	9.9	95.4
Deltapine 0912B2RF	20.6	6.6	15.7	1.3	10.1	83.2
FiberMax 2484B2F	21.6	8.4	16.9	1.3	9.6	85.4
NexGen 1511B2RF	24.1	5.8	15.7	1.5	10.8	93.6
NexGen 4012B2RF	23.2	8.1	18.5	1.3	11.4	90.4
PhytoGen 499WRF	22.2	7.3	15.8	1.4	9.5	92.0
Stoneville 5458B2RF	20.2	7.2	15.5	1.3	9.3	89.7
Test average	21.9	7.2	16.3	1.3	10.1	90.8
CV, %	12.4	5.7	4.1	9.4	6.7	6.2
OSL	0.4222	<0.0001	0.0013	0.1265	0.0283	0.1163
LSD	NS	0.7	1.2	NS	1.2	NS

For Final plant map, numbers represent and average of 6 plants per variety per rep (18 plants per variety)
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

Table 3. Final plant map results from the picker harvseted Dawson County irrigated RACE variety demonstration, AG-CARES Farm, Lamesa, TX, 2012.

Entry	Fruiting and Retention 11-Oct					
	% of fruit from 1st position	% of fruit from 2nd position	total fruit	1st position retention (%)	2nd position retention (%)	total retention (%)
All-Tex Nitro-44 B2RF	66.0	34.0	5.2	34.5	26.0	32.04
Dyna-Gro 2570B2RF	78.5	21.5	6.9	52.8	22.9	41.05
Deltapine 0912B2RF	69.9	30.1	8.1	54.7	33.5	45.67
FiberMax 2484B2F	79.7	20.3	6.7	54.9	24.0	42.70
NexGen 1511B2RF	75.2	24.8	7.9	51.8	25.7	40.49
NexGen 4012B2RF	80.1	19.9	6.2	41.8	21.6	33.73
PhytoGen 499WRF	77.1	22.9	6.8	52.5	24.3	42.05
Stoneville 5458B2RF	71.2	28.8	6.6	49.2	28.8	40.96
Test average	74.7	25.3	6.8	49.0	25.8	39.84
CV, %	15.0	44.3	23.4	15.9	50.6	18.4
OSL	0.7215	0.7215	0.4774	0.0628†	0.9640	0.3685
LSD	NS	NS	NS	11.2	NS	NS

For Final plant map, numbers represent and average of 6 plants per variety per rep (18 plants per variety)
CV - coefficient of variation.
OSL - observed significance level, or probability of a greater F value.
LSD - least significant difference at the 0.05 level, †indicates significance at the 0.10 level, NS - not significant

Table 4. Harvest results from the picker harvested Dawson County irrigated RACE variety demonstration, AG-CARES Farm, Lamesa, TX, 2012.

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 ----------					
Stoneville 5458B2RF	37.5	54.7	2086	782	1140	0.5340	417.34	142.51	559.85	62.58	76.63	420.64
NexGen 1511B2RF	38.2	50.1	2049	782	1026	0.5158	403.51	128.19	531.71	61.47	70.53	399.71
PhytoGen 499WRF	38.7	53.4	1871	725	999	0.5477	396.80	124.89	521.69	56.14	77.17	388.38
FiberMax 2484B2F	36.1	53.6	1871	675	1002	0.5747	387.63	125.22	512.84	56.12	76.63	380.10
Dyna-Gro 2570B2RF	37.0	53.6	1920	710	1030	0.5157	366.13	128.71	494.84	57.59	76.71	360.54
Deltapine 0912B2RF	36.5	53.0	2019	737	1071	0.4837	356.29	133.85	490.14	60.58	77.44	352.12
All-Tex Nitro-44 B2RF	34.6	52.4	1684	582	882	0.5675	330.38	110.30	440.68	50.53	72.80	317.36
NexGen 4012B2RF	35.4	52.6	1505	533	791	0.5337	284.54	98.89	383.43	45.14	68.46	269.82
Test average	36.7	52.9	1876	691	993	0.5341	367.83	124.07	491.90	56.27	74.55	361.08
CV, %	2.4	2.2	14.5	14.6	14.1	4.0	14.5	14.1	14.4	14.5	--	17.3
OSL	0.0006	0.0129	0.2230	0.0750†	0.1631	0.0024	0.1223	0.1632	0.1492	0.2227	--	0.1648
LSD	1.5	2.0	NS	145	NS	0.0370	NS	NS	NS	NS	--	NS

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, †indicates significance at the 0.10 level, NS - not significant.
Note: some columns may not add up due to rounding error.

Assumes:
$3.00/cwt ginning cost.
$250/ton for seed.
Value for lint based on CCC loan value from grab samples and FBRI HVI results.

Table 5. HVI fiber property results from the picker harvested Dawson County irrigated RACE variety demonstration, AG-CARES Farm, Lamesa, TX, 2012.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32^{nds} inch	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
All-Tex Nitro-44 B2RF	4.2	37.5	82.7	35.4	10.3	2.7	76.4	8.7	2.7	1.0
Dyna-Gro 2570B2RF	5.0	34.1	81.2	31.3	10.9	1.0	75.8	9.5	2.7	1.7
Deltapine 0912B2RF	5.2	32.9	81.8	29.3	10.5	1.3	74.2	9.0	3.3	1.3
FiberMax 2484B2F	4.4	36.8	82.0	32.1	9.1	1.3	78.6	8.2	2.7	1.0
NexGen 1511B2RF	4.9	34.0	80.7	29.9	11.4	1.7	75.1	9.2	3.0	1.3
NexGen 4012B2RF	4.8	35.4	81.5	31.9	8.7	1.3	75.6	9.4	3.0	1.7
PhytoGen 499WRF	4.8	34.3	82.3	32.8	11.5	2.0	75.4	9.0	3.0	1.0
Stoneville 5458B2RF	5.0	34.8	82.0	31.2	10.0	2.3	75.7	9.4	3.0	1.3
Test average	4.8	35.0	81.8	31.7	10.3	1.7	75.9	9.1	2.9	1.3
CV, %	3.7	1.9	1.2	2.5	3.5	48.6	1.5	4.1	--	--
OSL	0.0002	<0.0001	0.2910	<0.0001	<0.0001	0.2656	0.0153	0.0092	--	--
LSD	0.3	1.2	NS	1.4	0.6	NS	1.9	0.6	--	--

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

Replicated LESA Irrigated RACE Variety Demonstration, Halfway, TX - 2012

Cooperator: Texas A&M AgriLife Research Center - Halfway

Mark Kelley, Chris Ashbrook and Gary Cross
Extension Agronomist – Cotton, Extension Assistant – Cotton and CEA-ANR

Hale County

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

Materials and Methods:

Varieties:	All-Tex Nitro-44 B2RF, Croplan Genetics 3156B2RF, Deltapine 1032B2RF, Deltapine 1219B2RF, Dyna-Gro 2570B2RF, FiberMax 2011GT, FiberMax 2484B2F, NexGen 4111RF, PhytoGen 499WRF, and Stoneville 4288B2F
Experimental design:	Randomized complete block with three (3) replications.
Seeding rate:	4.0 seed/row-ft in 40 inch row spacings. (John Deere 1700 Vacuum planter)
Plot size:	4 rows by variable length (837 to 1340 feet)
Planting date:	21-May
Weed management:	Trifluarlin was applied preplant incorporated at 1 qt/acre across all varieties. Caparol was applied at 3 pt/acre on 24-May. Roundup PowerMax was applied over-the-top at 32 oz/acre with AMS on 21-June and 17-July.
Irrigation:	1.8” of irrigation were applied preplant with 11.3” of LESA irrigation during the growing season for a total of 13.1” of irrigation.

Rainfall: Based on the nearest Texas Tech University- West Texas Mesonet station at Plainview, rainfall amounts were:

April:	0.49”	August:	0.74”
May:	0.77”	September:	1.78”
June:	2.56”	October:	0.21”
July:	0.90”		

Total rainfall: 7.45”

Insecticides: Acephate was applied at a rate of 4.0 oz/acre on 4-June. This location is in an active boll weevil eradication zone, but no applications were made by the Texas Boll Weevil Eradication Program.

Fertilizer management: Soil test results prior to planting accounted for 179 lbs N available in the soil. The producer applied a total of 100 more lbs N for a total of 279 lbs N.

Plant growth regulators: Applied 8 oz/acre of mepiquat chloride on 2-August and 9-August for a total of 16 oz/acre.

Harvest aids: Harvest aids included an application of 24 oz/acre Firestorm with LI 700 surfactant on 17-October. No additional harvest aids were required.

Harvest: Plots were harvested on 13-November using a commercial John Deere 7445 with field cleaner. Harvested material was transferred to a weigh wagon with integral electronic scales to record individual plot weights. Plot weights were subsequently converted to lb/acre basis.

Gin turnout: Grab samples were taken by plot and ginned at the Texas A&M 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 cost were based on $3.00 per cwt. of bur cotton and seed value/acre was based on $250/ton. Ginning cost did not include check-off.

Seed and Technology fees: Seed and technology costs were calculated using the appropriate seeding rate (4.0 seed/row-ft) for the 40-inch row spacing and entries using the online Plains Cotton Growers Seed Cost Comparison Worksheet available at: http://www.plainscotton.org/Seed/PCGseed12.xls .

Results and Discussion:

Agronomic data including plant population, nodes above white flower (NAWF), boll storm resistance, and final plant map data are included in Tables 1-3.

Significant differences were noted for most yield and economic parameters (Table 4). Lint turnout averaged 36.1% and was not significant. Bur cotton yields averaged 2591 lb/acre across varieties. Lint yields varied from a low of 807 lb/acre (Deltapine 1219B2RF) to a high of 1015 lb/acre (PhytoGen 499WRF). Lint loan values ranged from a low of $0.5042/lb to a high of $0.5612/lb for Croplan Genetics 3156B2RF and PhytoGen 499WRF, respectively. When adding lint and seed value, total value ranged from a high of $751.30/acre for PhytoGen 499WRF to a low of $580.80/acre for Deltapine 1219B2RF. After subtracting ginning, seed costs and technology fees, the net value/acre among varieties ranged from a high of $589.60/acre (PhytoGen 499WRF) to a low of $438.64/acre (Deltapine 1219B2RF), a difference of $150.96.

Significant differences were observed among varieties for all fiber quality parameters at this location (Table 5). Micronaire values ranged from a low of 3.1 for Deltapine 1219B2RF to a high of 4.0 for Stoneville 4288B2F. Staple averaged 34.8 across all varieties with a high of 36.5 for All-Tex Nitro-44 B2RF and a low of 33.3 for Croplan Genetics 3156B2RF. Uniformity ranged from a high of 82.2% for All-Tex Nitro-44 B2RF to a low of 78.3% for Croplan Genetics 3156B2RF with a test average of 80.7%. Strength ranged from a low of 28.4 g/tex for Croplan Genetics 3156B2RF to a high of 33.0 g/tex All-Tex Nitro-44 B2RF. Elongation averaged 10.2% across varieties and leaf grades were mostly 1 and 2. Color grade components of Rd (reflectance) and +b (yellowness) averaged 81.5 and 7.5, respectively and resulted in color grades of mostly 21 and 31.

These data indicate that substantial differences can be obtained in terms of net value/acre due to variety selection. Additional multi-site and multi-year applied research is needed to evaluate varieties across a series of environments.

Acknowledgments:

Appreciation is expressed to Casey Hardin - Farm Research Service Manager and Jim Bordovsky - Research Scientist and Agricultural Engineer, Texas A&M AgriLife Research Center, Halfway/Helms, for their assistance with this project. Further assistance with this project was provided by Dr. Jane Dever - Texas A&M AgriLife Research and Extension Center, Lubbock, and Dr. Eric Hequet - Associate Director, Fiber and Biopolymer Research Institute, Texas Tech University. Furthermore, we greatly appreciate the Texas Department of Agriculture - Food and Fiber Research for funding of HVI testing.

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Table 1. Inseason plant measurement results from the Hale County irrigated RACE variety demonstration, Halfway Research Center Farm, Halfway, TX, 2012.

Entry	Plant population		Nodes Above White Flower (NAWF) for week of			Storm resistance
	plants/row ft	plants/acre	30-Jul	8-Aug	15-Aug	rating (0-9)
All-Tex Nitro-44 B2RF	3.8	49,731	8.4	5.7	3.9	7.0
Croplan Genetics 3156B2RF	3.8	49,368	8.3	5.3	3.7	6.0
Dyna-Gro 2570B2RF	3.7	48,279	9.1	6.4	4.1	6.0
Deltapine 1032B2RF	3.3	43,197	9.2	6.2	4.1	5.0
Deltapine 1219B2RF	3.8	49,368	9.3	7.1	4.4	7.0
FiberMax 2011GT	3.2	41,745	8.6	5.5	4.1	9.0
FiberMax 2484B2F	3.7	47,916	8.4	5.1	4.0	7.0
NexGen 4111RF	3.4	44,286	8.5	6.1	3.7	8.0
PhytoGen 499WRF	3.9	51,183	8.7	7.1	4.6	7.0
Stoneville 4288B2F	4.0	51,909	8.3	5.7	3.5	5.0
Test average	3.7	47,698	8.7	6.0	4.0	6.7
CV, %	6.9	7.0	4.4	10.0	9.7	--
OSL	0.0154	0.0171	0.0182	0.0067	0.0683†	--
LSD	0.4	5,736	0.7	1.0	0.6	--

For NAWF, numbers represent an average of 5 plants per variety per rep (15 plants per variety)
For Storm resistance, ratings based on a scale of 0-9 where 9 represents maximum storm resistance.
CV - coefficient of variation.
OSL - observed significance level, or probability of a greater F value.
LSD - least significant difference at the 0.05 level, †indicates signficance at the 0.10 level.

Table 2. Final plant map results from the Hale County irrigated RACE variety demonstration, Halfway Research Center Farm, Halfway, TX, 2012.

Entry	Final plant map 1-October					
	plant height (inches)	node of first fruiting branch	total mainstem nodes	height to node ratio	total fruiting branches	open boll (%)
All-Tex Nitro-44 B2RF	30.0	6.8	16.4	1.8	10.6	82.5
Croplan Genetics 3156B2RF	29.7	5.5	15.9	1.9	11.5	86.3
Dyna-Gro 2570B2RF	33.0	6.9	17.0	1.9	11.1	95.5
Deltapine 1032B2RF	31.3	6.0	16.0	2.0	11.0	88.2
Deltapine 1219B2RF	32.6	5.9	17.2	1.9	12.3	88.8
FiberMax 2011GT	29.7	6.1	17.2	1.7	12.1	91.2
FiberMax 2484B2F	29.5	7.0	17.2	1.7	11.2	95.7
NexGen 4111RF	32.5	6.7	17.2	1.9	11.5	88.2
PhytoGen 499WRF	35.7	6.2	16.6	2.2	11.4	92.3
Stoneville 4288B2F	28.1	6.6	16.6	1.7	10.9	86.3
Test average	31.2	6.4	16.7	1.9	11.4	89.5
CV, %	5.2	8.8	4.0	5.6	6.1	7.9
OSL	0.0008	0.0567†	0.1575	0.0022	0.1485	0.4458
LSD	2.8	0.8	NS	0.2	NS	NS

For Final plant map, numbers represent and average of 6 plants per variety per rep (18 plants per variety)
CV - coefficient of variation.
OSL - observed significance level, or probability of a greater F value.
LSD - least significant difference at the 0.05 level, †indicates significance at the 0.10 level, NS - not significant

Table 3. Final plant map results from the Hale County irrigated RACE variety demonstration, Halfway Research Center Farm, Halfway, TX, 2012.

Entry	Fruiting and Retention 1-October					
	% of fruit from 1st position	% of fruit from 2nd position	total fruit	1st position retention (%)	2nd position retention (%)	total retention (%)
All-Tex Nitro-44 B2RF	81.3	18.7	7.5	57.0	19.7	41.47
Croplan Genetics 3156B2RF	75.1	24.9	7.8	50.8	21.0	37.67
Dyna-Gro 2570B2RF	74.5	25.5	8.7	57.7	27.2	44.67
Deltapine 1032B2RF	77.7	22.3	8.8	62.0	24.9	46.30
Deltapine 1219B2RF	80.4	19.6	10.1	63.9	22.6	46.40
FiberMax 2011GT	77.8	22.2	8.6	54.2	21.4	39.63
FiberMax 2484B2F	77.8	22.2	8.6	59.3	23.4	43.57
NexGen 4111RF	79.3	20.7	8.6	57.4	22.4	43.47
PhytoGen 499WRF	78.9	21.1	10.0	67.6	26.2	50.20
Stoneville 4288B2F	80.2	19.8	7.2	51.7	21.3	38.60
Test average	78.3	21.7	8.6	58.2	23.0	43.20
CV, %	7.2	25.8	13.9	8.0	35.1	11.1
OSL	0.8810	0.8810	0.1278	0.0071	0.9754	0.0986†
LSD	NS	NS	NS	8.0	NS	6.8

For Final plant map, numbers represent and average of 6 plants per variety per rep (18 plants per variety)
CV - coefficient of variation.
OSL - observed significance level, or probability of a greater F value.
LSD - least significant difference at the 0.05 level, †indicates significance at the 0.10 level, NS - not significant

Table 4. Harvest results from the Hale County irrigated RACE variety demonstration, Halfway Research Center Farm, Halfway, TX, 2012.

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 ----------						
PhytoGen 499WRF	35.6	50.9	2852	1015	1453	0.5612	569.73	181.57	751.30	85.56	76.15	589.60	a
FiberMax 2484B2F	37.1	52.7	2666	988	1404	0.5607	554.06	175.52	729.58	79.98	75.61	573.98	ab
All-Tex Nitro-44 B2RF	34.8	53.2	2774	965	1476	0.5495	530.39	184.45	714.84	83.21	71.83	559.80	abc
Dyna-Gro 2570B2RF	35.7	52.8	2675	956	1412	0.5432	519.10	176.52	695.62	80.24	75.69	539.69	abc
Deltapine 1032B2RF	38.1	52.0	2497	952	1299	0.5538	527.42	162.33	689.74	74.92	76.41	538.42	abc
FiberMax 2011GT	36.3	50.3	2541	922	1277	0.5473	504.39	159.66	664.05	76.23	64.53	523.29	bcd
NexGen 4111RF	37.3	52.9	2420	904	1281	0.5392	487.21	160.15	647.36	72.61	54.89	519.85	bcd
Stoneville 4288B2F	36.0	53.9	2550	918	1373	0.5370	492.88	171.67	664.55	76.49	75.61	512.45	cd
Croplan Genetics 3156B2RF	36.0	49.6	2572	926	1276	0.5042	466.76	159.44	626.20	77.15	72.30	476.75	de
Deltapine 1219B2RF	34.1	51.5	2365	807	1217	0.5310	428.65	152.15	580.80	70.95	71.21	438.64	e
Test average	36.1	52.0	2591	935	1347	0.5427	508.06	168.34	676.40	77.73	71.42	527.25	
CV, %	4.2	1.6	5.7	5.6	5.6	2.5	5.5	5.6	5.5	5.7	--	6.2	
OSL	0.1303	<0.0001	0.0178	0.0109	0.0052	0.0037	0.0003	0.0052	0.0010	0.0177	--	0.0010	
LSD	NS	1.4	253	89	129	0.0237	47.96	16.10	64.03	7.60	--	56.45	

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.
$250/ton for seed.
Value for lint based on CCC loan value from grab samples and FBRI HVI results.

Table 5. HVI fiber property results from the Hale County irrigated RACE variety demonstration, Halfway Research Center Farm, Halfway, TX, 2012.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32^{nds} inch	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
All-Tex Nitro-44 B2RF	3.4	36.5	82.2	33.0	10.4	3.0	80.9	7.0	3.0	1.0
Croplan Genetics 3156B2RF	3.5	33.3	78.3	28.4	9.6	2.3	81.6	6.9	3.0	1.0
Dyna-Gro 2570B2RF	3.7	34.3	80.8	30.8	11.7	2.3	81.3	7.8	2.0	1.0
Deltapine 1032B2RF	3.6	34.9	81.1	30.3	10.0	1.0	82.6	7.2	2.0	1.0
Deltapine 1219B2RF	3.1	35.7	79.9	31.0	9.9	1.0	83.1	7.3	2.0	1.0
FiberMax 2011GT	3.7	34.3	81.3	30.0	9.3	1.7	81.3	7.3	2.7	1.0
FiberMax 2484B2F	3.5	35.8	80.8	31.2	9.1	1.0	83.9	6.9	2.0	1.0
NexGen 4111RF	3.8	33.7	80.6	30.8	10.6	1.0	80.2	8.4	2.0	1.0
PhytoGen 499WRF	3.6	34.9	81.8	32.4	11.3	1.3	79.7	8.2	2.3	1.0
Stoneville 4288B2F	4.0	34.1	80.0	29.6	10.4	1.3	80.2	8.0	2.7	1.0
Test average	3.6	34.8	80.7	30.8	10.2	1.6	81.5	7.5	2.4	1.0
CV, %	7.0	1.9	1.1	2.6	3.3	50.9	0.9	2.5	--	--
OSL	0.0315	0.0002	0.0043	<0.0001	<0.0001	0.0611†	<0.0001	<0.0001	--	--
LSD	0.4	1.1	1.6	1.4	0.6	1.2	1.2	0.3	--	--

CV - coefficient of variation.
OSL - observed significance level, or probability of a greater F value.
LSD - least significant difference at the 0.05 level, †indicates signficance at the 0.10 level.

Replicated Sub-Surface Drip Irrigated RACE Variety Demonstration, Ropesville, TX - 2012

Cooperator: Mike and Jacob Henson

Mark Kelley, Chris Ashbrook and Kerry Siders
Extension Agronomist – Cotton, Extension Assistant – Cotton and EA-IPM Hockley/Cochran

Hockley County

Objective: The objective of this project was to compare agronomic characteristics, yields, gin turnout, fiber quality, and economic returns of transgenic cotton varieties under Sub-Surface Drip irrigated production in the Texas High Plains.

Materials and Methods:

Varieties:	All-Tex Nitro-44 B2RF, Croplan Genetics 3787B2RF, Deltapine 0912B2RF, Dyna-Gro 2595B2RF, FiberMax 2484B2F, NexGen 1511B2RF, NexGen 4012B2RF, PhytoGen 499WRF, and Stoneville 5458B2RF
Experimental design:	Randomized complete block with three (3) replications.
Seeding rate:	3.4 seed/row-ft in 40 inch row spacings. (John Deere XP Vacuum planter)
Plot size:	8 rows by variable length (1285 feet)
Planting date:	12-May
Weed management:	Trifluralin was applied preplant incorporated at 1 qt/acre across all varieties. Roundup PowerMax was applied over-the-top with AMS twice during the growing season.
Irrigation:	A total of 26” of irrigation were applied via SDI beginning 15-March thru 10-September as per conversation with producer.

Rainfall: Based on the nearest Texas Tech University- West Texas Mesonet station at Levelland, rainfall amounts were:

April:	2.06”	August:	2.42”
May:	1.12”	September:	1.28”
June:	2.01”	October:	0.60”
July:	0.82”		

Total rainfall: 10.31”

Insecticides: This location is in an active boll weevil eradication zone, but no applications were made by the Texas Boll Weevil Eradication Program.

Fertilizer management: Soil test results prior to planting accounted for 154 lbs N available in the soil. The producer applied a total of 100 more lbs N for a total of 254 lbs N/acre.

Plant growth regulators: None were applied at this location.

Harvest aids: Harvest aids included an initial application of Boll’d at 1 qtt/acre with 2 oz/acre ET on 5-October and a sequential application of 32 oz/acre Gramoxone Inteon with 0.25% v/v non-ionic surfactant on 15-October.

Harvest: Plots were harvested on 22-October using a commercial John Deere 7460 with field cleaner. Harvested material was transferred to a weigh wagon with integral electronic scales to record individual plot weights. Plot weights were subsequently converted to lb/acre basis.

Gin turnout: Grab samples were taken by plot and ginned at the Texas A&M 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 cost were based on $3.00 per cwt. of bur cotton and seed value/acre was based on $250/ton. Ginning cost did not include check-off.

Seed and Technology fees: Seed and technology costs were calculated using the appropriate seeding rate (3.4 seed/row-ft) for the 40-inch row spacing and entries using the online Plains Cotton Growers Seed Cost Comparison Worksheet available at: http://www.plainscotton.org/Seed/PCGseed12.xls .

Results and Discussion:

Agronomic data including plant population, nodes above white flower (NAWF), boll storm resistance, and final plant map data are included in Tables 1-3.

Significant differences were noted for all yield and economic parameters (Table 4). Lint turnout averaged 35.4% with a high of 37.7% and low of 32.9% for NexGen 1511B2RF and All-Tex Nitro-44 B2RF, respectively. Bur cotton yields averaged 3709 lb/acre across varieties and differences were significant at the 0.10 level. Lint yields varied from a low of 1167 lb/acre (All-Tex Nitro-44 B2RF) to a high of 1456 lb/acre (Dyna-Gro 2595B2RF). Lint loan values ranged from a low of $0.5223/lb to a high of $0.5715/lb for Stoneville 5458B2RF and FiberMax 2484 B2F, respectively. When adding lint and seed value, total value ranged from a high of $1102.72/acre for Dyna-Gro 2595B2RF to a low of $915.53 /acre for All-Tex Nitro-44 B2RF. After subtracting ginning, seed costs and technology fees, the net value/acre among varieties ranged from a high of $921.49/acre (Dyna-Gro 2595B2RF) to a low of $748.42/acre (All-Tex Nitro-44 B2RF), a difference of $173.07.

Significant differences were observed among varieties for all fiber quality parameters at this location (Table 5). Micronaire values ranged from a low of 4.3 for All-Tex Nitro-44 B2RF and Croplan Genetics 3787B2RF to a high of 4.9 for Deltapine 0912B2RF. Staple averaged 34.7 across all varieties with a high of 36.5 for All-Tex Nitro-44 B2RF and a low of 33.5 for NexGen 1511B2RF. Differences in uniformity were highly significant and values ranged from a high of 83.0% for All-Tex Nitro-44 B2RF to a low of 80.3% for Stoneville 5484B2RF with a test average of 81.8%. Strength ranged from a low of 29.0 g/tex for Stoneville 5484B2RF to a high of 32.9 g/tex for All-Tex Nitro-44 B2RF. Elongation averaged 10.5% across and leaf grades were mostly 1 and 2. Color grade components of Rd (reflectance) and +b (yellowness) averaged 77.0 and 9.2, respectively and resulted in color grades of mostly 21 and 31.

These data indicate that substantial differences can be obtained in terms of net value/acre due to variety selection. Additional multi-site and multi-year applied research is needed to evaluate varieties across a series of environments.

Acknowledgments:

Appreciation is expressed to Mike and Jacob Henson for the use of their land, equipment and labor for this demonstration. Further assistance with this project was provided by Dr. Jane Dever - Texas A&M AgriLife Research and Extension Center, Lubbock, and Dr. Eric Hequet - Associate Director, Fiber and Biopolymer Research Institute, Texas Tech University. Furthermore, we greatly appreciate the Texas Department of Agriculture - Food and Fiber Research for funding of HVI testing.

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Table 1. Inseason plant measurement results from the Hockley County irrigated RACE variety demonstration, Mike and Jacob Henson Farm, Ropesville, TX, 2012.

Entry	Plant population		Nodes Above White Flower (NAWF) for week of	Storm resistance
	12-Jun		19-Jul	
	plants/row ft	plants/acre		rating (0-9)
NexGen 1511B2RF	2.9	38,478	8.9	7.0
All-Tex Nitro-44 B2RF	3.6	47,553	7.9	6.0
Croplan Genetics 3787B2RF	2.9	37,571	8.6	6.3
Dyna-Gro 2595B2RF	2.8	37,026	9.1	6.0
Deltapine 0912B2RF	3.1	40,656	8.9	5.0
FiberMax 2484B2F	3.2	41,201	7.7	6.8
NexGen 4012B2RF	3.3	42,471	8.9	8.0
PhytoGen 499WRF	3.4	44,468	8.5	5.7
Stoneville 5458B2RF	3.2	41,745	8.2	6.2
Test average	3.2	41,241	8.5	6.3
CV, %	8.8	8.8	6.1	7.5
OSL	0.0458	0.0483	0.0564†	<0.0001
LSD	0.5	6,258	0.7	0.8

For NAWF, numbers represent an average of 5 plants per variety per rep (15 plants per variety)
For Storm resistance, ratings based on a scale of 0-9 where 9 represents maximum storm resistance.
CV - coefficient of variation.
OSL - observed significance level, or probability of a greater F value.
LSD - least significant difference at the 0.05 level, †indicates signficance at the 0.10 level.

Table 2. Final plant map results from the Hockley County irrigated RACE variety demonstration, Mike and Jacob Henson Farm, Ropesville, TX, 2012.

Entry	Final plant map 25-Sept					
	plant height (inches)	node of first fruiting branch	total mainstem nodes	height to node ratio	total fruiting branches	open boll (%)
NexGen 1511B2RF	29.2	6.8	18.5	1.6	12.6	57.5
All-Tex Nitro-44 B2RF	25.1	7.7	17.4	1.5	10.7	58.1
Croplan Genetics 3787B2RF	32.4	6.6	18.3	1.8	12.7	30.3
Dyna-Gro 2595B2RF	28.5	6.6	18.1	1.6	12.6	50.5
Deltapine 0912B2RF	27.8	6.5	17.6	1.6	12.2	51.7
FiberMax 2484B2F	27.4	8.2	18.9	1.5	11.7	46.0
NexGen 4012B2RF	30.5	8.1	20.5	1.5	13.4	44.9
PhytoGen 499WRF	29.1	8.1	17.4	1.7	10.4	49.2
Stoneville 5458B2RF	26.2	7.1	17.6	1.5	11.4	50.1
Test average	28.5	7.3	18.3	1.6	12.0	48.7
CV, %	5.9	6.9	5.2	6.3	6.1	28.8
OSL	0.0026	0.0011	0.0214	0.0182	0.0019	0.4521
LSD	2.9	0.9	1.7	0.2	1.3	NS

For Final plant map, numbers represent and average of 6 plants per variety per rep (18 plants per variety)
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

Table 3. Final plant map results from the Hockley County irrigated RACE variety demonstration, Mike and Jacob Henson Farm, Ropesville, TX, 2012.

Entry	Fruiting and Retention 25-Sept					
	% of fruit from 1st position	% of fruit from 2nd position	total fruit	1st position retention (%)	2nd position retention (%)	total retention (%)
NexGen 1511B2RF	70.4	29.6	11.9	64.2	40.2	54.13
All-Tex Nitro-44 B2RF	65.9	34.1	9.1	54.1	43.5	49.23
Croplan Genetics 3787B2RF	57.6	42.4	16.5	74.1	69.6	72.07
Dyna-Gro 2595B2RF	67.6	32.4	12.7	65.7	49.1	58.70
Deltapine 0912B2RF	62.5	37.5	13.5	67.1	60.1	64.43
FiberMax 2484B2F	66.6	33.4	11.5	62.4	46.6	55.37
NexGen 4012B2RF	68.4	31.6	13.6	64.1	43.9	55.73
PhytoGen 499WRF	68.7	31.3	10.2	63.8	42.8	55.47
Stoneville 5458B2RF	70.3	29.7	10.3	60.6	43.9	54.13
Test average	66.5	33.5	12.1	64.0	48.8	57.70
CV, %	14.4	28.5	19.0	9.3	29.8	12.9
OSL	0.8009	0.8009	0.0377	0.0657†	0.2975	0.0592†
LSD	NS	NS	4.0	8.5	NS	10.6

For Final plant map, numbers represent and average of 6 plants per variety per rep (18 plants per variety)
CV - coefficient of variation.
OSL - observed significance level, or probability of a greater F value.
LSD - least significant difference at the 0.05 level, †indicates significance at the 0.10 level, NS - not significant

Table 4. Harvest results from the Hockley County irrigated RACE variety demonstration, Mike and Jacob Henson Farm, Ropesville, TX, 2012.

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 ----------						
Dyna-Gro 2595B2RF	37.3	49.6	3906	1456	1937	0.5577	812.19	290.53	1102.72	117.18	64.05	921.49	a
Deltapine 0912B2RF	34.8	49.1	3937	1371	1932	0.5462	748.77	289.81	1038.57	118.10	64.65	855.83	ab
PhytoGen 499WRF	35.3	48.2	3890	1373	1874	0.5420	744.24	281.04	1025.28	116.70	64.43	844.15	b
Croplan Genetics 3787B2RF	36.3	48.4	3636	1321	1759	0.5663	748.37	263.88	1012.25	109.07	61.18	842.00	b
FiberMax 2484B2F	35.4	48.8	3662	1295	1788	0.5715	739.87	268.27	1008.14	109.86	63.98	834.31	bc
NexGen 1511B2RF	37.7	47.7	3547	1336	1692	0.5295	707.49	253.80	961.29	106.40	58.88	796.01	bcd
NexGen 4012B2RF	34.8	49.0	3508	1219	1719	0.5477	667.75	257.88	925.64	105.23	57.16	763.25	cd
Stoneville 5458B2RF	33.9	48.0	3749	1273	1801	0.5223	664.79	270.09	934.88	112.48	63.98	758.43	cd
All-Tex Nitro-44 B2RF	32.9	50.3	3544	1167	1783	0.5553	648.05	267.47	915.53	106.32	60.78	748.42	d
Test average	35.4	48.8	3709	1312	1809	0.5487	720.17	271.42	991.59	111.26	62.12	818.21	
CV, %	2.9	1.4	4.9	5.0	5.0	1.8	5.0	5.0	5.0	4.9	--	5.4	
OSL	0.0007	0.0048	0.0545†	0.0023	0.0363	0.0002	0.0008	0.0364	0.0041	0.0543†	--	0.0032	
LSD	1.8	1.2	261	113	156	0.0168	62.33	23.34	85.57	7.83	--	76.08	

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, †indicates signficance at the 0.10 level.
Note: some columns may not add up due to rounding error.

Assumes:
$3.00/cwt ginning cost.
$250/ton for seed.
Value for lint based on CCC loan value from grab samples and FBRI HVI results.

Table 5. HVI fiber property results from the Hockley County irrigated RACE variety demonstration, Mike and Jacob Henson Farm, Ropesville, TX, 2012.

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 Nitro-44 B2RF	4.3	36.5	83.0	32.9	10.6	3.7	76.6	8.8	3.0	1.0
Croplan Genetics 3787B2RF	4.3	35.0	82.1	29.5	11.3	1.0	78.6	9.1	2.0	1.0
Dyna-Gro 2595B2RF	4.6	34.8	81.5	29.4	10.5	1.3	77.7	9.3	2.0	1.0
Deltapine 0912B2RF	4.9	34.3	82.1	29.9	10.8	2.0	76.9	9.3	2.3	1.0
FiberMax 2484B2F	4.4	36.1	81.9	30.8	9.0	1.3	79.1	8.4	2.3	1.0
NexGen 1511B2RF	4.8	33.5	81.5	29.6	11.9	2.3	76.6	9.3	2.7	1.3
NexGen 4012B2RF	4.8	34.1	82.2	30.0	9.0	1.3	76.5	9.5	2.7	1.0
PhytoGen 499WRF	4.6	34.6	81.8	31.7	11.8	2.3	75.6	9.2	3.0	1.3
Stoneville 5458B2RF	4.8	33.7	80.3	29.0	10.1	2.0	75.7	9.5	2.7	1.7
Test average	4.6	34.7	81.8	30.3	10.5	1.9	77.0	9.2	2.5	1.1
CV, %	2.2	1.8	1.0	2.4	2.8	36.5	1.0	2.3	--	--
OSL	<0.0001	0.0002	0.0542†	0.0001	<0.0001	0.0088	0.0002	0.0002	--	--
LSD	0.2	1.1	1.1	1.3	0.5	1.2	1.3	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, †indicates signficance at the 0.10 level.

Replicated Sub-Surface Drip Irrigated RACE Variety Demonstration, Acuff, TX - 2012

Cooperator: Rhett Mimms

Mark Kelley, Chris Ashbrook and Mark Brown
Extension Agronomist – Cotton, Extension Assistant – Cotton and CEA-ANR Lubbock County

Lubbock County

Objective: The objective of this project was to compare agronomic characteristics, yields, gin turnout, fiber quality, and economic returns of transgenic cotton varieties under sub-surface drip irrigated production in the Texas High Plains.

Materials and Methods:

Varieties:	All-Tex Nitro-44 B2RF, Croplan Genetics 3787B2RF, Deltapine 0912B2RF, Dyna-Gro 2570B2RF, FiberMax 2484B2F, NexGen 1511B2RF, NexGen 4010B2RF, PhytoGen 499WRF, and Stoneville 5458B2RF
Experimental design:	Randomized complete block with three (3) replications.
Seeding rate:	4.0 seed/row-ft in 40 inch row spacings. (John Deere XP Vacuum planter)
Plot size:	8 rows by variable length (~1350 feet)
Planting date:	17-May
Weed management:	Roundup PowerMax was applied over-the-top on 15-June and 8-July at 28 oz/acre with AMS. An additional post-directed application of Roundup PowerMax at 28 oz/acre with Valor at 2 oz/acre and AMS was made on 15-August.
Irrigation:	The field had a 3.7 gpm/acre irrigation capacity. This provided for 0.19 acre-inches/day. From 25-June to 31-August a total of approximately 12 inches of irrigation were applied.

Rainfall: Based on the nearest Texas Tech University- West Texas Mesonet station at Lubbock, rainfall amounts were:

April:	0.78”	August:	0.88”
May:	1.49”	September:	2.63”
June:	1.48”	October:	0.20”
July:	0.68”		

Total rainfall: 8.14”

Insecticides: This location is in an active boll weevil eradication zone, but no applications were made by the Texas Boll Weevil Eradication Program.

Fertilizer management: Soil test results prior to planting accounted for 89 lbs N available in the soil. The producer applied a total of 100 more lbs N for a total of 189 lbs N.

Plant growth regulators: None were applied at this location.

Harvest aids: Harvest aids included an initial application of ethephon at 21 oz/acre with 1 oz/acre Aim on 21-September and a sequential application of 24 oz/acre Gramoxone Inteon with 0.25% v/v non-ionic surfactant on 5-October.

Harvest: Plots were harvested on 15-October using a commercial John Deere 7460 with field cleaner. Harvested material was transferred to a weigh wagon with integral electronic scales to record individual plot weights. Plot weights were subsequently converted to lb/acre basis.

Gin turnout: Grab samples were taken by plot and ginned at the Texas A&M 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 cost were based on $3.00 per cwt. of bur cotton and seed value/acre was based on $250/ton. Ginning cost did not include check-off.

Seed and Technology fees: Seed and technology costs were calculated using the appropriate seeding rate (4.0 seed/row-ft) for the 40-inch row spacing and entries using the online Plains Cotton Growers Seed Cost Comparison Worksheet available at: http://www.plainscotton.org/Seed/PCGseed12.xls .

Results and Discussion:

Agronomic data including plant population, boll storm resistance and final plant map data are included in Tables 1-3.

Significant differences were noted for most yield and economic parameters (Table 4). Lint turnout averaged 35.1% with a high of 37.6% for NexGen 1511B2RF and Croplan Genetics 3787B2RF with a low of 33.1% for NexGen 4010B2RF. Bur cotton yield averaged 3222 lb/acre and ranged from a high of 3390 lb/acre for FiberMax 2484B2F to a low of 2952 lb/acre for Croplan 3787B2RF. Lint yields varied from a low of 1040 lb/acre (NexGen 4010B2RF) to a high of 1221 lb/acre (Dyna-Gro 2570B2RF). Lint loan values averaged $0.5305/lb across varieties, but differences were not significant. When adding lint and seed value, total values ranged from a high of $904.01/acre for Dyna-Gro 2570B2RF to a low of $803.65/acre for Deltapine 0912B2RF. After subtracting ginning, seed costs and technology fees, the net value/acre among varieties ranged from a high of $727.72/acre (Dyna-Gro 2570B2RF) to a low of $631.34/acre (Deltapine 0912B2RF), a difference of $96.38.

Significant differences were observed among varieties for most fiber quality parameters measured at this location (Table 5). Micronaire values ranged from a low of 3.4 for FiberMax 2484B2F to a high of 4.4 for NexGen 1511B2RF. Staple averaged 34.4 across all varieties with a high of 36.9 for FiberMax 2484B2F and a low of 33.5 for NexGen 1511B2RF. Uniformity differences were not significant and a test average of 81.2% was observed. Strength ranged from a low of 27.4 g/tex for Croplan Genetics 3787B2RF to a high of 31.2 g/tex for All-Tex Nitro-44 B2RF. Elongation averaged 10.8% across varieties and leaf grades averaged 2.7 with a high of 4.0 for All-Tex Nitro-44 B2RF and a low of 1.0 for Croplan Genetics 3787B2RF. Color grade components of Rd (reflectance) and +b (yellowness) averaged 76.6 and 9.3, respectively and resulted in color grades of mostly 21 and 31.

These data indicate that substantial differences can be obtained in terms of net value/acre due to variety selection. Additional multi-site and multi-year applied research is needed to evaluate varieties across a series of environments.

Acknowledgments:

Appreciation is expressed to Rhett Mimms for the use of his land, equipment and labor for this demonstration. Further assistance with this project was provided by Dr. Jane Dever - Texas A&M AgriLife Research and Extension Center, Lubbock, and Dr. Eric Hequet - Associate Director, Fiber and Biopolymer Research Institute, Texas Tech University. Furthermore, we greatly appreciate the Texas Department of Agriculture - Food and Fiber Research for funding of HVI testing.

Disclaimer Clause:

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Table 1. Inseason plant measurement results from the Lubbock County irrigated RACE variety demonstration, Rhett Mimms Farm, Acuff, TX, 2012.

Entry	Plant population		Storm resistance
	plants/row ft	plants/acre	rating (0-9)
NexGen 1511B2RF	3.5	45,557	4.7
All-Tex Nitro-44 B2RF	3.4	45,012	7.0
Croplan Genetics 3787B2RF	3.3	43,560	4.3
Dyna-Gro 2570B2RF	3.7	48,098	6.3
Deltapine 0912B2RF	3.6	46,827	4.3
FiberMax 2484B2F	3.5	45,557	7.0
NexGen 4010B2RF	3.4	45,012	6.7
PhytoGen 499WRF	3.7	48,461	5.7
Stoneville 5458B2RF	3.7	47,916	5.3
Test average	3.5	46,222	5.7
CV, %	6.6	6.5	9.6
OSL	0.6142	0.5081	<0.0001
LSD	NS	NS	0.9

For Storm resistance, ratings based on a scale of 0-9 where 9 represents maximum storm resistance.
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.

Table 2. Final plant map results from the Lubbock County irrigated RACE variety demonstration, Rhett Mimms Farm, Acuff, TX, 2012.

Entry	Final plant map 17-Sept					
	plant height (inches)	node of first fruiting branch	total mainstem nodes	height to node ratio	total fruiting branches	open boll (%)
All-Tex Nitro-44 B2RF	26.2	7.3	17.9	1.5	11.6	24.3
Croplan Genetics 3787B2RF	28.9	6.5	16.6	1.7	11.2	32.7
Dyna-Gro 2570B2RF	28.6	8.1	17.8	1.6	10.7	27.7
Deltapine 0912B2RF	29.7	6.9	17.7	1.7	11.7	21.6
FiberMax 2484B2F	27.8	9.0	19.0	1.5	11.0	16.5
NexGen 1511B2RF	27.9	6.1	17.5	1.7	12.4	40.3
NexGen 4010B2RF	27.3	7.7	18.4	1.5	12.0	47.9
PhytoGen 499WRF	29.8	7.4	17.2	1.7	10.8	27.8
Stoneville 5458B2RF	28.6	7.7	17.8	1.6	11.2	16.7
Test average	28.3	7.4	17.8	1.6	11.4	28.4
CV, %	7.5	4.6	2.7	6.0	6.4	39.2
OSL	0.5468	<0.0001	0.0012	0.0112	0.1222	0.0442
LSD	NS	0.6	0.8	0.2	NS	19.3

For Final plant map, numbers represent and average of 6 plants per variety per rep (18 plants per variety)
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

Table 3. Final plant map results from the Lubbock County irrigated RACE variety demonstration, Rhett Mimms Farm, Acuff, TX, 2012.

Entry	Fruiting and Retention 17-Sept					
	% of fruit from 1st position	% of fruit from 2nd position	total fruit	1st position retention (%)	2nd position retention (%)	total retention (%)
All-Tex Nitro-44 B2RF	72.4	27.6	10.6	64.7	38.9	53.97
Croplan Genetics 3787B2RF	67.9	32.1	11.0	66.0	46.2	57.90
Dyna-Gro 2570B2RF	71.4	28.6	9.3	61.9	38.4	52.40
Deltapine 0912B2RF	69.9	30.1	11.2	66.0	42.1	55.97
FiberMax 2484B2F	72.2	27.8	9.8	63.8	35.1	51.73
NexGen 1511B2RF	71.2	28.8	12.4	67.7	40.4	56.50
NexGen 4010B2RF	76.0	24.0	10.0	60.6	32.6	50.43
PhytoGen 499WRF	67.0	33.0	11.9	73.0	50.9	63.87
Stoneville 5458B2RF	75.8	24.2	10.3	68.9	34.3	55.70
Test average	71.5	28.5	10.7	65.8	39.9	55.39
CV, %	7.5	19.0	10.5	5.1	18.7	6.4
OSL	0.4952	0.4952	0.0636†	0.0113	0.1382	0.0108
LSD	NS	NS	1.6	5.8	NS	6.2

For Final plant map, numbers represent and average of 6 plants per variety per rep (18 plants per variety)
CV - coefficient of variation.
OSL - observed significance level, or probability of a greater F value.
LSD - least significant difference at the 0.05 level, †indicates significance at the 0.10 level, NS - not significant

Table 4. Harvest results from the Lubbock County irrigated RACE variety demonstration, Rhett Mimms Farm, Acuff, TX, 2012.

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 ----------						
Dyna-Gro 2570B2RF	36.4	50.7	3353	1221	1699	0.5318	649.16	254.85	904.01	100.60	75.69	727.72	a
FiberMax 2484B2F	34.3	49.2	3390	1162	1668	0.5407	627.99	250.15	878.14	101.69	75.61	700.84	ab
NexGen 1511B2RF	37.6	47.2	3187	1198	1504	0.5173	619.88	225.62	845.50	95.60	69.59	680.30	bc
All-Tex Nitro-44 B2RF	33.5	49.1	3349	1121	1643	0.5357	600.35	246.48	846.83	100.47	71.83	674.53	bcd
Stoneville 5458B2RF	34.8	50.7	3269	1138	1657	0.5270	599.60	248.48	848.07	98.08	75.61	674.38	bcd
Croplan Genetics 3787B2RF	37.6	48.3	2952	1110	1425	0.5328	591.34	213.70	805.03	88.55	72.30	644.18	cde
NexGen 4010B2RF	33.1	50.8	3145	1040	1598	0.5430	564.73	239.66	804.39	94.36	67.55	642.48	cde
PhytoGen 499WRF	35.7	48.4	3160	1129	1529	0.5138	580.15	229.40	809.55	94.79	76.15	638.61	de
Deltapine 0912B2RF	33.2	49.7	3197	1061	1590	0.5325	565.17	238.48	803.65	95.90	76.41	631.34	e
Test average	35.1	49.3	3222	1131	1590	0.5305	599.82	238.54	838.35	96.67	73.42	668.26	
CV, %	2.8	1.6	3.1	3.1	3.1	5.2	3.1	3.1	3.1	3.1	--	3.4	
OSL	<0.0001	0.0004	0.0016	0.0002	<0.0001	0.9179	0.0004	<0.0001	0.0013	0.0016	--	0.0011	
LSD	1.7	1.4	172	60	85	NS	31.72	12.70	44.38	5.15	--	39.23	

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.
$250/ton for seed.
Value for lint based on CCC loan value from grab samples and FBRI HVI results.

Table 5. HVI fiber property results from the Lubbock County irrigated RACE variety demonstration, Rhett Mimms Farm, Acuff, TX, 2012.

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 Nitro-44 B2RF	3.7	34.9	81.0	31.2	10.7	4.0	76.0	8.9	3.0	1.0
Croplan Genetics 3787B2RF	4.2	33.7	81.3	27.4	11.4	1.0	77.4	9.8	1.7	1.7
Dyna-Gro 2570B2RF	4.2	33.9	81.5	29.4	11.5	1.3	76.7	9.9	2.0	1.7
Deltapine 0912B2RF	4.0	34.1	81.8	29.5	10.6	3.3	77.7	8.8	2.7	1.0
FiberMax 2484B2F	3.4	36.9	81.3	31.0	9.0	3.0	79.7	8.1	2.7	1.0
NexGen 1511B2RF	4.4	33.5	80.3	29.9	11.8	2.7	75.6	9.6	3.0	1.3
NexGen 4010B2RF	4.1	34.5	81.8	30.7	10.1	2.3	76.2	9.5	2.3	1.7
PhytoGen 499WRF	4.1	33.6	81.6	29.8	11.6	3.0	74.8	9.5	3.0	2.0
Stoneville 5458B2RF	4.1	34.2	80.3	29.5	10.2	3.7	75.3	9.5	2.7	1.7
Test average	4.0	34.4	81.2	29.8	10.8	2.7	76.6	9.3	2.6	1.4
CV, %	4.9	3.3	1.2	3.5	2.9	27.1	1.4	3.4	--	--
OSL	0.0013	0.0525†	0.4107	0.0137	<0.0001	0.0016	0.0009	0.0001	--	--
LSD	0.3	1.6	NS	1.8	0.5	1.3	1.8	0.5	--	--

CV - coefficient of variation.

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

LSD - least significant difference at the 0.05 level, †indicates significance at the 0.10 level, NS - not significant

Replicated LESA Irrigated RACE Variety Demonstration, Bovina, TX - 2012

Cooperator: Luke Steelman

Mark Kelley, Chris Ashbrook, Benji Henderson, and Monti Vandiver
Extension Agronomist – Cotton, Extension Assistant – Cotton,
CEA-ANR Parmer County, and EA-IPM Bailey/Parmer Counties

Parmer County

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

Materials and Methods:

Varieties:	All-Tex Nitro-44 B2RF, Croplan Genetics 3156B2RF, Deltapine 0912B2RF, Dyna-Gro 2285B2RF, FiberMax 2011GT, NexGen 2051B2RF, PhytoGen 367WRF, and Stoneville 4288B2F
Experimental design:	Randomized complete block with three (3) replications.
Seeding rate:	3.7 seed/row-ft in 30 inch row spacings. (Case IH 1200 Vacuum planter)
Plot size:	6 rows by variable length
Planting date:	4-May
Weed management:	Trifluralin was applied preplant incorporated at 2 pt/acre across all varieties. Roundup PowerMax was applied over-the-top with AMS twice during the growing season. The second application of PowerMax was a tank mix with Dual.
Irrigation:	15” of LESA irrigation was applied during the growing season.
Rainfall:	Based on the nearest Texas Tech University- West Texas Mesonet station at Friona, rainfall amounts were:

April:	0.19”	August:	1.21”
May:	2.33”	September:	1.25”

June:	2.20”	October:	0.56”
July:	0.47”		
Total rainfall:	8.21”		

Insecticides: Acephate was applied at a rate of 3.2 oz/acre on 11-June. This location is in an active boll weevil eradication zone, but no applications were made by the Texas Boll Weevil Eradication Program.

Fertilizer management: Soil test results prior to planting accounted for 193 lbs N available in the soil.

Plant growth regulators: None were applied at this location.

Harvest aids: Harvest aids included an application of ethephon at 3 pt/acre with 16 oz/acre Folex on 8-October. No additional harvest aids were required.

Harvest: Plots were harvested on 26-October using a commercial John Deere 7450 with field cleaner by-passed. Harvested material was transferred to a weigh wagon with integral electronic scales to record individual plot weights. Plot weights were subsequently converted to lb/acre basis.

Gin turnout: Grab samples were taken by plot and ginned at the Texas A&M 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 cost were based on $3.00 per cwt. of bur cotton and seed value/acre was based on $250/ton. Ginning cost did not include check-off.

Seed and Technology fees: Seed and technology costs were calculated using the appropriate seeding rate (3.7 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/PCGseed12.xls .

Results and Discussion:

Agronomic data including plant population, nodes above white flower (NAWF), boll storm resistance, and final plant map data are included in Tables 1-3.

Significant differences were noted for all yield and economic parameters (Table 4). Lint turnout averaged 27.7% with a high of 31.6% and low of 24.4% for FiberMax 2011GT and NexGen 2051B2RF, respectively. Bur cotton yield averaged 5202 lb/acre and ranged from a high of 5524 lb/acre for Stoneville 4288B2F to a low of 4897 lb/acre for NexGen 2051B2RF. Lint yields varied from a low of 1193 lb/acre (NexGen 2051B2RF) to a high of 1643 lb/acre (FiberMax 2011GT). Lint loan values ranged from a low of $0.5392/lb to a high of $0.5740/lb for Croplan Genetics 3156B2RF and PhytoGen 367WRF, respectively. When adding lint and seed value, total value ranged from a high of $1202.26/acre for FiberMax 2011GT to a low of $936.26/acre for NexGen 2051B2RF. After subtracting ginning, seed costs and technology fees, the net value/acre among varieties ranged from a high of $965.68/acre (FiberMax 2011GT) to a low of $704.92/acre (NexGen 2051B2RF), a difference of $260.76.

No significant differences were observed among varieties for most fiber quality parameters at this location (Table 5), with exception of +b (yellowness). Test averages for micronaire, staple, uniformity and strength were 3.9, 35.4, 81.6% and 30.4 g/tex, respectively. Elongation averaged 10.2% across all varietiesand leaf grades were mostly 2. Color grade components of Rd (reflectance) and +b (yellowness) averaged 78.7 and 8.5, respectively and resulted in color grades of mostly 21 and 31.

These data indicate that substantial differences can be obtained in terms of net value/acre due to variety selection. Additional multi-site and multi-year applied research is needed to evaluate varieties across a series of environments.

Acknowledgments:

Appreciation is expressed to Luke Steelman for the use of his land, equipment and labor for this demonstration. Further assistance with this project was provided by Dr. Jane Dever - Texas A&M AgriLife Research and Extension Center, Lubbock, and Dr. Eric Hequet - Associate Director, Fiber and Biopolymer Research Institute, Texas Tech University. Furthermore, we greatly appreciate the Texas Department of Agriculture - Food and Fiber Research for funding of HVI testing.

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Table 1. Inseason plant measurement results from the Parmer County irrigated RACE variety demonstration, Luke Steelman Farm, Bovina, TX, 2012.

Entry	Plant population		Nodes Above White Flower (NAWF) for week of	Storm resistance
			23-Jul	
	plants/row ft	plants/acre		rating (0-9)
All-Tex Nitro-44 B2RF	3.4	43,802	6.9	5.7
Croplan Genetics 3156B2RF	2.9	38,236	7.7	6.7
Dyna-Gro 2285B2RF	3.6	46,706	7.6	5.7
Deltapine 0912B2RF	2.8	36,058	7.9	4.0
FiberMax 2011GT	2.9	37,994	7.3	7.7
NexGen 2051B2RF	3.1	40,898	7.5	8.0
PhytoGen 367WRF	3.3	43,318	8.3	4.3
Stoneville 4288B2F	2.9	38,236	7.9	5.7
Test average	3.1	40,656	7.7	6.0
CV, %	5.8	6.1	5.5	7.0
OSL	0.0011	0.0014	0.0296	<0.0001
LSD	0.3	4,326	0.7	0.7

For NAWF, numbers represent an average of 5 plants per variety per rep (15 plants per variety)
For Storm resistance, ratings based on a scale of 0-9 where 9 represents maximum storm resistance.
CV - coefficient of variation.
OSL - observed significance level, or probability of a greater F value.
LSD - least significant difference at the 0.05 level

Table 2. Final plant map results from the Parmer County irrigated RACE variety demonstration, Luke Steelman Farm, Bovina, TX, 2012.

Entry	Final plant map 2-Oct					
	plant height (inches)	node of first fruiting branch	total mainstem nodes	height to node ratio	total fruiting branches	open boll (%)
All-Tex Nitro-44 B2RF	17.9	6.3	15.2	1.2	9.9	74.3
Croplan Genetics 3156B2RF	20.4	6.5	16.6	1.2	11.1	61.6
Dyna-Gro 2285B2RF	20.9	6.0	15.7	1.3	10.7	57.1
Deltapine 0912B2RF	20.9	6.2	16.3	1.3	11.1	54.6
FiberMax 2011GT	19.2	7.2	18.0	1.1	11.8	56.6
NexGen 2051B2RF	17.8	6.5	17.2	1.0	12.3	76.5
PhytoGen 367WRF	20.1	7.3	17.6	1.2	11.2	65.2
Stoneville 4288B2F	19.2	7.3	16.9	1.1	10.6	52.9
Test average	19.6	6.7	16.7	1.2	11.1	62.3
CV, %	9.8	12.0	5.1	10.0	5.3	12.9
OSL	0.3196	0.3171	0.0184	0.0351	0.0062	0.0169
LSD	NS	NS	1.5	0.2	1.0	14.0

For Final plant map, numbers represent and average of 6 plants per variety per rep (18 plants per variety)
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

Table 3. Final plant map results from the Parmer County irrigated RACE variety demonstration, Luke Steelman Farm, Bovina, TX, 2012.

Entry	Fruiting and Retention 2-Oct					
	% of fruit from 1st position	% of fruit from 2nd position	total fruit	1st position retention (%)	2nd position retention (%)	total retention (%)
All-Tex Nitro-44 B2RF	87.5	12.5	5.6	49.0	12.7	35.22
Croplan Genetics 3156B2RF	71.4	28.6	9.1	58.7	34.5	48.67
Dyna-Gro 2285B2RF	72.2	27.8	9.3	60.0	35.8	50.21
Deltapine 0912B2RF	73.2	26.8	10.1	64.6	38.8	57.44
FiberMax 2011GT	78.3	21.7	9.1	58.9	26.4	45.44
NexGen 2051B2RF	83.0	17.0	8.7	57.2	18.3	41.00
PhytoGen 367WRF	76.3	23.7	9.8	64.2	32.4	51.50
Stoneville 4288B2F	82.2	17.8	8.6	64.9	23.7	47.94
Test average	78.0	22.0	8.8	59.7	27.8	47.18
CV, %	10.7	38.1	15.6	10.9	42.5	15.3
OSL	0.2647	0.2647	0.0367	0.1325	0.1645	0.0578†
LSD	NS	NS	2.4	NS	NS	10.4

For Final plant map, numbers represent and average of 6 plants per variety per rep (18 plants per variety)
CV - coefficient of variation.
OSL - observed significance level, or probability of a greater F value.
LSD - least significant difference at the 0.05 level, †indicates significance at the 0.10 level, NS - not significant

Table 4. Harvest results from the Parmer County irrigated RACE variety demonstration, Luke Steelman Farm, Bovina, TX, 2012.

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 ----------						
FiberMax 2011GT	31.6	43.5	5197	1643	2260	0.5598	919.79	282.46	1202.26	155.91	80.66	965.68	a
Dyna-Gro 2285B2RF	29.5	42.9	5273	1556	2261	0.5702	887.30	282.58	1169.88	158.19	94.62	917.08	ab
Stoneville 4288B2F	27.2	44.3	5524	1501	2446	0.5637	846.31	305.80	1152.11	165.72	94.52	891.88	bc
PhytoGen 367WRF	26.4	42.0	5415	1429	2275	0.5740	820.21	284.40	1104.60	162.46	95.18	846.96	cd
Deltapine 0912B2RF	27.6	45.1	5118	1410	2306	0.5673	800.00	288.25	1088.25	153.53	95.51	839.21	cd
All-Tex Nitro-44 B2RF	26.9	43.9	5097	1370	2240	0.5650	774.06	279.98	1054.04	152.90	89.79	811.35	d
Croplan Genetics 3156B2RF	28.4	43.0	5097	1448	2191	0.5392	780.69	273.85	1054.54	152.92	90.38	811.25	d
NexGen 2051B2RF	24.4	45.7	4897	1193	2239	0.5502	656.42	279.84	936.26	146.90	84.44	704.92	e
Test average	27.7	43.8	5202	1444	2277	0.5612	810.60	284.65	1095.24	156.07	90.64	848.54	
CV, %	6.4	2.5	3.8	3.8	3.8	1.9	3.8	3.8	3.8	3.8	--	4.2	
OSL	0.0083	0.0161	0.0392	<0.0001	0.0907†	0.0208	<0.0001	0.0908†	<0.0001	0.0393	--	<0.0001	
LSD	3.1	1.9	350	96	126	0.0184	54.25	15.70	73.26	10.49	--	62.80	

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, †indicates signficance at the 0.10 level.
∞ - Lint turnout is non-burr extracted
Note: some columns may not add up due to rounding error.

Assumes:
$3.00/cwt ginning cost.
$250/ton for seed.
Value for lint based on CCC loan value from grab samples and FBRI HVI results.

Table 5. HVI fiber property results from the Parmer County irrigated RACE variety demonstration, Luke Steelman Farm, Bovina, TX, 2012.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32^{nds} inch	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
All-Tex Nitro-44 B2RF	4.0	36.7	82.5	32.1	10.1	2.3	79.2	8.0	3.0	1.0
Croplan Genetics 3156B2RF	3.9	34.2	80.7	29.0	9.8	2.0	79.4	8.3	2.3	1.0
Dyna-Gro 2285B2RF	3.8	35.6	81.3	30.7	10.1	2.0	78.0	8.6	2.3	1.0
Deltapine 0912B2RF	4.1	35.2	82.2	31.0	10.8	1.3	78.1	8.9	2.3	1.0
FiberMax 2011GT	4.1	35.3	81.7	30.0	10.0	1.7	78.5	8.8	2.3	1.0
NexGen 2051B2RF	4.0	34.7	80.7	28.2	9.3	1.7	79.9	7.9	2.7	1.0
PhytoGen 367WRF	3.8	36.3	82.2	32.0	10.8	1.7	78.1	8.9	2.3	1.0
Stoneville 4288B2F	3.8	35.3	81.1	30.0	10.4	2.0	78.3	8.8	2.3	1.0
Test average	3.9	35.4	81.6	30.4	10.2	1.8	78.7	8.5	2.5	1.0
CV, %	5.6	2.8	1.6	5.3	6.5	43.1	1.5	5.2	--	--
OSL	0.4795	0.1402	0.5892	0.1120	0.2067	0.8494	0.4200	0.0644†	--	--
LSD	NS	NS	NS	NS	NS	NS	NS	0.6	--	--

CV - coefficient of variation.
OSL - observed significance level, or probability of a greater F value.
LSD - least significant difference at the 0.05 level, †indicates significance at the 0.10 level, NS - not significant

Replicated No-Till LESA Irrigated RACE Variety Demonstration, Kress, TX - 2012

Cooperator: Cody Gruhlkey

Mark Kelley, Chris Ashbrook and David Graf
Extension Agronomist – Cotton, Extension Assistant – Cotton and CEA-ANR Swisher County

Swisher County

Objective: The objective of this project was to compare agronomic characteristics, yields, gin turnout, fiber quality, and economic returns of transgenic cotton varieties under no-till LESA irrigated production in the Texas High Plains.

Materials and Methods:

Varieties:	All-Tex Nitro-44 B2RF, Croplan Genetics 3428B2RF, Deltapine 0912B2RF, Dyna-Gro 2595B2RF, FiberMax 2011GT, NexGen 3348B2RF, PhytoGen 367WRF, and Stoneville 4288B2F
Experimental design:	Randomized complete block with three (3) replications.
Seeding rate:	3.8 seed/row-ft in 40 inch row spacings. (John Deere Vacuum planter)
Plot size:	8 rows by variable length due to circular rows
Planting date:	7-May
Weed management:	Glyphosate was applied over-the-top at 40 oz/acre with AMS on 15-June, 10-July, and 5-August. Dual was applied at 1 qt/acre with the 11-July application of glyphosate.
Irrigation:	A total of 13 inches of irrigation was applied at this location.
Rainfall:	According to the producer a total of 12 inches of rainfall was received at this location during the growing season.

Insecticides:	This location is in an active boll weevil eradication zone, but no applications were made by the Texas Boll Weevil Eradication Program.
Fertilizer management:	Soil test results prior to planting accounted for 89 lbs N available in the soil. The producer applied a total of 60 more lbs N for a total of 149 lbs N/acre.
Plant growth regulators:	The producer applied 4 oz/acre of Pentia at pin head square followed by two applications of Stance at 2 oz/acre in July and August.
Harvest aids:	Harvest aids included an initial application of ethephon at 1 qt/acre with 1.5 oz/acre Display on 15-October. Due to the freeze event on 8-October, no additional harvest aids were required.
Harvest:	Plots were harvested on 2-November using a commercial John Deere 7460 with field cleaner. Harvested material was transferred to a weigh wagon with integral electronic scales to record individual plot weights. Plot weights were subsequently converted to lb/acre basis.
Gin turnout:	Grab samples were taken by plot and ginned at the Texas A&M 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 cost were based on $3.00 per cwt. of bur cotton and seed value/acre was based on $250/ton. Ginning cost did not include check-off.
Seed and Technology fees:	Seed and technology costs were calculated using the appropriate seeding rate (3.8 seed/row-ft) for the 40-inch row spacing and entries using the online Plains Cotton Growers Seed Cost Comparison Worksheet available at: http://www.plainscotton.org/Seed/PCGseed12.xls .

Results and Discussion:

This location was planted flat into wheat stubble. Agronomic data including plant population, nodes above white flower (NAWF), boll storm resistance, and final plant map data are included in Tables 1-3.

Significant differences were noted for lint and seed turnouts only at this location (Table 4). Lint turnout was significant at the 0.10 level averaged 33.8% with a high of 36.4% and low of 32.3% for FiberMax 2011GT and NexGen 3348B2RF, respectively. Bur cotton yield averaged 3535 lb/acre resulting in an average lint yields across all varieties of 1195 lb/acre. Lint loan values averaged $0.5710/lb and when adding lint and seed value, total value averaged $912.95/acre. After subtracting ginning, seed costs and technology fees, the average net value/acre across varieties was $737.19/acre and differences among varieties were not significant.

Significant differences were observed among varieties for all fiber quality parameters at this location (Table 5). Micronaire values ranged from a low of 3.7 for All-Tex Nitro-44 B2RF to a high of 4.3 for Deltapine 0912B2RF. Staple averaged 36.3 across all varieties with a high of 38.7 for All-Tex Nitro-44 B2RF and a low of 35.1 for Stoneville 4288B2F. Uniformity ranged from a high of 83.5% for All-Tex Nitro-44 B2RF to a low of 80.9% for Stoneville 4288B2F with a test average of 82.3%. Strength ranged from a low of 28.5 g/tex for Stoneville 4288B2F to a high of 34.5 g/tex for All-Tex Nitro-44 B2RF. Elongation averaged 10.3% across varieties with a high of 11.0% for Croplan Genetics 3428B2RF and a low of 9.4% for FiberMax 2011GT. Leaf grades were mostly 2 and 3. Color grade components of Rd (reflectance) and +b (yellowness) averaged 79.7 and 8.0, respectively and resulted in color grades of mostly 21 and 31.

These data indicate that similar yields and economic returns can be obtained with multiple varieties under similar growing conditions. However, as evidenced by previous and current variety test results from other locations, significant differences can be obtained in terms of net value/acre due to variety selection. Additional multi-site and multi-year applied research is needed to evaluate varieties across a series of environments.

Acknowledgments:

Appreciation is expressed to Cody Gruhlkey for the use of his land, equipment and labor for this demonstration. Further assistance with this project was provided by Dr. Jane Dever - Texas A&M AgriLife Research and Extension Center, Lubbock, and Dr. Eric Hequet - Associate Director, Fiber and Biopolymer Research Institute, Texas Tech University. Furthermore, we greatly appreciate the Texas Department of Agriculture - Food and Fiber Research for funding of HVI testing.

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Table 1. Inseason plant measurement results from the Swisher County irrigated RACE variety demonstration, Cody Grulkhey Farm, Kress, TX, 2012.

Entry	Plant population		Nodes Above White Flower (NAWF) for week of		Storm resistance
			18-Jul	25-Jul	
	plants/row ft	plants/acre			rating (0-9)
All-Tex Nitro-44 B2RF	3.2	41,564	8.5	7.2	7.0
Croplan Genetics 3428B2RF	2.5	32,852	9.1	8.3	5.0
Dyna-Gro 2595B2RF	2.8	37,026	8.0	7.5	5.7
Deltapine 0912B2RF	3.1	39,930	8.5	7.4	3.0
FiberMax 2011GT	2.9	37,752	7.9	7.4	8.0
NexGen 3348B2RF	2.6	34,485	8.1	7.0	7.7
PhytoGen 367WRF	2.9	38,297	8.3	7.3	4.3
Stoneville 4288B2F	3.4	44,468	8.1	7.2	4.7
Test average	2.9	38,297	8.3	7.4	5.7
CV, %	9.5	9.3	4.8	7.5	7.6
OSL	0.0374	0.0264	0.0499	0.2755	<0.0001
LSD	0.5	6,204	0.7	NS	0.8

For NAWF, numbers represent an average of 5 plants per variety per rep (15 plants per variety)
For Storm resistance, ratings based on a scale of 0-9 where 9 represents maximum storm resistance.
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.

Table 2. Final plant map results from the Swisher County irrigated RACE variety demonstration, Cody Gruhlkey Farm, Kress, TX, 2012.

Entry	Final plant map 1-Oct					
	plant height (inches)	node of first fruiting branch	total mainstem nodes	height to node ratio	total fruiting branches	open boll (%)
All-Tex Nitro-44 B2RF	22.8	7.1	16.2	1.5	10.7	99.4
Croplan Genetics 3428B2RF	26.6	7.3	17.7	1.5	11.4	98.9
Dyna-Gro 2595B2RF	23.0	6.7	16.5	1.4	10.8	96.8
Deltapine 0912B2RF	25.2	7.6	17.3	1.5	10.7	94.8
FiberMax 2011GT	23.2	7.0	17.4	1.3	11.4	98.5
NexGen 3348B2RF	23.0	7.4	17.5	1.3	11.1	96.4
PhytoGen 367WRF	23.7	6.9	17.0	1.4	11.1	99.1
Stoneville 4288B2F	21.1	7.6	17.0	1.2	10.4	99.4
Test average	23.6	7.2	17.1	1.4	11.0	97.9
CV, %	5.1	4.9	2.4	8.5	5.5	2.5
OSL	0.0028	0.0636†	0.0059	0.1758	0.3685	0.2476
LSD	2.1	0.5	0.7	NS	NS	NS

For Final plant map, numbers represent and average of 6 plants per variety per rep (18 plants per variety)
CV - coefficient of variation.
OSL - observed significance level, or probability of a greater F value.
LSD - least significant difference at the 0.05 level, †indicates significance at the 0.10 level, NS - not significant

Table 3. Final plant map results from the Swisher County irrigated RACE variety demonstration, Cody Gruhlkey Farm, Kress, TX, 2012.

Entry	Fruiting and Retention 1-Oct					
	% of fruit from 1st position	% of fruit from 2nd position	total fruit	1st position retention (%)	2nd position retention (%)	total retention (%)
All-Tex Nitro-44 B2RF	69.8	30.2	8.7	55.3	35.8	47.24
Croplan Genetics 3428B2RF	61.3	38.7	11.5	60.8	51.0	56.34
Dyna-Gro 2595B2RF	64.7	35.3	9.8	58.7	44.3	52.54
Deltapine 0912B2RF	68.9	31.1	9.0	58.3	36.2	48.41
FiberMax 2011GT	76.8	23.2	9.1	60.5	29.0	48.30
NexGen 3348B2RF	62.8	37.2	11.4	61.8	50.3	56.88
PhytoGen 367WRF	62.7	37.3	12.4	69.7	56.6	64.04
Stoneville 4288B2F	87.0	13.0	7.5	61.1	14.2	43.03
Test average	69.3	30.7	9.9	60.8	39.7	52.10
CV, %	11.9	26.7	9.9	11.7	23.5	5.7
OSL	0.0237	0.0237	0.0003	0.4591	0.0014	<0.0001
LSD	14.4	14.4	1.7	NS	16.3	5.2

For Final plant map, numbers represent and average of 6 plants per variety per rep (18 plants per variety)
CV - coefficient of variation.
OSL - observed significance level, or probability of a greater F value.
LSD - least significant difference at the 0.05 leve, NS - not significant

Table 4. Harvest results from the Swisher County irrigated RACE variety demonstration, Cody Gruhlkey Farm, Kress, TX, 2012.

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 ----------					
Deltapine 0912B2RF	34.4	52.4	3650	1256	1914	0.5678	712.99	239.26	952.26	109.50	73.47	769.28
FiberMax 2011GT	36.4	50.6	3385	1234	1714	0.5762	710.75	214.25	925.00	101.54	62.05	761.42
Stoneville 4288B2F	34.0	53.6	3602	1224	1932	0.5665	693.20	241.53	934.73	108.05	72.70	753.97
PhytoGen 367WRF	33.1	52.4	3663	1211	1919	0.5745	695.55	239.92	935.47	109.89	73.22	752.37
Croplan Genetics 3428B2RF	33.3	51.2	3570	1190	1828	0.5785	688.16	228.55	916.70	107.10	69.52	740.08
NexGen 3348B2RF	32.3	53.6	3530	1141	1892	0.5685	648.66	236.56	885.22	105.91	64.96	714.35
Dyna-Gro 2595B2RF	34.5	51.9	3373	1164	1751	0.5723	666.33	218.91	885.24	101.18	72.78	711.28
All-Tex Nitro-44 B2RF	32.5	51.8	3504	1139	1815	0.5637	642.08	226.85	868.94	105.11	69.07	694.76
Test average	33.8	52.2	3535	1195	1846	0.5710	682.22	230.73	912.95	106.04	69.72	737.19
CV, %	4.5	1.5	6.5	6.6	6.3	1.2	6.6	6.3	6.5	6.5	--	7.2
OSL	0.0798†	0.0038	0.6753	0.5180	0.2476	0.1694	0.4300	0.2477	0.6401	0.6739	--	0.6066
LSD	2.2	1.4	NS	NS	NS	NS	NS	NS	NS	NS	--	NS

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, †indicates significance at the 0.10 level, NS - not significant.
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 FBRI HVI results.

Table 5. HVI fiber property results from the Swisher County irrigated RACE variety demonstration, Cody Gruhlkey Farm, Kress, TX, 2012.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32^{nds} inch	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
All-Tex Nitro-44 B2RF	3.7	38.7	83.5	34.5	10.1	2.7	79.1	7.4	3.3	1.0
Croplan Genetics 3428B2RF	3.8	37.7	82.6	29.9	11.0	1.3	82.3	7.9	2.0	1.0
Dyna-Gro 2595B2RF	4.0	35.8	81.8	29.9	10.4	1.7	79.9	7.8	2.3	1.0
Deltapine 0912B2RF	4.3	35.4	82.8	30.6	10.5	1.7	78.7	7.8	2.7	1.0
FiberMax 2011GT	4.1	35.8	82.2	30.8	9.4	1.3	80.7	7.7	2.3	1.0
NexGen 3348B2RF	3.9	35.6	82.4	31.1	9.9	2.7	79.1	8.0	2.7	1.0
PhytoGen 367WRF	4.0	35.9	82.4	30.5	10.5	1.0	78.5	8.7	2.7	1.0
Stoneville 4288B2F	4.2	35.1	80.9	28.5	10.4	1.3	79.6	8.2	2.3	1.0
Test average	4.0	36.3	82.3	30.7	10.3	1.7	79.7	8.0	2.5	1.0
CV, %	5.2	1.7	0.7	2.0	3.0	36.1	1.1	2.4	--	--
OSL	0.0428	<0.0001	0.0032	<0.0001	0.0008	0.0337	0.0021	<0.0001	--	--
LSD	0.4	1.1	1.0	1.1	0.5	1.1	1.5	0.3	--	--

CV - coefficient of variation.
OSL - observed significance level, or probability of a greater F value.
LSD - least significant difference at the 0.05 level.

Replicated LESA Irrigated RACE Variety Demonstration, Brownfield, TX - 2012

Cooperator: Keith Harrison

Mark Kelley, Chris Ashbrook, Chris Bishop, and Scott Russell
Extension Agronomist – Cotton, Extension Assistant – Cotton, CEA-ANR Terry County, and EA-IPM Terry/Yoakum Counties

Terry County

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

Materials and Methods:

Varieties:	All-Tex Nitro-44 B2RF, Deltapine 1044B2RF, Dyna-Gro 2570B2RF, FiberMax 9170B2F, FiberMax 9170B2F Base, NexGen 1511B2RF, NexGen 4012B2RF, PhytoGen 499WRF, and Stoneville 5458B2RF
Experimental design:	Randomized complete block with three (3) replications.
Seeding rate:	3.0 seed/row-ft in 40 inch row spacings. (John Deere 1700 Vacuum planter)
Plot size:	4 rows by variable length (~2660 feet)
Planting date:	24-May
Weed management:	Trifluralin was applied preplant incorporated at 1.25 pt/acre across all varieties. Roundup PowerMax was applied over-the-top at 32 oz/acre with AMS on 15-June and 25-July.
Irrigation:	3.0” of irrigation were applied via LESA irrigation preplant with 10.5” of LESA irrigation during the growing season for a total of 13.5” applied irrigation.

Rainfall: Based on the nearest Texas Tech University- West Texas Mesonet station at Brownfield, rainfall amounts were:

April:	0.65”	August:	1.06”
May:	1.97”	September:	1.58”
June:	1.70”	October:	0.06”
July:	1.59”		

Total rainfall: 8.61”

Insecticides: This location is in an active boll weevil eradication zone, but no applications were made by the Texas Boll Weevil Eradication Program.

Fertilizer management: Soil test results prior to planting accounted for 43 lbs N available in the soil. The producer applied a total of 50 more lbs N for a total of 93 lbs N/acre.

Plant growth regulators: None were applied at this location.

Harvest aids: Harvest aids included an initial application of ethephon at 1 pt/acre with 2 oz/acre ET on 5-October. No additional harvest aids were required due to an early freeze event on 8-October.

Harvest: Plots were harvested on 29-October using a commercial John Deere 7450 with field cleaner. Harvested material was transferred to a weigh wagon with integral electronic scales to record individual plot weights. Plot weights were subsequently converted to lb/acre basis.

Gin turnout: Grab samples were taken by plot and ginned at the Texas A&M 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 cost were based on $3.00 per cwt. of bur cotton and seed value/acre was based on $250/ton. Ginning cost did not include check-off.

Seed and Technology fees: Seed and technology costs were calculated using the appropriate seeding rate (3.0 seed/row-ft) for the 40-inch row spacing and entries using the online Plains Cotton Growers Seed Cost Comparison Worksheet available at: http://www.plainscotton.org/Seed/PCGseed12.xls .

Results and Discussion:

Agronomic data including plant population, boll storm resistance, and final plant map data are included in Tables 1-3.

Significant differences were noted for most yield and economic parameters (Table 4). Lint turnout averaged 32.0% with a high of 36.5% for NexGen 1511B2RF and a low of 29.9% for All-Tex Nitro-44 B2RF and NexGen 4012B2RF. Bur cotton yield averaged 2437 lb/acre and ranged from a high of 2822 lb/acre for Stoneville 5458B2RF to a low of 2171 lb/acre for NexGen 4012B2RF. Lint yields varied from a low of 650 lb/acre (NexGen 4012B2RF) to a high of 925 lb/acre (NexGen 1511B2RF). Lint loan values averaged $.5516/lb across varieties but differences were not significant. When adding lint and seed value, total values ranged from a high of $690.48/acre for NexGen 1511B2RF to a low of $496.57/acre for NexGen 4012B2RF. After subtracting ginning, seed costs and technology fees, the net value/acre among varieties ranged from a high of $560.92/acre (NexGen 1511B2RF) to a low of $379.49/acre (NexGen 4012B2RF), a difference of $181.43.

Significant differences were observed among varieties for all fiber quality parameters at this location (Table 5). Micronaire values ranged from a low of 3.0 for All-Tex Nitro-44 B2RF to a high of 3.8 for NexGen 1511B2RF and differences were significant at the 0.10 level. Staple averaged 37.2 across all varieties with a high of 39.5 for All-Tex Nitro-44 B2RF and a low of 35.6 for NexGen 1511B2RF. Uniformity ranged from a high of 83.7% for All-Tex Nitro-44 B2RF to a low of 80.2% for Stoneville 5484B2RF with a test average of 82.0%. Strength ranged from a low of 31.4 g/tex for Stoneville 5458B2RF to a high of 35.5 g/tex for All-Tex Nitro-44 B2RF. Elongation averaged 10.0% across varieties and leaf grades were mostly 1 and 2. Color grade components of Rd (reflectance) and +b (yellowness) averaged 80.1 and 8.0, respectively and resulted in color grades of mostly 21 and 31.

These data indicate that substantial differences can be obtained in terms of net value/acre due to variety selection. Additional multi-site and multi-year applied research is needed to evaluate varieties across a series of environments.

Acknowledgments:

Appreciation is expressed to Keith Harrison for the use of his land, equipment and labor for this demonstration. Further assistance with this project was provided by Dr. Jane Dever - Texas A&M AgriLife Research and Extension Center, Lubbock, and Dr. Eric Hequet - Associate Director, Fiber and Biopolymer Research Institute, Texas Tech University. Furthermore, we greatly appreciate the Texas Department of Agriculture - Food and Fiber Research for funding of HVI testing.

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. Inseason plant measurement results from the Terry County irrigated RACE variety demonstration, Keith Harrison Farm, Brownfield, TX, 2012.

Entry	Plant population		Storm resistance
	plants/row ft	plants/acre	rating (0-9)
NexGen 1511B2RF	2.9	37,752	5.7
All-Tex Nitro-44 B2RF	3.4	44,649	7.7
Dyna-Gro 2570B2RF	2.8	36,300	7.0
Deltapine 1044B2RF	3.1	40,293	5.7
FiberMax 9170B2F	3.1	39,930	7.3
FiberMax 9170B2F Base	2.9	38,478	7.3
NexGen 4012B2RF	2.8	35,937	7.0
PhytoGen 499WRF	3.2	41,382	5.7
Stoneville 5458B2RF	3.2	42,108	6.7
Test average	3.0	39,648	6.7
CV, %	9.7	9.9	6.6
OSL	0.2032	0.2121	<0.0001
LSD	NS	NS	0.8

For Storm resistance, ratings based on a scale of 0-9 where 9 represents maximum storm resistance.
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.

Table 2. Final plant map results from the Terry County irrigated RACE variety demonstration, Keith Harrison Farm, Brownfield, TX, 2012.

Entry	Final plant map 20-Sept					
	plant height (inches)	node of first fruiting branch	total mainstem nodes	height to node ratio	total fruiting branches	open boll (%)
NexGen 1511B2RF	22.9	6.0	16.3	1.4	11.3	57.0
All-Tex Nitro-44 B2RF	18.9	7.6	16.3	1.2	9.6	49.4
Dyna-Gro 2570B2RF	20.8	8.0	16.2	1.3	9.3	31.3
Deltapine 1044B2RF	19.4	6.5	15.9	1.2	10.3	39.0
FiberMax 9170B2F	17.3	7.5	15.4	1.1	8.9	35.5
FiberMax 9170B2F GS	17.9	8.0	16.5	1.1	9.5	47.3
NexGen 4012B2RF	20.7	7.9	17.7	1.2	10.7	40.0
PhytoGen 499WRF	23.0	8.0	16.3	1.4	9.4	23.8
Stoneville 5458B2RF	18.8	7.2	15.5	1.2	9.3	44.3
Test average	20.0	7.4	16.2	1.2	9.8	40.8
CV, %	7.5	5.1	5.9	4.7	7.8	34.2
OSL	0.0018	<0.0001	0.2518	<0.0001	0.0242	0.2212
LSD	2.6	0.6	NS	0.1	1.3	NS

For Final plant map, numbers represent and average of 6 plants per variety per rep (18 plants per variety)
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

Table 3. Final plant map results from the Terry County irrigated RACE variety demonstration, Keith Harrison Farm, Brownfield, TX, 2012.

Entry	Fruiting and Retention 20-Sept					
	% of fruit from 1st position	% of fruit from 2nd position	total fruit	1st position retention (%)	2nd position retention (%)	total retention (%)
NexGen 1511B2RF	67.5	32.5	8.9	52.7	36.8	46.10
All-Tex Nitro-44 B2RF	78.8	21.2	6.0	46.1	21.3	35.80
Dyna-Gro 2570B2RF	77.3	22.7	7.1	56.4	31.9	48.03
Deltapine 1044B2RF	70.3	29.7	9.5	62.4	37.7	51.87
FiberMax 9170B2F	82.0	18.0	5.6	50.1	19.0	37.53
FiberMax 9170B2F GS	81.7	18.3	5.9	48.9	18.1	36.33
NexGen 4012B2RF	72.3	27.7	5.9	39.6	21.3	31.87
PhytoGen 499WRF	67.9	32.1	9.4	64.0	49.7	58.23
Stoneville 5458B2RF	70.5	29.5	7.2	52.9	35.6	45.93
Test average	74.3	25.7	7.3	52.6	30.2	43.52
CV, %	10.8	31.3	21.8	15.5	37.4	18.2
OSL	0.2254	0.2262	0.0253	0.0447	0.0384	0.0138
LSD	NS	NS	2.7	14.1	19.5	13.7

For Final plant map, numbers represent and average of 6 plants per variety per rep (18 plants per variety)
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

Table 4. Harvest results from the Terry County irrigated RACE variety demonstration, Keith Harrison Farm, Brownfield, TX, 2012.

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 ----------						
NexGen 1511B2RF	36.5	51.0	2534	925	1292	0.5718	529.03	161.45	690.48	76.03	53.53	560.92	a
PhytoGen 499WRF	33.0	50.8	2745	906	1395	0.5690	515.30	174.36	689.66	82.36	58.57	548.72	ab
Stoneville 5458B2RF	31.6	53.0	2822	893	1495	0.5457	487.18	186.94	674.12	84.67	58.16	531.28	b
Dyna-Gro 2570B2RF	32.9	54.4	2412	793	1313	0.5515	437.23	164.15	601.38	72.37	58.23	470.79	c
FiberMax 9170B2F Grower Seed	32.1	53.4	2258	725	1206	0.5547	402.08	150.72	552.79	67.75	58.16	426.88	d
FiberMax 9170B2F	31.9	54.0	2249	718	1214	0.5548	398.35	151.69	550.04	67.48	58.16	424.40	d
Deltapine 1044B2RF	30.5	51.7	2296	701	1188	0.5568	390.52	148.47	538.99	68.88	54.78	415.34	d
All-Tex Nitro-44 B2RF	29.9	53.4	2443	730	1305	0.5147	375.48	163.07	538.55	73.30	55.25	410.00	d
NexGen 4012B2RF	29.9	52.4	2171	650	1138	0.5453	354.33	142.25	496.57	65.12	51.97	379.49	e
Test average	32.0	52.7	2437	782	1283	0.5516	432.17	160.34	592.51	73.10	56.31	463.09	
CV, %	3.5	1.8	2.9	3.0	2.9	3.7	3.1	2.9	3.0	2.9	--	3.4	
OSL	<0.0001	0.0015	<0.0001	<0.0001	<0.0001	0.1230	<0.0001	<0.0001	<0.0001	<0.0001	--	<0.0001	
LSD	1.9	1.6	123	41	65	NS	22.87	8.11	30.92	3.70	--	27.23	

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.
$250/ton for seed.
Value for lint based on CCC loan value from grab samples and FBRI HVI results.

Table 5. HVI fiber property results from the Terry County irrigated RACE variety demonstration, Keith Harrison Farm, Brownfield, TX, 2012.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32^{nds} inch	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
All-Tex Nitro-44 B2RF	3.0	39.5	83.7	35.5	9.7	3.3	79.7	7.4	3.0	1.0
Dyna-Gro 2570B2RF	3.2	36.2	81.5	32.1	11.0	1.0	79.9	8.3	2.0	1.0
Deltapine 1044B2RF	3.4	36.8	81.4	31.8	11.0	1.3	80.4	8.1	2.3	1.0
FiberMax 9170B2F	3.3	38.1	82.2	33.1	8.8	1.3	81.9	7.5	2.3	1.0
FiberMax 9170B2F Grower Seed	3.2	38.8	82.2	33.9	9.0	1.0	82.2	7.4	2.3	1.0
NexGen 1511B2RF	3.8	35.6	82.5	32.2	11.5	1.3	79.3	8.2	2.7	1.0
NexGen 4012B2RF	3.2	37.4	81.8	32.7	8.6	2.0	79.9	8.2	2.3	1.0
PhytoGen 499WRF	3.6	36.4	82.7	33.4	10.9	1.7	78.9	8.2	2.7	1.0
Stoneville 5458B2RF	3.4	35.9	80.2	31.4	9.8	2.3	78.5	8.5	3.0	1.0
Test average	3.3	37.2	82.0	32.9	10.0	1.7	80.1	8.0	2.5	1.0
CV, %	7.9	1.6	0.9	2.8	2.5	32.9	1.2	3.8	--	--
OSL	0.0635†	<0.0001	0.0034	0.0020	<0.0001	0.0020	0.0020	0.0011	--	--
LSD	0.4	1.0	1.3	1.6	0.4	1.0	1.6	0.5	--	--

CV - coefficient of variation.
OSL - observed significance level, or probability of a greater F value.
LSD - least significant difference at the 0.05 level, †indicates signficance at the 0.10 level.

Replicated LEPA Supplemental (Limited) Irrigation Cotton Variety Research Trial - 2012

Cooperator: Cheuvront Farms

Manda Anderson, Extension Agent - IPM
Dr. Mark Kelley, Extension Agronomist - Cotton

Gaines County

Summary: Significant differences were observed for all yield, economic, and some HVI fiber quality parameters measured. Lint turnout ranged from a low of 30.9% and a high of 36.2% for All-Tex Nitro-44 B2RF and Phytogen 499WRF, respectively. Lint yield varied with a low of 258 lb/acre (FiberMax 2989GLB2) and a high of 326 lb/acre (PhytoGen 499WRF). Lint loan values ranged from a low of $0.4738/lb (FiberMax 2989GLB2) to a high of $0.5355/lb (All-Tex Nitro-44 B2RF). Net value/acre among varieties ranged from a high of $134.62 (PhytoGen 499WRF) to a low of $81.71 (FiberMax 2989GLB2), a difference of $52.91. Micronaire values ranged from a low of 4.2 for All-Tex Nitro-44 B2RF to a high of 4.9 for FiberMax 2989GLB2. Staple averaged 32.4 across all varieties with a low of 30.6 for FiberMax 2989GLB2 and a high of 33.7 for All-Tex Nitro-44 B2RF. Strength values averaged 27.7 g/tex with a high of 30.5 g/tex for All-Tex Nitro-44 B2RF and a low of 24.1 g/tex for FiberMax 2989GLB2. These data indicate that 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 agronomic characteristics, yields, gin turnout, fiber quality, and economic returns of transgenic cotton variety under supplemental irrigated production in Gaines County.

Materials and Methods:

Varieties: All-Tex Nitro-44 B2RF, Deltapine 1044B2RF, FiberMax 2484B2F, FiberMax 2989GLB2, NexGen 1511B2RF, PhytoGen 499WRF

Experimental design: Randomized complete block with 3 replications

Seeding rate: 3 seeds/row-ft in 36-inch row spacing

Plot size: 6 rows by variable length of field (712ft to 1744ft long)

Planting date: 17-May

Soil Texture: Sandy

Irrigation: This location was under a LEPA center pivot. This trial received approximately 9.1 inches of irrigation and rainfall throughout the growing season.

Harvest: Plots were harvested on 22-October 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 A&M 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 costs were based on $3.00 per cwt. of bur cotton and seed value/acre was based on $250/ton. Ginning costs did not include checkoff.

Seed and technology fees: Seed and technology costs were calculated using the appropriate seeding rate (3 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/PCGseed12.xls

Results and Discussion:

Significant differences were observed for all yield, economic, and some HVI fiber quality parameters measured (Tables 1 and 2). Lint turnout ranged from a low of 30.9% and a high of 36.2% for All-Tex Nitro-44 B2RF and Phytogen 499WRF, respectively. Seed turnout ranged from a high of 49.6% for FiberMax 2989GLB2 to a low of 46.5% for Deltapine 1044B2RF. Bur cotton yields averaged 863 lb/acre with a high of 911 lb/acre for All-Tex Nitro-44 B2RF, and a low of 754

lb/acre for FiberMax 2989GLB2. Lint yield varied with a low of 258 lb/acre (FiberMax 2989GLB2) and a high of 326 lb/acre (PhytoGen 499WRF). Seed yield ranged from a high of 425 lb/acre for All-Tex Nitro-44 B2RF to a low of 373 lb/acre for FiberMax 2989GLB2. Lint loan values ranged from a low of $0.4738/lb (FiberMax 2989GLB2) to a high of $0.5355/lb (All-Tex Nitro-44 B2RF). After adding lint and seed value, total value/acre for varieties ranged from a low of $169.01 for FiberMax 2989GLB2 to a high of $225.42 for PhytoGen 499WRF. When subtracting ginning, seed and technology fee costs, the net value/acre among varieties ranged from a high of $134.62 (PhytoGen 499WRF) to a low of $81.71 (FiberMax 2989GLB2), a difference of $52.91.

Micronaire values ranged from a low of 4.2 for All-Tex Nitro-44 B2RF to a high of 4.9 for FiberMax 2989GLB2. Staple averaged 32.4 across all varieties with a low of 30.6 for FiberMax 2989GLB2 and a high of 33.7 for All-Tex Nitro-44 B2RF. Strength values averaged 27.7 g/tex with a high of 30.5 g/tex for All-Tex Nitro-44 B2RF and a low of 24.1 g/tex for FiberMax 2989GLB2. Elongation ranged from a high of 8.2% for NexGen 1511B2RF to a low of 5.6% for FiberMax 2484B2RF. Values for reflectance (Rd) and yellowness (+b) averaged 78.2 and 9.1, respectively.

Conclusions:

These data indicate that differences can be obtained in terms of net value/acre due to variety and technology selection. During the 2012 growing season Gaines County experienced high temperatures and very little rainfall. The environmental conditions prior to and during the growing season were a limiting factor in the varieties performance overall. It should be noted that no inclement weather was encountered at this location prior to harvest and therefore, no pre-harvest losses were observed. 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 Cheuvront Farms for the use of his land, equipment and labor for this demonstration.

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 Supplemental (Limited) Irrigation Trial, Cheuvront Farms Farm, Seminole, TX, 2012.

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 ----------					
PhytoGen 499WRF	36.2	46.6	900	326	420	0.5302	172.92	52.51	225.42	27.01	63.79	134.62 a
NexGen 1511B2RF	36.2	46.9	891	322	418	0.4897	157.79	52.29	210.08	26.73	58.29	125.05 ab
All-Tex Nitro-44 B2RF	30.9	46.7	911	281	425	0.5355	150.63	53.17	203.80	27.32	60.17	116.31 bc
Deltapine 1044B2RF	32.4	46.5	892	289	415	0.5027	145.19	51.85	197.04	26.75	59.65	110.64 bc
FiberMax 2484B2F	34.4	47.2	829	285	391	0.5155	146.89	48.86	195.75	24.86	63.34	107.55 c
FiberMax 2989GLB2	34.2	49.6	754	258	373	0.4738	122.32	46.69	169.01	22.61	64.69	81.71 d
Test average	34.0	47.3	863	294	407	0.5079	149.29	50.89	200.18	25.88	61.66	112.65
CV, %	3.9	2.5	4.6	4.5	4.5	5.1	4.6	4.5	4.6	4.6	--	7.1
OSL	0.0034	0.0794†	0.0044	0.0006	0.0366	0.098†	0.0001	0.0372	0.0005	0.0043	--	0.0002
LSD	2.4	1.7	72	24	33	0.0383	12.46	4.18	16.63	2.15	--	14.50

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, †indicates signficance at the 0.10 level.
Note: some columns may not add up due to rounding error.

Assumes:
$3.00/cwt ginning cost.
$250/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 Supplemental (Limited) Irrigation Trial, Cheuvront Farms Farm, Seminole, TX, 2012.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32^{nds} inch	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
All-Tex Nitro-44 B2RF	4.2	33.7	79.7	30.5	7.1	2.7	78.3	9.0	2.0	1.0
NexGen 1511B2RF	4.6	30.8	78.3	26.6	8.2	2.0	76.9	9.5	2.3	1.3
Deltapine 1044B2RF	4.8	32.6	78.2	28.0	8.0	1.7	78.1	9.3	2.0	1.0
FiberMax 2484B2F	4.5	33.3	78.3	27.6	5.6	2.0	80.2	8.6	2.0	1.0
FiberMax 2989GLB2	4.9	30.6	77.2	24.1	5.6	1.7	78.3	9.0	2.0	1.0
PhytoGen 499WRF	4.5	33.5	79.3	29.6	7.8	1.3	77.0	9.5	2.0	1.3
Test average	4.6	32.4	78.5	27.7	7.1	1.9	78.2	9.1	2.1	1.1
CV, %	3.7	4.4	2.2	5.9	4.7	47.0	0.4	3.1	--	--
OSL	0.0047	0.08†	0.5755	0.0087	<0.0001	0.5809	<0.0001	0.0200	--	--
LSD	0.3	2.1	NS	3.0	0.6	NS	0.6	0.5	--	--

CV - coefficient of variation.
OSL - observed significance level, or probability of a greater F value.
LSD - least significant difference at the 0.05 level, †indicates significance at the 0.10 level, NS - not significant

Texas Panhandle Cotton Variety Trials

January 2013

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Characteristics commonly evaluated in small-plot testing include lint yield, turnout percentages, fiber quality, and earliness. Current small-plot variety testing programs are inadequate in scale and design to investigate the economic impact of new transgenic varieties with value-added traits. The objective of this project was to evaluate the profitability of cotton varieties in producers' fields in the Texas Panhandle. For scientific validity, three replications of each variety were included at each of four locations. Trials were conducted under irrigation in Sunray, Dumas, White Deer, and Pampa. Plot weights were determined at harvest using a flat-bed scale trailer and bur cotton yields were subsequently calculated by plot. Grab samples were taken from each plot for ginning and fiber quality. Due to extremely high and extraordinary leaf and color grades from grab samples, leaf and color grades were set at 3 and 21, respectively at all locations.

In 2012, cotton yields were outstanding in spite of the continued drought across most of the Texas High Plains and Northern Panhandle Regions. All locations were well maintained by the cooperating producers. Also, these locations were subjected to an early freeze event on 8-October and contributed to lower than expected micronaire values. At Sunray, lint yields ranged from a high of 2225 lb/acre for FiberMax 9058F to a low of 1510 lb/acre for PhytoGen 367WRF. Loan values ranged from $0.5342 for NexGen 1551RF to $0.4677 for Deltapine 1219B2RF. When subtracting ginning and seed/technology costs from total value (lint value + seed value) net values ranged from a high of $1,182.32/acre for FiberMax 9058F to a low of $756.36/acre for Deltapine 1219B2RF. At the Dumas location, lint yields ranging from 1702 lb/acre (Deltapine 104B2RF) to 929 lb/acre (NexGen 1551RF), were observed. Loan values ranged from a high of $0.5723 for Deltapine 1212B2RF to a low of $0.5357 for NexGen 1551RF. This resulted in net values with a range of from $1045.54/acre for Deltapine 104B2RF to $531.73/acre for NexGen 1551RF. At White Deer, lint yields averaged 1725 lb/acre and Deltapine 104B2RF had the highest with 1932 lb/acre. Loan values ranged from $0.5710 for NexGen 1551RF to $0.4765 for Deltapine 1219B2RF. Final net values ranged from a high of $1,129.83/acre (Deltapine 104B2RF) to a low of $729.84/acre (Deltapine 1219B2RF). At the Pampa location, lint yields ranging from 1509 lb/acre (FiberMax 2011GT) to 1008 lb/acre (NexGen 1551RF) were observed. Loan values ranged from a high of $0.5730 for Deltapine 104B2RF to a low of $0.5380 for NexGen 1551RF. Resulting in net values with a range of from $909.80/acre for FiberMax 2011GT to $577.90/acre for NexGen 1551RF.

These data indicate that substantial differences can be observed in terms of net value/acre due to variety and technology selection. The differences in net value/acre, when comparing the top and bottom varieties at the Texas Panhandle locations, differences were approximately $432 (Sunray), $513 (Dumas), $400 (White Deer), and $332 (Pampa). Additional multi-site and multi-year applied research is needed to evaluate varieties across a series of environments.

Texas Panhandle Cotton Variety Trials

January 2013

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Introduction

Over the last several years, cotton producers in the Texas Panhandle region have increased planted acreage of cotton from approximately 616 thousand in 2008 to approximately 1.25 million in 2011. Although acreage was down in 2012, cotton production is still a very important part of the economy in this region. With improved genetics and technologies, as well as rotational crop management systems, cotton yields in the Texas Panhandle topped 1.4 million bales in 2010.

Industry continues to increase the number of herbicide-tolerant, insect-resistant, and "stacked gene" varieties. Liberty Link Ignite herbicide-tolerant varieties (from Bayer CropScience) were first marketed in 2004. The first commercial "stacked Bt gene" system (Bollgard II from Monsanto) was launched in 2004. Varieties containing Monsanto's Roundup Ready Flex gene system were commercialized in 2006. Widestrike "stacked Bt gene" technology from Dow AgroSciences was available in some PhytoGen varieties in 2005, with additional Roundup Ready Flex "stacked" types in the market in 2006. Liberty Link with Bollgard II types were also commercialized in 2006. In 2011, Bayer CropScience made Glytol and Glytol stacked with Liberty Link available to producers in limited quantities. Furthermore, in 2012, Bayer introduced several Glytol/Liberty Link varities stacked with Bollgard II technology. New transgenic varieties continue to be marketed in the High Plains by All-Tex, Americot/NexGen, Croplan Genetics, Delta and Pine Land/Monsanto, Dyna-Gro, the Bayer CropScience FiberMax/Stoneville brands, and the Dow AgroSciences PhytoGen brand. More transgenic varieties are expected to be released by these companies in the future. Additional cotton biotechnologies are also anticipated in the near future. These technologies include Extend from Monsanto/Deltapine and Enlist from Dow AgroSciences/PhytoGen. Extend technology with impart resistance to three herbicide molecules, dicamba, glyphosate, and glufosinate. Varieties with Enlist technology will be resistant to a new formulation of the 2,4-D herbicide. The proliferation of transgenic varieties in the marketplace is expected to continue over the next several years.

Current small-plot variety testing programs are inadequate in scale and design to investigate the economic impact of new transgenic varieties with value-added traits. The objective of this project was to evaluate the profitability of cotton varieties in producers' fields in the Texas Panhandle regions.

Materials and Methods

For scientific validity, three replications of each variety were included at each of four locations. Trials were conducted under irrigation in Sherman County (near Sunray), Moore County, (Dumas), Carson County (near White Deer), and Gray County (near Pampa). A randomized complete block design was used at all locations. Weed and insect control measures, if needed, and harvest aid applications were performed commercially or by cooperating producers. Plots were harvested with commercial harvesters by producers with assistance provided by program personnel at all locations. Due to extremely high and extraordinary leaf and color grades from grab samples, leaf and color grades were set at 3 and 21, respectively at all locations. Individual location information was as follows:

Location 1: Sunray, TX – Sherman County

At the Sunray location, fifteen varieties were planted to 30" strip-till rows following sorghum on 15-May with a seeding rate of approximately 67,000 seed per acre. This location was under a Low Elevation Spray Application (LESA) center pivot irrigation system and a combined total of 16" of moisture was applied or received as rainfall. Plot size was 8 rows wide by 600 feet long. Plots were harvested using producer/cooperator equipment and grab samples were taken by plot and ginned at the Texas A&M AgriLife Research and Extension Center at Lubbock. Resulting lint samples were submitted to the Texas Tech University – Fiber and Biopolymer Research Institute for HVI fiber analysis and CCC loan values were calculated.

Varieties planted at Sunray (Strip-Till following sorghum under LESA irrigation system):

1. FiberMax 2011GT
2. FiberMax 9250GL
3. FiberMax 9058F
4. FiberMax 9180B2F
5. FiberMax 1740B2F
6. Deltapine 104B2RF
7. Deltapine 1212B2RF
8. Deltapine 1219B2RF
9. NexGen 1551RF
10. NexGen 3348B2RF
11. NexGen 2051B2RF
12. PhytoGen 367WRF
13. All-Tex Edge B2RF
14. Dyna-Gro 2285B2RF (tested as DG 10R008B2RF)
15. Dyna-Gro CT 12222B2RF (tested as DG 11R110B2RF)

Location 2: Dumas, TX – Moore County

Fourteen commercially available varieties were included at the Dumas location. Most varieties planted on 18-May contained Roundup Ready Flex, Glytol or Glytol/Liberty Link stacked herbicide technology alone or stacked with Bollgard II or Widestrike insect technologies. Plots were 600 feet in length and included 6 – 30" rows. The seeding rate at Dumas was approximately 60,000 seeds/acre. Harvesting of plots was performed using producer provided equipment. Plot weights were taken using a flat-bed scale trailer with integral digital scale systems and producer's tractor and boll-buggy. During harvest, grab samples were taken by plot for ginning at the Texas A&M AgriLife Research and Extension Center near Lubbock. Lint samples were collected during ginning and submitted to the Texas Tech University – Fiber and

Biopolymer Research Institue for HVI fiber analysis. After lint quality determination, CCC loan values were calculated for each plot.

Varieties planted at Dumas (LESA irrigation system):

1. FiberMax 2011GT
2. FiberMax 9250GL
3. FiberMax 9058F
4. FiberMax 9180B2F
5. Deltapine 104B2RF
6. Deltapine 1212B2RF
7. Deltapine 1219B2RF
8. NexGen 1551RF
9. NexGen 3348B2RF
10. NexGen 2051B2RF
11. PhytoGen 367WRF
12. All-Tex Edge B2RF
13. Dyna-Gro 2285B2RF (tested as DG 10R008B2RF)
14. Dyna-Gro CT 12222B2RF (tested as DG 11R110B2RF)

Location 3: White Deer, TX – Carson County

Twelve varieties were planted to 30" no-till rows on 19-May with an approximate seeding rate of 72,000 seed per acre. Plot sizes were 8 rows wide by 800 feet. Harvest was conducted using the producer/cooperator harvesting equipment and the flat-bed scale system. Gin turnouts, HVI fiber quality and CCC lint loan values were determined from grab samples taken at harvest.

Varieties planted at White Deer (No-Till LESA irrigation system):

1. FiberMax 2011GT
2. FiberMax 9250GL
3. FiberMax 9058F
4. FiberMax 9180B2F
5. Deltapine 104B2RF
6. Deltapine 1212B2RF
7. Deltapine 1219B2RF
8. NexGen 1551RF
9. NexGen 3348B2RF
10. NexGen 2051B2RF
11. PhytoGen 367WRF
12. All-Tex Edge B2RF

Location 4: Pampa, TX – Gray County

At the Pampa location, twelve varieties were planted to 30" strip-till rows on 17-May with a seeding rate of approximately 64,000 seed per acre. This location was under a Low Elevation Spray Application (LESA) center pivot irrigation system. Plot size was 8 rows wide by 800 feet long. Plots were harvested using producer/cooperator equipment and grab samples were taken by plot and ginned at the Texas A&M AgriLife Research and Extension Center at Lubbock. Resulting lint samples were submitted to the Texas Tech University – Fiber and Biopolymer Research Institute for HVI fiber analysis and CCC loan values were calculated.

Varieties planted at Pampa (Strip-Till LESA irrigation system):

1. FiberMax 2011GT
2. FiberMax 9250GL
3. FiberMax 1740B2F
4. FiberMax 9180B2F
5. Deltapine 104B2RF
6. Deltapine 1212B2RF
7. Deltapine 1219B2RF
8. NexGen 1551RF
9. NexGen 3348B2RF
10. NexGen 2051B2RF
11. PhytoGen 367WRF
12. All-Tex Edge B2RF

Results

Agronomic and economic results by variety for all locations are included in tables 1 - 8.

Location 1 - Sunray

At the Sunray location, lint turnouts of field-cleaned bur cotton averaged 32.5% (Table 1). Bur cotton yields averaged 5447 lb/acre and no significant differences were observed among varieties. Lint yields ranged from a high of 2225 lb/acre for FiberMax 9058F to a low of 1510 lb/acre for PhytoGen 367WRF, and seed yields averaged 2625 lb/acre. Loan values derived from grab samples ranged from $0.5342 for NexGen 1551RF to $0.4677 for Deltapine 1219B2RF. After applying loan values to lint yields, the test average lint value was $861.03/acre. When subtracting ginning and seed/technology costs from total value (lint value + seed value) net value averaged $935.18/acre across varieties. Net values ranged from a high of $1,182.32/acre for FiberMax 9058F to a low of $756.36/acre for Deltapine 1219B2RF. Four other varieties were in the statistical upper tier with FiberMax 9058F, FiberMax 2011GT ($1,119.83/acre), NexGen 2051B2RF ($1,080.88/acre), FiberMax 9250GL ($1,028.38/acre), and Deltapine 104B2RF ($1,023.98/acre).

Classing data from grab samples are reported in Table 2. Micronaire values were relatively low at Sunray due to the abbreviated growing season experienced in 2012. Values ranged from a high of 3.3 for NexGen 1551RF to a low of 2.4 for Deltapine 1219B2RF. Staple was highest for FiberMax 9180B2F (38.3) and lowest for NexGen 1551RF (35.3). The highest uniformity, 81.1%, was observed in FiberMax 9180B2F and FiberMax 9250GL had the lowest with 77.5%. Fiber strength values ranged from a high of 33.3 g/tex for FiberMax 9180B2F to a low of 28.7 g/tex for NexGen 2051B2RF.

Location 2 – Dumas

At the Dumas location, Deltapine 104B2RF had the highest lint turnout of 35.2% and All-Tex Edge B2RF had the lowest with 29.5% (Table 3). Seed turnout averaged 48.0% across varieties. Bur cotton yields averaged 3710 lb/acre and ranged from a high of 4840 lb/acre for Deltapine 104B2RF to a low of 2904 lb/acre for NexGen 1551RF. This resulted in lint yields ranging from 1702 lb/acre (Deltapine 104B2RF) to 929 lb/acre (NexGen 1551RF) and an average seed yield of 1781 lb/acre. Loan values derived from grab samples ranged from a high of $0.5723 for Deltapine 1212B2RF to a low of $0.5357 for NexGen 1551RF. After applying lint loan values to lint yield, lint values ($/acre) ranged from $966.77 for Deltapine 104B2RF to $497.78 for NexGen 1551RF. When subtracting ginning and seed/technology fee costs from total value (lint value + seed value) net value averaged $697.44/acre across varieties. Significant differences were observed among varieties for net value with a range of from $1045.54/acre for Deltapine 104B2RF to $531.73/acre for NexGen 1551RF, a difference of $513.81.

Classing data derived from grab samples are reported in Table 4. Micronaire was highest for NexGen 1551RF 4.6 and lowest for Deltapine 1219B2RF at 3.2. Staple averaged 35.3 and was highest for Deltapine 1212B2RF (36.5) and lowest for NexGen 1551RF (33.7). The highest uniformity was observed in Deltapine 104B2RF with 81.5% while the lowest value of 78.0% was observed in NexGen 2051B2RF. Strength values ranged from a high of 33.7 g/tex for Deltapine 104B2RF to a low of 28.0 g/tex for NexGen 2051B2RF.

Location 3 – White Deer

At White Deer, lint turnouts of field-cleaned bur cotton ranged from a high of 35.8% for Deltapine 104B2RF to a low of 29.7% for NexGen 3348B2RF (Table 5). Seed turnout averaged 49.1% across all varieties. An average bur cotton yield of 5269 lb/acre was observed. Differences among varieties for seed turnout and bur cotton yield were not significant at this location. However, lint yields averaged 1725 lb/acre and differences were significant. Deltapine 104B2RF had the highest lint yield with 1932 lb/acre. Seed yields, significant at the 0.10 level, averaged 2586 lb/acre across varieties. Loan values derived from grab samples ranged from $0.5710 for NexGen 1551RF to $0.4765 for Deltapine 1219B2RF. After applying lint loan values to lint yield, lint values ($/acre) ranged from a high of $1,042.89 for Deltapine 104B2RF to a low of $691.09 for Deltapine 1219B2RF. After subtracting ginning and seed/technology costs from total value (lint value + seed value), net value ranged from a high of $1,129.83/acre (Deltapine 104B2RF) to a low of $729.84/acre (Deltapine 1219B2RF) and averaged $987.66/acre across varieties. Five other varieties were included in the statistical upper tier with Deltapine 104B2RF.

Classing data derived from grab samples are reported in Table 6. NexGen 1551RF had the highest micronaire of 4.1 and the lowest was observed in Deltapine 1219B2RF with 2.6. Staple length averaged 37.3 and was highest for FiberMax 9180B2F (38.4) and lowest for NexGen 1551RF (36.3). The highest uniformity value of 82.2% was observed in Deltapine 104B2RF. Strength values averaged 32.3 g/tex and ranged from a high of 33.9 g/tex for Deltapine 1219B2RF to a low of 29.9 g/tex for All-Tex Edge B2RF.

Location 4 – Pampa

At the Pampa location, FiberMax 9180B2F had the highest lint turnout of 35.9% and NexGen 3348B2RF had the lowest with 29.7% (Table 7). Seed turnout averaged 49.2% across varieties. Bur cotton yields averaged 4029 lb/acre and ranged from a high of 4637 lb/acre for Deltapine 1219B2RF and PhytoGen 367WRF to a low of 3240 lb/acre for NexGen 1551RF. This resulted in lint yields ranging from 1509 lb/acre (FiberMax 2011GT) to 1008 lb/acre (NexGen 1551RF) and an average seed yield of 1984 lb/acre. Loan values derived from grab samples ranged from a high of $0.5730 for Deltapine 104B2RF to a low of $0.5380 for NexGen 1551RF. After applying lint loan values to lint yield, lint values ($/acre) ranged from $860.93 for FiberMax 2011GT to $542.56 for NexGen 1551RF. When subtracting ginning and seed/technology fee costs from total value (lint value + seed value) net value averaged $794.06/acre across varieties. Significant differences were observed among varieties for net value with a range of from $909.80/acre for FiberMax 2011GT to $577.90/acre for NexGen 1551RF, a difference of $331.90. Several varieties (7) were included in the statistical upper tier with FiberMax 2011GT.

Classing data derived from grab samples are reported in Table 8. Micronaire was highest for NexGen 1551RF 5.1 and lowest for Deltapine 1219B2RF at 3.9. Staple averaged 37.2 and was highest for Deltapine 1219B2RF (38.4) and lowest for NexGen 1551RF (35.4). Uniformity averaged 80.8% and differences were not significant among varieties. Strength values ranged from a high of 34.7 g/tex for Deltapine 104B2RF to a low of 31.2 g/tex for PhytoGen 367WRF.

Summary and Conclusions

Over the last several years, cotton producers in the Texas Panhandle region have increased planted acreage of cotton from approximately 616 thousand in 2008 to approximately 1.25 million in 2011. Although acreage was down in 2012, cotton production is still a very important part of the economy in this region. With improved genetics and technologies, as well as rotational crop management systems, cotton yields in the Texas Panhandle topped 1.4 million bales in 2010. Characteristics commonly evaluated in small-plot testing include lint yield, turnout percentages, fiber quality, and earliness. Current small-plot variety testing programs are inadequate in scale and design to investigate the economic impact of new transgenic varieties with value-added traits. The objective of this project was to evaluate the profitability of cotton varieties in producers' fields in the Texas Panhandle. For scientific validity, three replications of each variety were included at each of four locations. Trials were conducted under irrigation in Sherman County (near Sunray), Moore County, (Dumas), Carson County (near White Deer), and Gray County (near Pampa). A randomized complete block design was used at all locations. Weed and insect control measures, if needed, and harvest aid applications were performed commercially or by cooperating producers. Plots were harvested with commercial harvesters by producers with assistance provided by program personnel at all locations. Plot weights were determined at harvest using a flat-bed scale trailer with integral electronic scales and bur cotton yields were subsequently calculated by plot. After grab samples from each location and each plot were ginned, lint and seed turnout values were applied to bur

cotton yields to determine lint and seed yeilds/acre. Lint samples resulting from the grab samples were submitted to the Texas Tech University - Fiber and Biopolymer Research Institute for HVI fiber analyses and CCC lint loan values were calculated. Due to extremely high and extraordinary leaf and color grades from grab samples, leaf and color grades were set at 3 and 21, respectively at all locations.

In 2012, cotton yields were outstanding in spite of the continued drought across most of the Texas High Plains and Northern Panhandle Regions. These high yields are attributed to not only excellent cotton genetics, but the cooler night-time temperatures experienced in the Texas Panhandle and high irrigation levels at some locations. A total of four irrigated locations were initiated in 2012 at Sunray, Dumas, White Deer and Pampa. The number of varieties planted at each location was 15, 14, 12, and 12, respectively. All locations were well maintained by the cooperating producers. Also, these locations were subjected to an early freeze event on 8-October and contributed to lower than expected micronaire values. At the Sunray location, lint turnouts of field-cleaned bur cotton averaged 32.5%. Bur cotton yields averaged 5447 lb/acre and no significant differences were observed among varieties. Lint yields ranged from a high of 2225 lb/acre for FiberMax 9058F to a low of 1510 lb/acre for PhytoGen 367WRF, and seed yields averaged 2625 lb/acre. Loan values derived from grab samples ranged from $0.5342 for NexGen 1551RF to $0.4677 for Deltapine 1219B2RF. After applying loan values to lint yields, the test average lint value was $861.03/acre. When subtracting ginning and seed/technology costs from total value (lint value + seed value) net value averaged $935.18/acre across varieties. Net values ranged from a high of $1,182.32/acre for FiberMax 9058F to a low of $756.36/acre for Deltapine 1219B2RF. At the Dumas location, Deltapine 104B2RF had the highest lint turnout of 35.2% and All-Tex Edge B2RF had the lowest with 29.5%. Seed turnout averaged 48.0% across varieties. Bur cotton yields averaged 3710 lb/acre and ranged from a high of 4840 lb/acre for Deltapine 104B2RF to a low of 2904 lb/acre for NexGen 1551RF. This resulted in lint yields ranging from 1702 lb/acre (Deltapine 104B2RF) to 929 lb/acre (NexGen 1551RF) and an average seed yield of 1781 lb/acre. Loan values derived from grab samples ranged from a high of $0.5723 for Deltapine 1212B2RF to a low of $0.5357 for NexGen 1551RF. After applying lint loan values to lint yield, lint values ($/acre) ranged from $966.77 for Deltapine 104B2RF to $497.78 for NexGen 1551RF. When subtracting ginning and seed/technology fee costs from total value (lint value + seed value) net value averaged $697.44/acre across varieties. Significant differences were observed among varieties for net value with a range of from $1045.54/acre for Deltapine 104B2RF to $531.73/acre for NexGen 1551RF, a difference of $513.81. At White Deer, lint turnouts of field-cleaned bur cotton ranged from a high of 35.8% for Deltapine 104B2RF to a low of 29.7% for NexGen 3348B2RF (Table 5). Seed turnout averaged 49.1% across all varieties. An average bur cotton yield of 5269 lb/acre was observed. Differences among varieties for seed turnout and bur cotton yield were not significant at this location. However, lint yields averaged 1725 lb/acre and differences were significant. Deltapine 104B2RF had the highest lint yield with 1932 lb/acre. Seed yields, significant at the 0.10 level, averaged 2586 lb/acre across varieties. Loan values derived from grab samples ranged from $0.5710 for NexGen 1551RF to $0.4765 for Deltapine 1219B2RF. After applying lint loan values to lint yield, lint values ($/acre) ranged from a high of $1,042.89 for Deltapine 104B2RF to a low of $691.09 for Deltapine 1219B2RF. After subtracting ginning and seed/technology costs from total value (lint value + seed value), net value ranged from a high of $1,129.83/acre (Deltapine 104B2RF) to a low of $729.84/acre (Deltapine 1219B2RF) and averaged $987.66/acre across varieties. Five other varieties were included in the statistical upper

tier with Deltapine 104B2RF. At the Pampa location, FiberMax 9180B2F had the highest lint turnout of 35.9% and NexGen 3348B2RF had the lowest with 29.7%. Seed turnout averaged 49.2% across varieties. Bur cotton yields averaged 4029 lb/acre and ranged from a high of 4637 lb/acre for Deltapine 1219B2RF and PhytoGen 367WRF to a low of 3240 lb/acre for NexGen 1551RF. This resulted in lint yields ranging from 1509 lb/acre (FiberMax 2011GT) to 1008 lb/acre (NexGen 1551RF) and an average seed yield of 1984 lb/acre. Loan values derived from grab samples ranged from a high of $0.5730 for Deltapine 104B2RF to a low of $0.5380 for NexGen 1551RF. After applying lint loan values to lint yield, lint values ($/acre) ranged from $860.93 for FiberMax 2011GT to $542.56 for NexGen 1551RF. When subtracting ginning and seed/technology fee costs from total value (lint value + seed value) net value averaged $794.06/acre across varieties. Significant differences were observed among varieties for net value with a range of from $909.80/acre for FiberMax 2011GT to $577.90/acre for NexGen 1551RF, a difference of $331.90. Several varieties (7) were included in the statistical upper tier with FiberMax 2011GT.

These data indicate that substantial differences can be observed in terms of net value/acre due to variety and technology selection. The differences in net value/acre, when comparing the top and bottom varieties at the Texas Panhandle locations, differences were approximately $432 (Sunray), $513 (Dumas), $400 (White Deer), and $332 (Pampa). Additional multi-site and multi-year applied research is needed to evaluate varieties across a series of environments.

Acknowledgments

We wish to express our appreciation to the producer-cooperators: Tommy Cartrite of Sunray, Stan Spain of Dumas, and Dudley Ponhert of Pampa (White Deer and Pampa locations) for providing the land, equipment and time to conduct these projects. Furthermore, we thank Dr. Jane Dever – Texas A&M AgriLife Research for use of her ginning facilities and Dr. Eric Hequet – Texas Tech University Fiber and Biopolymer Research Institure for HVI fiber quality analyses. And finally, our deepest gratitude to Cotton Incorporated – Texas State Support Committee for their generocity in funding for this and other research projects.

Table 1. Harvest results from the Large Plot Irrigated Cotton Variety Trial, Tommy Cartrite Farm, Sherman County, TX, 2012.

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 ----------						
FiberMax 9058F	35.3	49.7	6304	2225	3134	0.4818	1072.08	391.73	1463.81	189.12	86.37	1188.32	a
FiberMax 2011GT	34.3	46.3	6328	2168	2930	0.4735	1026.62	366.21	1392.82	189.85	83.14	1119.83	ab
NexGen 2051B2RF	34.0	51.5	5675	1929	2923	0.5042	972.77	365.40	1338.17	170.25	87.04	1080.88	abc
FiberMax 9250GL	32.6	47.3	6123	1997	2895	0.4688	936.41	361.83	1298.24	183.68	86.19	1028.38	abcd
Deltapine 104B2RF	35.0	50.3	5602	1959	2819	0.4755	931.47	352.32	1283.80	168.07	91.75	1023.98	abcd
NexGen 1551RF	32.3	51.2	4913	1585	2517	0.5342	846.87	314.58	1161.45	147.38	70.73	943.34	bcde
Dyna-Gro 2285B2RF	32.7	48.1	5265	1721	2531	0.4782	822.91	316.36	1139.27	157.94	97.53	883.80	cde
Deltapine 1212B2RF	29.7	45.7	5614	1670	2568	0.4947	825.93	321.03	1146.96	168.43	95.23	883.29	cde
FiberMax 1740B2F	34.5	46.6	4997	1724	2330	0.4855	837.17	291.30	1128.47	149.92	97.42	881.13	cde
NexGen 3348B2RF	28.7	47.7	5820	1667	2779	0.4752	792.32	347.35	1139.67	174.60	87.04	878.02	cde
FiberMax 9180B2F	33.8	47.3	4913	1662	2325	0.4995	830.35	290.63	1120.98	147.38	97.42	876.18	cde
Dyna-Gro CT12222B2RF	33.9	49.9	4888	1658	2438	0.4912	814.35	304.78	1119.12	146.65	97.53	874.94	cde
All-Tex Edge B2RF	30.2	48.3	5174	1561	2498	0.4830	754.02	312.21	1066.23	155.22	91.03	819.99	de
PhytoGen 367WRF	30.9	47.5	4891	1510	2322	0.4927	743.75	290.29	1034.04	146.72	98.11	789.20	e
Deltapine 1219B2RF	29.1	45.5	5203	1515	2367	0.4677	708.35	295.85	1004.20	156.09	91.75	756.36	e
Test average	32.5	48.2	5447	1770	2625	0.4870	861.03	328.12	1189.15	163.42	90.55	935.18	
CV, %	3.3	3.4	12.7	13.0	12.9	2.8	13.1	12.9	13.1	12.7	--	14.4	
OSL	<0.0001	0.0007	0.1133	0.0069	0.0815†	0.0002	0.0155	0.0814†	0.0326	0.1133	--	0.0148	
LSD	1.8	2.7	NS	386	470	0.0225	189.30	58.69	259.90	NS	--	225.33	

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, †indicates significance at the 0.10 level, NS - not significant.
Note: some columns may not add up due to rounding error.

Assumes:
$3.00/cwt ginning cost.
$250/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 Large Plot Irrigated Cotton Variety Trial, Tommy Cartrite Farm, Sherman County, TX, 2012.

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 Edge B2RF	2.6	36.8	79.0	32.3	9.0	3.0	81.0	7.6	2.0	1.0
Deltapine 104B2RF	2.4	36.6	80.2	32.5	9.6	3.0	80.9	7.7	2.0	1.0
Deltapine 1212B2RF	2.6	37.4	79.9	32.7	10.4	3.0	78.2	8.1	2.0	1.0
Deltapine 1219B2RF	2.4	37.8	78.1	32.0	8.6	3.0	83.1	8.5	2.0	1.0
Dyna-Gro 2285B2RF	2.5	36.4	80.7	33.0	8.2	3.0	82.9	7.7	2.0	1.0
Dyna-Gro CT12222B2RF	2.6	36.7	80.0	30.7	10.2	3.0	81.2	8.4	2.0	1.0
FiberMax 1740B2F	2.7	36.1	80.1	31.4	8.9	3.0	82.0	7.8	2.0	1.0
FiberMax 2011GT	2.4	36.8	79.8	31.5	8.4	3.0	82.8	7.2	2.0	1.0
FiberMax 9058F	2.5	37.7	79.4	31.5	7.5	3.0	81.9	7.3	2.0	1.0
FiberMax 9180B2F	2.7	38.3	81.1	33.3	8.6	3.0	83.2	7.4	2.0	1.0
FiberMax 9250GL	2.4	36.9	77.5	30.8	7.8	3.0	81.8	7.1	2.0	1.0
NexGen 1551RF	3.3	35.3	79.2	32.0	8.8	3.0	78.3	9.1	2.0	1.0
NexGen 2051B2RF	2.9	36.6	78.4	28.7	8.6	3.0	81.2	7.3	2.0	1.0
NexGen 3348B2RF	2.5	36.9	80.3	31.7	9.0	3.0	80.8	8.0	2.0	1.0
PhytoGen 367WRF	2.7	36.6	79.7	31.9	9.4	3.0	80.4	8.7	2.0	1.0
Test average	2.6	36.8	79.6	31.7	8.9	3.0	81.3	7.9	2.0	1.0
CV, %	5.9	1.2	1.2	3.4	2.7	--	1.5	2.7	--	--
OSL	<0.0001	<0.0001	0.0042	0.0037	<0.0001	--	0.0002	<0.0001	--	--
LSD	0.3	0.7	1.6	1.8	0.4	--	2.0	0.3	--	--

CV - coefficient of variation.
OSL - observed significance level, or probability of a greater F value.
LSD - least significant difference at the 0.05 level.

* - leaf grades set at 3 and color grades set at 21 for all varieties.

Table 3. Harvest results from the Large Plot Irrigated Cotton Variety Trial, Stan Spain Farm, Moore County, TX, 2012.

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 ----------						
Deltapine 104B2RF	35.2	50.6	4840	1702	2449	0.5680	966.77	306.13	1272.90	145.20	82.16	1045.54	a
Dyna-Gro 2285B2RF	35.1	51.6	3969	1392	2046	0.5657	787.13	255.79	1042.92	119.06	87.34	836.52	b
PhytoGen 367WRF	30.4	46.7	4340	1317	2027	0.5573	734.23	253.37	987.60	130.20	87.86	769.54	bc
FiberMax 2011GT	34.0	46.0	3840	1307	1767	0.5637	736.83	220.84	957.67	115.19	74.45	768.03	bc
FiberMax 9250GL	32.2	46.7	3937	1268	1839	0.5660	717.44	229.82	947.26	118.10	77.18	751.99	bcd
Deltapine 1212B2RF	29.9	46.1	3927	1176	1809	0.5723	672.87	226.09	898.96	117.81	85.28	695.87	cde
FiberMax 9058F	33.3	47.0	3549	1183	1667	0.5513	652.40	208.33	860.72	106.48	77.35	676.90	cdef
NexGen 2051B2RF	32.1	48.7	3517	1130	1713	0.5465	617.73	214.10	831.84	105.51	77.95	648.38	defg
NexGen 3348B2RF	29.9	49.9	3614	1082	1803	0.5607	606.39	225.34	831.73	108.42	77.95	645.36	defg
Dyna-Gro CT12222B2RF	32.4	47.6	3433	1111	1635	0.5673	630.53	204.32	834.85	103.00	87.34	644.52	defg
Deltapine 1219B2RF	29.7	46.4	3638	1080	1687	0.5395	582.50	210.91	793.40	109.14	82.16	602.10	efg
FiberMax 9180B2F	33.4	46.8	3049	1019	1426	0.5668	577.76	178.21	755.97	91.48	87.25	577.25	fg
All-Tex Edge B2RF	29.5	47.1	3388	998	1597	0.5552	554.03	199.61	753.64	101.64	81.52	570.48	fg
NexGen 1551RF	32.0	50.8	2904	929	1475	0.5357	497.78	184.40	682.19	87.12	63.34	531.73	g
Test average	32.1	48.0	3710	1192	1781	0.5583	666.74	222.66	889.40	111.31	80.65	697.44	
CV, %	2.7	2.8	9.2	9.0	9.2	1.3	9.0	9.2	9.0	9.2	--	10.1	
OSL	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	--	<0.0001	
LSD	1.5	2.2	572	181	275	0.0125	100.84	34.31	135.09	17.16	--	117.94	

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.
$250/ton for seed.
Value for lint based on CCC loan value from grab samples and FBRI HVI results.

Table 4. HVI fiber property results from the Large Plot Irrigated Cotton Variety Trial, Stan Spain Farm, Moore County, TX, 2012.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf*	Rd	+b	Color grade*	
	units	32^{nds} inch	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
Deltapine 104B2RF	3.6	35.4	81.5	33.7	10.0	3.0	73.8	11.7	2.0	1.0
Deltapine 1212B2RF	3.9	36.5	80.4	32.8	9.5	3.0	70.2	12.9	2.0	1.0
Dyna-Gro 2285B2RF	3.9	35.1	80.5	31.6	7.6	3.0	71.9	12.1	2.0	1.0
Deltapine 1219B2RF	3.2	36.3	80.4	31.6	8.2	3.0	74.2	12.2	2.0	1.0
FiberMax 9180B2F	3.8	36.2	79.3	31.0	8.1	3.0	74.8	11.2	2.0	1.0
Dyna-Gro CT12222B2RF	3.7	35.2	80.6	31.0	9.9	3.0	71.9	12.6	2.0	1.0
NexGen 3348B2RF	3.7	35.1	79.8	30.8	8.2	3.0	72.1	12.0	2.0	1.0
NexGen 1551RF	4.6	33.7	78.8	30.7	8.7	3.0	72.3	11.4	2.0	1.0
All-Tex Edge B2RF	4.0	34.8	78.9	30.6	8.0	3.0	73.3	11.8	2.0	1.0
FiberMax 9250GL	3.8	35.8	80.0	30.5	7.4	3.0	72.3	11.0	2.0	1.0
PhytoGen 367WRF	3.6	35.4	80.5	30.5	9.3	3.0	70.7	12.9	2.0	1.0
FiberMax 2011GT	4.0	35.2	80.1	30.3	7.8	3.0	72.7	11.1	2.0	1.0
FiberMax 9058F	3.6	35.5	79.1	28.6	7.3	3.0	74.1	11.3	2.0	1.0
NexGen 2051B2RF	4.0	34.6	78.0	28.0	7.7	3.0	72.5	11.1	2.0	1.0
Test average	3.8	35.3	79.8	30.8	8.4	3.0	72.6	11.8	2.0	1.0
CV, %	2.5	1.4	0.8	2.6	4.0	--	1.8	2.4	--	--
OSL	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	--	0.0079	<0.0001	--	--
LSD	0.2	0.8	1.0	1.3	0.6	--	2.2	0.5	--	--

CV - coefficient of variation.
OSL - observed significance level, or probability of a greater F value.
LSD - least significant difference at the 0.05 level.

* - leaf grades set at 3 and color grades set at 21 for all varieties.

Table 5. Harvest results from the Large Plot Irrigated Cotton Variety Trial, Dudley Ponhert Farm, Carson County, TX, 2012.

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 ----------						
Deltapine 104B2RF	35.8	51.5	5400	1932	2780	0.5397	1042.89	347.53	1390.41	161.99	98.60	1129.83	a
FiberMax 9250GL	34.5	50.0	5529	1906	2763	0.5263	1003.25	345.32	1348.57	165.88	92.62	1090.07	ab
FiberMax 2011GT	34.9	47.2	5420	1893	2558	0.5168	978.50	319.81	1298.31	162.61	89.35	1046.35	abc
NexGen 2051B2RF	32.8	49.7	5436	1782	2700	0.5362	955.33	337.44	1292.77	163.08	93.54	1036.16	abc
NexGen 1551RF	32.2	51.1	5064	1629	2586	0.5710	930.41	323.28	1253.68	151.92	76.01	1025.76	abc
All-Tex Edge B2RF	31.6	50.5	5420	1710	2736	0.5397	922.77	342.00	1264.76	162.59	97.82	1004.35	abc
FiberMax 9180B2F	34.9	48.8	5245	1831	2561	0.5080	930.25	320.11	1250.37	157.36	104.69	988.31	bc
Deltapine 1212B2RF	30.9	47.5	5436	1678	2581	0.5487	920.44	322.57	1243.01	163.08	102.34	977.59	bc
FiberMax 9058F	34.1	48.0	4910	1673	2356	0.5505	920.73	294.47	1215.20	147.29	92.81	975.10	bc
PhytoGen 367WRF	31.5	48.4	5363	1688	2597	0.5167	872.11	324.59	1196.70	160.90	105.43	930.37	c
NexGen 3348B2RF	29.7	49.5	5146	1528	2547	0.5547	847.65	318.42	1166.07	154.37	93.54	918.17	c
Deltapine 1219B2RF	29.8	46.6	4864	1450	2266	0.4765	691.09	283.27	974.36	145.93	98.60	729.84	d
Test average	32.7	49.1	5269	1725	2586	0.5321	917.95	323.23	1241.18	158.08	95.45	987.66	
CV, %	4.9	5.0	7.3	7.4	7.4	4.7	7.4	7.4	7.4	7.3	--	8.1	
OSL	0.0005	0.3143	0.4786	0.0021	0.0875†	0.0122	0.0006	0.0873†	0.0034	0.4790	--	0.0009	
LSD	2.7	NS	NS	216	268	0.0421	115.36	33.55	155.85	NS	--	136.25	

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, †indicates significance at the 0.10 level, NS - not significant.
Note: some columns may not add up due to rounding error.

Assumes:
$3.00/cwt ginning cost.
$250/ton for seed.
Value for lint based on CCC loan value from grab samples and FBRI HVI results.

Table 6. HVI fiber property results from the Large Plot Irrigated Cotton Variety Trial, Dudley Ponhert Farm, Carson County, TX, 2012.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32^{nds} inch	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
All-Tex Edge B2RF	3.3	36.8	79.5	29.9	8.9	3.0	78.2	7.1	2.0	1.0
Deltapine 104B2RF	3.1	37.0	82.2	33.2	9.9	3.0	79.1	7.9	2.0	1.0
Deltapine 1212B2RF	3.3	37.9	81.9	32.8	9.9	3.0	77.1	8.1	2.0	1.0
Deltapine 1219B2RF	2.6	38.1	79.9	33.9	9.0	3.0	79.8	8.6	2.0	1.0
FiberMax 2011GT	3.0	37.6	80.7	31.8	9.1	3.0	79.1	7.8	2.0	1.0
FiberMax 9058F	3.4	36.9	81.2	31.1	9.8	3.0	78.9	8.2	2.0	1.0
FiberMax 9180B2F	2.9	38.4	81.2	32.9	8.8	3.0	79.6	8.0	2.0	1.0
FiberMax 9250GL	3.0	36.8	80.0	32.5	8.0	3.0	78.2	8.1	2.0	1.0
NexGen 1551RF	4.1	36.3	81.1	33.6	9.2	3.0	76.6	8.3	2.0	1.0
NexGen 2051B2RF	3.2	37.2	80.3	30.9	8.8	3.0	78.5	7.6	2.0	1.0
NexGen 3348B2RF	3.3	37.2	81.4	32.6	9.4	3.0	78.6	8.3	2.0	1.0
PhytoGen 367WRF	2.9	37.2	80.3	31.9	10.2	3.0	78.9	9.1	2.0	1.0
Test average	3.2	37.3	80.8	32.3	9.3	3.0	78.5	8.1	2.0	1.0
CV, %	10.5	1.5	0.9	2.7	8.1	--	1.8	4.3	--	--
OSL	0.0029	0.0077	0.0016	0.0003	0.0825†	--	0.2558	0.0001	--	--
LSD	0.6	1.0	1.2	1.5	1.1	--	NS	0.6	--	--

CV - coefficient of variation.
OSL - observed significance level, or probability of a greater F value.
LSD - least significant difference at the 0.05 level, †indicates significance at the 0.10 level, NS - not significant

* - leaf grades set at 3 and color grades set at 21 for all varieties.

Table 7. Harvest results from the Large Plot Irrigated Cotton Variety Trial, Dudley Ponhert Farm, Gray County, TX, 2012.

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 ----------						
FiberMax 2011GT	35.8	48.3	4220	1509	2039	0.5705	860.93	254.89	1115.82	126.60	79.42	909.80	a
PhytoGen 367WRF	31.8	48.8	4637	1472	2265	0.5695	838.50	283.13	1121.64	139.12	93.72	888.80	ab
Deltapine 104B2RF	35.0	50.3	4156	1454	2091	0.5730	832.89	261.42	1094.31	124.69	87.64	881.98	ab
NexGen 2051B2RF	33.5	50.7	4320	1446	2191	0.5665	819.24	273.88	1093.12	129.59	83.14	880.38	ab
Deltapine 1219B2RF	31.1	48.6	4637	1442	2253	0.5715	824.07	281.69	1105.76	139.12	87.64	879.00	ab
FiberMax 9250GL	34.4	49.8	4155	1428	2069	0.5700	813.75	258.62	1072.37	124.66	82.33	865.37	ab
Deltapine 1212B2RF	31.9	49.0	4038	1287	1980	0.5730	737.52	247.52	985.04	121.15	90.97	772.92	abc
All-Tex Edge B2RF	30.9	49.5	4129	1276	2042	0.5692	726.33	255.23	981.56	123.87	86.95	770.74	abc
FiberMax 9058F	33.3	46.9	3784	1261	1776	0.5682	716.34	221.98	938.33	113.53	82.50	742.30	bc
FiberMax 9180B2F	35.9	50.2	3272	1174	1641	0.5728	672.24	205.16	877.40	98.17	93.06	686.17	cd
NexGen 3348B2RF	29.7	49.4	3757	1114	1856	0.5720	637.19	232.05	869.24	112.71	83.14	673.38	cd
NexGen 1551RF	31.1	49.4	3240	1008	1601	0.5380	542.56	200.10	742.66	97.19	67.56	577.90	d
Test average	32.8	49.2	4029	1323	1984	0.5678	751.80	247.97	999.77	120.87	84.84	794.06	
CV, %	3.3	3.4	10.2	10.2	10.2	0.6	10.2	10.2	10.2	10.2	--	11.3	
OSL	<0.0001	0.3840	0.0053	0.0018	0.0047	<0.0001	0.0008	0.0047	0.0017	0.0053	--	0.0018	
LSD	1.9	NS	699	228	341	0.0061	129.98	42.67	172.58	20.97	--	151.64	

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.
$250/ton for seed.
Value for lint based on CCC loan value from grab samples and FBRI HVI results.

Table 8. HVI fiber property results from the Large Plot Irrigated Cotton Variety Trial, Dudley Ponhert Farm, Gray County, TX, 2012.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32^{nds} inch	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
All-Tex Edge B2RF	4.6	36.5	80.0	31.2	9.4	3.0	77.5	7.1	2.0	1.0
Deltapine 104B2RF	4.4	37.4	81.6	34.7	10.0	3.0	77.9	7.6	2.0	1.0
Deltapine 1212B2RF	4.7	37.8	81.3	34.3	10.7	3.0	75.9	8.0	2.0	1.0
Deltapine 1219B2RF	3.9	38.4	80.4	34.3	9.1	3.0	79.2	7.6	2.0	1.0
FiberMax 2011GT	4.4	37.5	81.0	31.4	8.4	3.0	78.2	7.1	2.0	1.0
FiberMax 9058F	4.5	37.5	80.0	31.2	8.4	3.0	77.2	6.9	2.0	1.0
FiberMax 9180B2F	4.6	38.1	81.3	34.3	9.5	3.0	79.7	7.3	2.0	1.0
FiberMax 9250GL	4.7	37.1	80.4	31.7	7.8	3.0	79.2	7.2	2.0	1.0
NexGen 1551RF	5.1	35.4	80.8	33.1	9.0	3.0	73.4	8.0	2.0	1.0
NexGen 2051B2RF	4.5	36.7	80.0	31.4	9.2	3.0	77.5	7.2	2.0	1.0
NexGen 3348B2RF	4.4	37.2	81.8	32.3	8.9	3.0	75.5	7.4	2.0	1.0
PhytoGen 367WRF	4.3	36.9	80.5	31.2	9.8	3.0	77.2	7.6	2.0	1.0
Test average	4.5	37.2	80.8	32.6	9.2	3.0	77.4	7.4	2.0	1.0
CV, %	3.4	1.5	1.0	3.9	6.3	--	1.6	8.3	--	--
OSL	<0.0001	0.0001	0.1309	0.0029	0.0003	--	0.0002	0.5198	--	--
LSD	0.3	0.9	NS	2.1	1.0	--	2.1	NS	--	--

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

* - leaf grades set at 3 and color grades set at 21 for all varieties.

Replicated Dryland Large Plot Demonstration

Replicated Dryland RACE Variety Demonstration, Floydada, TX - 2012

Cooperator: Gary Nixon

Mark Kelley, Chris Ashbrook, Ethan Fortenberry, and Dustin Patman
Extension Agronomist – Cotton, Extension Assistant – Cotton, CEA-ANR Floyd County, and EA-IPM Crosby/Floyd Counties

Floyd County

Objective: The objective of this project was to compare agronomic characteristics, yields, gin turnout, fiber quality, and economic returns of transgenic cotton varieties under dryland production in the Texas High Plains.

Materials and Methods:

Varieties:	All-Tex Edge B2RF, Deltapine 1044B2RF, Deltapine 0912B2RF, Dyna-Gro 2400RF, FiberMax 9170B2F, NexGen 4111RF, PhytoGen 499WRF, and Stoneville 5458B2RF
Experimental design:	Randomized complete block with three (3) replications.
Seeding rate:	2.3 seed/row-ft in 40 inch row spacings. (John Deere 1700 Vacuum planter)
Plot size:	8 rows by variable length (1320-1542)
Planting date:	25-May
Weed management:	Roundup PowerMax was applied over-the-top at 28 oz/acre with AMS on 12-June and 2-July.
Rainfall:	Based on the nearest Texas Tech University – West Texas Mesonet station at Floydada, rainfall amounts were:

April:	0.31”	August:	1.02”
May:	0.63”	September:	2.17”
June:	2.26”	October:	0.44”
July:	0.12”		

Total rainfall: 6.95”

Insecticides:	This location is in an active boll weevil eradication zone, but no applications were made by the Texas Boll Weevil Eradication Program.
Fertilizer management:	Soil test results prior to planting accounted for 117 lbs N/acre available in the soil and no additional fertilizer was applied by producer.
Plant growth regulators:	None were applied at this location.
Harvest aids:	Harvest aids included an application of 20 oz/acre Gramoxone Inteon with 0.25% v/v non-ionic surfactant.
Harvest:	Plots were harvested on 6-November using a commercial John Deere 7460 with field cleaner. Harvested material was transferred to a weigh wagon with integral electronic scales to record individual plot weights. Plot weights were subsequently converted to lb/acre basis.
Gin turnout:	Grab samples were taken by plot and ginned at the Texas A&M 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 cost were based on $3.00 per cwt. of bur cotton and seed value/acre was based on $250/ton. Ginning cost did not include check-off.
Seed and Technology fees:	Seed and technology costs were calculated using the appropriate seeding rate (2.3 seed/row-ft) for the 40-inch row spacing and entries using the online Plains Cotton Growers Seed Cost Comparison Worksheet available at: http://www.plainscotton.org/Seed/PCGseed12.xls .

Results and Discussion:

Agronomic data including final plant map data are included in Tables 1-2.

Significant differences were noted for most yield and economic parameters (Table 3). Lint turnout averaged 36.3% and with a high of 38.3% for Dyna-Gro 2400RF and PhytoGen 499WRF and low of 32.5% for All-Tex Edge B2RF. Bur cotton yields were significant (alpha = 0.10) and averaged 833 lb/acre. Lint yields averaged 302 lb/acre but were not significant. Lint loan values ranged from a low of $0.4990/lb to a high of $0.5642/lb for Deltapine 1044B2RF and Deltapine 1212B2RF, respectively. When adding lint and seed value, total value averaged $210.35/acre and ranged from a high of $232.49/acre for Deltapine 1212B2RF to a low of $195.94/acre for Deltapine 1044B2RF. After subtracting ginning, seed costs and technology fees, the net value/acre among varieties ranged from a high of $163.27/acre (Deltapine 1212B2RF) to a low of $129.34/acre (Stoneville 5458B2RF), a difference of $33.93.

Significant differences were observed among varieties for most fiber quality parameters at this location (Table 4). Micronaire values averaged 4.2 but were not significant. Staple averaged 32.8 across all varieties with a high of 34.7 for Deltapine 1212B2RF and a low of 32.1 for Deltapine 1044B2RF. Uniformity ranged from a high of 81.1% for NexGen 4111RF to a low of 76.9% for All-Tex Edge B2RF with a test average of 79.5%. Strength ranged from a low of 27.2 g/tex for All-Tex Edge B2RF to a high of 31.9 g/tex for Deltapine 1212 B2RF. Elongation averaged 10.6% across and leaf grades were mostly 1 and 2. Color grade components of Rd (reflectance) and +b (yellowness) averaged 80.1 and 8.4, respectively and resulted in color grades of mostly 21.

These data indicate that substantial differences can be obtained in terms of net value/acre due to variety selection. Additional multi-site and multi-year applied research is needed to evaluate varieties across a series of environments.

Acknowledgments:

Appreciation is expressed to Gary Nixon for the use of his land, equipment and labor for this demonstration. Further assistance with this project was provided by Dr. Jane Dever - Texas A&M AgriLife Research and Extension Center, Lubbock, and Dr. Eric Hequet - Associate Director, Fiber and Biopolymer Research Institute, Texas Tech University. Furthermore, we greatly appreciate the Texas Department of Agriculture - Food and Fiber Research for funding of HVI testing.

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. Final plant map results from the Floyd County dryland RACE variety demonstration, Gary Nixon Farm, Floydada, TX, 2012.

Entry	Final plant map 27-Sept					
	plant height (inches)	node of first fruiting branch	total mainstem nodes	height to node ratio	total fruiting branches	open boll (%)
All-Tex Edge B2RF	18.0	7.2	15.1	1.2	8.8	94.3
Dyna-Gro 2400RF	19.0	8.1	15.3	1.2	8.3	94.0
Deltapine 0912B2RF	18.0	7.4	14.7	1.2	8.3	92.7
Deltapine 1044B2RF	17.2	8.1	15.0	1.1	7.9	70.1
FiberMax 9170B2F	18.7	8.6	16.3	1.1	8.8	66.6
NexGen 4111RF	20.0	7.6	15.7	1.3	9.2	91.8
PhytoGen 499WRF	19.1	8.4	15.2	1.3	7.7	79.9
Stoneville 5458B2RF	17.9	8.1	15.2	1.2	8.2	68.5
Test average	18.5	7.9	15.3	1.2	8.4	82.2
CV, %	7.5	5.9	4.2	6.1	5.1	14.9
OSL	0.3661	0.0276	0.1535	0.3670	0.0104	0.0355
LSD	NS	0.8	NS	NS	0.7	21.4

For Final plant map, numbers represent and average of 6 plants per variety per rep (18 plants per variety)
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

Table 2. Final plant map results from the Floyd County dryland RACE variety demonstration, Gary Nixon Farm, Floydada, TX, 2012.

Entry	Fruiting and Retention 27-Sept					
	% of fruit from 1st position	% of fruit from 2nd position	total fruit	1st position retention (%)	2nd position retention (%)	total retention (%)
All-Tex Edge B2RF	63.8	36.2	7.0	49.7	38.9	44.95
Dyna-Gro 2400RF	66.9	33.1	5.7	45.4	34.8	40.14
Deltapine 0912B2RF	76.4	23.6	5.9	53.9	24.5	41.27
Deltapine 1044B2RF	76.4	23.6	5.5	51.4	23.2	39.31
FiberMax 9170B2F	78.2	21.8	6.1	51.5	24.2	39.82
NexGen 4111RF	68.0	32.0	6.6	45.5	32.7	39.87
PhytoGen 499WRF	70.8	29.2	5.2	47.0	27.7	38.78
Stoneville 5458B2RF	78.4	21.6	5.6	51.2	20.1	37.67
Test average	72.4	27.6	5.9	49.4	28.3	40.23
CV, %	8.3	21.8	16.4	13.4	26.6	14.8
OSL	0.0545†	0.0545†	0.3892	0.6944	0.0917†	0.8868
LSD	8.7	8.7	NS	NS	10.8	NS

For Final plant map, numbers represent and average of 6 plants per variety per rep (18 plants per variety)
CV - coefficient of variation.
OSL - observed significance level, or probability of a greater F value.
LSD - least significant difference at the 0.05 level, †indicates significance at the 0.10 level, NS - not significant

Table 3. Harvest results from the Floyd County dryland RACE variety demonstration, Gary Nixon Farm, Floydada, TX, 2012.

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 ----------						
Deltapine 1212B2RF	34.9	52.3	886	309	463	0.5642	174.61	57.88	232.49	26.58	42.64	163.27	a
NexGen 4111RF	36.5	52.1	821	300	428	0.5388	161.56	53.48	215.05	24.62	31.67	158.76	ab
Dyna-Gro 2400RF	38.3	52.3	826	316	432	0.5128	162.02	53.94	215.96	24.77	38.71	152.48	abc
FiberMax 9170B2F	37.6	49.7	830	312	413	0.5177	161.53	51.59	213.12	24.90	43.62	144.60	bcd
All-Tex Edge B2RF	32.5	52.7	903	294	476	0.5037	147.96	59.44	207.40	27.09	40.76	139.55	cd
PhytoGen 499WRF	38.3	48.8	804	308	393	0.5103	157.09	49.07	206.16	24.13	43.93	138.09	cd
Deltapine 1044B2RF	36.1	50.4	805	291	406	0.4990	145.20	50.74	195.94	24.16	41.08	130.70	d
Stoneville 5458B2RF	36.0	54.4	791	285	430	0.5020	142.91	53.77	196.68	23.72	43.62	129.34	d
Test average	36.3	51.6	833	302	430	0.5186	156.61	53.74	210.35	25.00	40.76	144.60	
CV, %	3.4	2.4	5.6	5.6	5.6	2.6	5.6	5.6	5.6	5.6	--	7.2	
OSL	0.0009	0.0017	0.0968†	0.3029	0.0128	0.0005	0.0087	0.0127	0.0380	0.098†	--	0.0089	
LSD	2.2	2.2	67	NS	42	0.0237	15.38	5.27	20.63	2.02	--	18.18	

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, †indicates significance at the 0.10 level, NS - not significant.
Note: some columns may not add up due to rounding error.

Assumes:
$3.00/cwt ginning cost.
$250/ton for seed.
Value for lint based on CCC loan value from grab samples and FBRI HVI results.

Table 4. HVI fiber property results from the Floyd County dryland RACE variety demonstration, Gary Nixon Farm, Floydada, TX, 2012.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32^{nds} inch	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
All-Tex Edge B2RF	4.1	32.2	76.9	27.2	9.4	2.3	80.4	7.8	2.3	1.0
Dyna-Gro 2400RF	4.2	32.6	79.7	28.5	11.2	1.3	79.4	8.8	2.0	1.0
Deltapine 1044B2RF	4.1	32.1	79.1	29.3	11.5	1.0	81.0	8.4	2.0	1.0
Deltapine 1212B2RF	4.1	34.7	80.6	31.9	11.4	1.3	78.2	8.8	2.7	1.0
FiberMax 9170B2F	4.0	33.0	79.3	28.8	9.3	1.0	82.5	7.6	2.0	1.0
NexGen 4111RF	4.3	33.4	81.1	31.7	10.9	1.0	79.5	8.9	2.0	1.0
PhytoGen 499WRF	4.4	32.3	80.6	30.5	11.7	1.7	80.4	8.5	2.0	1.0
Stoneville 5458B2RF	4.2	32.3	78.5	27.6	9.7	1.7	79.1	8.7	2.0	1.0
Test average	4.2	32.8	79.5	29.4	10.6	1.4	80.1	8.4	2.1	1.0
CV, %	4.6	2.0	1.2	3.2	2.6	38.9	0.8	2.3	--	--
OSL	0.2426	0.0046	0.0023	0.0001	<0.0001	0.1100	<0.0001	<0.0001	--	--
LSD	NS	1.2	1.7	1.6	0.5	NS	1.1	0.3	--	--

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

Replicated Dryland Cotton Variety Trial - 2012

Cooperator: Cody Walters

Manda Anderson, Extension Agent - IPM
Dr. Mark Kelley, Extension Agronomist - Cotton

Gaines County

Summary: Significant differences were noted for lint turnout and net value. Lint turnout averaged 22.2% with a high of 23.8% and low of 20.4% for Deltapine 1044B2RF and Stoneville 5458B2RF, respectively. After subtracting ginning, seed costs and technology fees, the net value/acre among varieties ranged from a high of $94.44/acre (Deltapine 1044B2RF) to a low of $63.50/acre (Phytogen 375WRF), a difference of $30.94.

Significant differences were observed among varieties for micronaire, elongation, leaf, and reflectance. Micronaire values ranged from a low of 3.0 for Stoneville 5458B2RF to a high of 3.9 for All-Tex Epic RF. Elongation averaged 7.0% across varieties with a high of 7.8% for Phytogen 499WRF and a low of 6.3% for Stoneville 5458B2RF. Color grade components of Rd (reflectance) and +b (yellowness) averaged 80.4 and 8.5, respectively.

These data indicate that differences can be obtained in terms of net value/acre due to variety selection. Additional multi-site and multi-year applied research is needed to evaluate varieties across a series of environments.

Objective: The objective of this project was to compare agronomic characteristics, yields, gin turnout, fiber quality, and economic returns of transgenic cotton varieties under dryland production in the Texas High Plains.

Materials and Methods:

Varieties: All-Tex Edge B2RF, All-Tex Epic RF, Deltapine 1044B2RF, Deltapine 1219B2RF, FiberMax 2989GLB2, PhytoGen 375WRF, PhytoGen 499WRF, and Stoneville 5458B2RF

Experimental design: Randomized complete block with three (3) replications.

Seeding rate:	2.5 seed/row-ft in 40 inch row spacings.
Plot size:	6 rows by variable length (1456 to 1713 feet)
Planting date:	28-May
Irrigation:	2.5" of irrigation were applied via LESA irrigation preplant with 14.5" of LEPA irrigation during the growing season for a total of 17" applied irrigation.
Rainfall:	7.73 inches of rainfall from 5-June to 1-October
Harvest:	Plots were harvested on 14-November using a commercial stripper harvester without a field cleaner. Harvested material was transferred to a weigh wagon with integral electronic scales to record individual plot weights. Plot weights were subsequently converted to lb/acre basis.
Gin turnout:	Grab samples were taken by plot and ginned at the Texas A&M 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 cost were based on $3.00 per cwt. of bur cotton and seed value/acre was based on $250/ton. Ginning cost did not include check-off.
Seed and Technology fees:	Seed and technology costs were calculated using the appropriate seeding rate (2.5 seed/row-ft) for the 40-inch row spacing and entries using the online Plains Cotton Growers Seed Cost Comparison Worksheet available at: http://www.plainscotton.org/Seed/PCGseed12.xls .

Results and Discussion:

Significant differences were noted for lint turnout and net value (Table 1). Lint turnout averaged 22.2% with a high of 23.8% and low of 20.4% for Deltapine 1044B2RF and Stoneville 5458B2RF, respectively. After subtracting ginning, seed costs and technology fees, the net value/acre among varieties ranged from a high of $94.44/acre (Deltapine 1044B2RF) to a low of $63.50/acre (Phytogen 375WRF), a difference of $30.94.

Significant differences were observed among varieties for micronaire, elongation, leaf, and reflectance (Table 2). Micronaire values ranged from a low of 3.0 for Stoneville 5458B2RF to a high of 3.9 for All-Tex Epic RF. Elongation averaged 7.0% across varieties with a high of 7.8% for Phytogen 499WRF and a low of 6.3% for Stoneville 5458B2RF. Color grade components of Rd (reflectance) and +b (yellowness) averaged 80.4 and 8.5, respectively.

These data indicate that differences can be obtained in terms of net value/acre due to variety selection. Additional multi-site and multi-year applied research is needed to evaluate varieties across a series of environments.

Acknowledgments:

Appreciation is expressed to Cody Walters for the use of his land, equipment and labor for this demonstration.

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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 Dryland Production Trial, Cody Walters Farm, Loop, TX, 2012.

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 ----------					
Deltapine 1044B2RF	23.8	39.9	924	220	369	0.5495	120.78	46.12	166.90	27.73	44.74	94.44 a
All-Tex Epic RF	22.8	38.2	957	218	366	0.5248	114.30	45.69	159.99	28.70	37.21	94.07 a
All-Tex Edge B2RF	21.4	39.2	1011	217	396	0.5492	119.00	49.53	168.53	30.32	44.39	93.82 a
PhytoGen 499WRF	22.4	37.0	989	222	366	0.5482	121.75	45.74	167.49	29.68	47.84	89.96 ab
FiberMax 2989GLB2	21.6	37.5	945	204	354	0.5282	107.61	44.30	151.91	28.35	48.51	75.05 abc
Stoneville 5458B2RF	20.4	38.7	995	203	385	0.5027	102.12	48.12	150.24	29.85	47.51	72.88 bc
Deltapine 1219B2RF	23.1	38.6	845	195	326	0.5143	100.27	40.74	141.01	25.36	44.74	70.91 bc
PhytoGen 375WRF	22.0	36.5	834	184	304	0.5353	98.36	37.98	136.34	25.01	47.84	63.50 c
Test average	22.2	38.2	937	208	358	0.5315	110.52	44.78	155.30	28.12	45.35	81.83
CV, %	4.2	5.5	11.1	11.3	11.2	4.8	11.1	11.2	11.1	11.1	--	17.3
OSL	0.0134	0.5117	0.3471	0.4499	0.1852	0.2832	0.1536	0.1846	0.2266	0.3452	--	0.0807†
LSD	1.6	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	20.30

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, †indicates significance at the 0.10 level, NS - not significant.
Note: some columns may not add up due to rounding error.

Assumes:
$3.00/cwt ginning cost.
$250/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 Dryland Production Trial, Cody Walters Farm, Loop, TX, 2012.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32^{nds} inch	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
All-Tex Edge B2RF	3.7	35.7	79.0	29.4	6.3	3.0	82.0	7.6	2.3	1.0
All-Tex Epic RF	3.9	33.3	79.2	27.8	7.7	1.0	79.8	8.8	2.0	1.0
Deltapine 1044B2RF	3.8	34.8	80.2	28.4	7.8	1.3	81.8	8.1	2.0	1.0
Deltapine 1219B2RF	3.2	34.3	79.1	28.7	6.4	1.3	82.1	8.3	1.3	1.0
FiberMax 2989GLB2	3.4	35.3	79.1	29.8	6.6	1.7	78.9	8.4	2.3	1.3
PhytoGen 375WRF	3.2	35.5	80.5	28.1	6.7	1.3	81.0	8.8	1.3	1.0
PhytoGen 499WRF	3.5	34.7	80.9	29.4	7.8	1.7	80.4	8.4	2.0	1.0
Stoneville 5458B2RF	3.0	35.1	79.6	29.5	6.3	1.7	77.7	9.4	2.0	1.3
Test average	3.5	34.8	79.7	28.9	7.0	1.6	80.4	8.5	1.9	1.1
CV, %	9.0	3.0	1.6	4.4	8.6	39.4	1.7	9.3	--	--
OSL	0.0265	0.2022	0.5051	0.4579	0.0118	0.0571†	0.0149	0.2791	--	--
LSD	0.5	NS	NS	NS	1.0	0.9	2.5	NS	--	--

CV - coefficient of variation.
OSL - observed significance level, or probability of a greater F value.
LSD - least significant difference at the 0.05 level, †indicates significance at the 0.10 level, NS - not significant

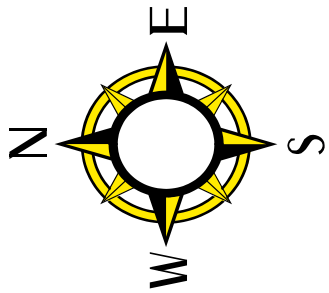
2012 Sites Planted but Lost Due to Weather

Plains Dryland Systems Variety Trial - 2012		
1	Rep I	AT Epic RF
2		FM 9058F
3		NG 4111RF
4		NG 4010B2RF
5		FM 9170B2F
6		FM 2989GLB2
7		ST 4288B2F
8		FM 9103GT
9		PHY 367WRF
10		DP 1044B2RF
11		DP 1219B2RF
12		DG 2570B2RF
10	Rep II	DP 1044B2RF
9		PHY 367WRF
8		FM 9103GT
7		ST 4288B2F
6		FM 2989GLB2
5		FM 9170B2F
12		DG 2570B2RF
11		DP 1219B2RF
4		NG 4010B2RF
3		NG 4111RF
2		FM 9058F
1		AT Epic RF
1	Rep III	AT Epic RF
2		FM 9058F
3		NG 4111RF
4		NG 4010B2RF
9		PHY 367WRF
10		DP 1044B2RF
7		ST 4288B2F
8		FM 9103GT
11		DP 1219B2RF
12		DG 2570B2RF
5		FM 9170B2F
6		FM 2989GLB2
RACE Trial		

	Variety	Maturity	Herbicide	Insecticide
1	AT Epic RF			
2	FM 9058F			
3	NG 4111RF			
4	NG 4010B2RF			
5	FM 9170B2F			
6	FM 2989GLB2			
7	ST 4288B2F			
8	FM 9103GT			
9	PHY 367WRF			
10	DP 1044B2RF			
11	DP 1219B2RF			
12	DG 2570B2RF			

Planting date	6/5/2012
Seeding rate	37K/A

COMMENTS: 6 Rows x 1000 ft



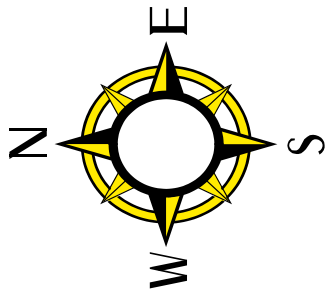
Google Maps

Yoakum County Dryland RACE - 2012		
Dryland Systems		
1	Rep I	DG 2400RF
2		NG 4111RF
3		NG 4012 B2RF
4		DP 1044B2RF
5		AT Edge B2RF
6		FM 1944GLB2
7		ST 5458B2RF
8		PHY 499 WRF
9		DP 0912B2RF
10		FM 2484B2F
11		PHY 367WRF
12		AM 1511 B2RF
10	Rep II	FM 2484B2F
9		DP 0912B2RF
4		DP 1044B2RF
3		NG 4012 B2RF
6		FM 1944GLB2
5		AT Edge B2RF
12		AM 1511 B2RF
11		PHY 367WRF
8		PHY 499 WRF
7		ST 5458B2RF
2		NG 4111RF
1		DG 2400RF
1	Rep III	DG 2400RF
2		NG 4111RF
11		PHY 367WRF
12		AM 1511 B2RF
5		AT Edge B2RF
6		FM 1944GLB2
7		ST 5458B2RF
8		PHY 499 WRF
3		NG 4012 B2RF
4		DP 1044B2RF
9		DP 0912B2RF
10		FM 2484B2F
Remainder of Field		

	Variety	Maturity	Herbicide	Insecticide
1	DG 2400RF			
2	NG 4111RF			
3	NG 4012 B2RF			
4	DP 1044B2RF			
5	AT Edge B2RF			
6	FM 1944GLB2			
7	ST 5458B2RF			
8	PHY 499 WRF			
9	DP 0912B2RF			
10	FM 2484B2F			
11	PHY 367WRF			
12	AM 1511 B2RF			

Planting date	
Seeding rate	

COMMENTS: 6 row plot X 1000 ft



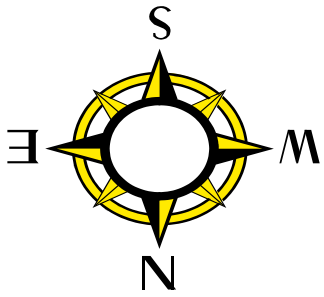
Google Maps

Blanco Dryland Systems Variety Trial - 2012		
3	Rep I	NG 4111RF
4		FM 2011GT
5		FM 9250GL
1		AT Nitro 44 B2RF
2		AM 1511B2RF
6		FM 9170B2F
7		FM 2989GLB2
8		CG 3156B2RF
9		CG 3787B2RF
10		DP 1219B2RF
6	Rep II	FM 9170B2F
9		CG 3787B2RF
2		AM 1511B2RF
10		DP 1219B2RF
7		FM 2989GLB2
1		AT Nitro 44 B2RF
8		CG 3156B2RF
5		FM 9250GL
3		NG 4111RF
4		FM 2011GT
5	Rep III	FM 9250GL
3		NG 4111RF
4		FM 2011GT
8		CG 3156B2RF
10		DP 1219B2RF
9		CG 3787B2RF
1		AT Nitro 44 B2RF
2		AM 1511B2RF
7		FM 2989GLB2
6		FM 9170B2F
Dryland RACE		

	Variety	Maturity	Herbicide	Insecticide
1	AT Nitro 44 B2RF			
2	AM 1511B2RF			
3	NG 4111RF			
4	FM 2011GT			
5	FM 9250GL			
6	FM 9170B2F			
7	FM 2989GLB2			
8	CG 3156B2RF			
9	CG 3787B2RF			
10	DP 1219B2RF			

Planting date	5/15/2012
Seeding rate	36K/A

COMMENTS: 8 row plots



Google Maps

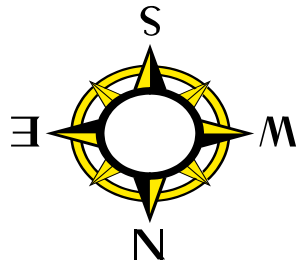
Crosby County Dryland Race Variety Trial - 2012		
Dryland Systems		
1	AT Edge B2RF	Rep I
2	NG 4012 B2RF	
3	DP 1044B2RF	
4	DG 2400RF	
5	FM 1944GLB2	
6	ST 5458B2RF	
7	PHY 499 WRF	
8	DP 0912B2RF	
9	FM 2484B2F	
10	PHY 367WRF	
5	FM 1944GLB2	Rep II
10	PHY 367WRF	
9	FM 2484B2F	
7	PHY 499 WRF	
8	DP 0912B2RF	
2	NG 4012 B2RF	
4	DG 2400RF	
3	DP 1044B2RF	
6	ST 5458B2RF	
1	AT Edge B2RF	
5	FM 1944GLB2	Rep III
3	DP 1044B2RF	
9	FM 2484B2F	
2	NG 4012 B2RF	
7	PHY 499 WRF	
1	AT Edge B2RF	
6	ST 5458B2RF	
10	PHY 367WRF	
8	DP 0912B2RF	
4	DG 2400RF	
16 rows Fill		

Google Maps

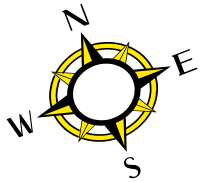
	Variety	Rep 1	Rep 2	Rep 3
1	AT Edge B2RF			
2	NG 4012 B2RF			
3	DP 1044B2RF			
4	DG 2400RF			
5	FM 1944GLB2			
6	ST 5458B2RF			
7	PHY 499 WRF			
8	DP 0912B2RF			
9	FM 2484B2F			
10	PHY 367WRF			

Planting date	5/15/2012
Seeding rate	36K/A
Insecticide	
Herbicide	
Fertilizer	
Temp @ planting	
Moisture @ planting	

Comments:



Dawson County Dryland RACE Demonstration - 2012				Variety	Rep 1	Rep 2	Rep 3
Tower Track							
8 Row Border			1	AT Edge B2RF			
1	Rep I	AT Edge B2RF	2	AM 1511 B2RF			
2		AM 1511 B2RF	3	NG 4012 B2RF			
3		NG 4012 B2RF	4	DP 1044B2RF			
4		DP 1044B2RF	5	DG 2570B2RF			
5		DG 2570B2RF	6	FM 2989GLB2			
6		FM 2989GLB2	7	ST 5458B2RF			
7		ST 5458B2RF	8	PHY 499 WRF			
8		PHY 499 WRF					
Tower Track (16 rows Bulk)							
4	Rep II	DP 1044B2RF		Planting date	5/22/2012		
3		NG 4012 B2RF		Seeding rate	52.7 K/A		
8		PHY 499 WRF					
7		ST 5458B2RF		Insecticide			
2		AM 1511 B2RF		Herbicide			
1		AT Edge B2RF		Fertilizer			
6		FM 2989GLB2					
5		DG 2570B2RF		Temp @ planting			
Tower Track (16 rows Bulk)							
5	Rep III	DG 2570B2RF		Moisture @ planting			
6		FM 2989GLB2					
7		ST 5458B2RF		COMMENTS: 4 row plots (8 row planter)			
8		PHY 499 WRF					
3		NG 4012 B2RF					
4		DP 1044B2RF					
1		AT Edge B2RF					
2		AM 1511 B2RF					



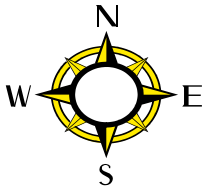
Google Maps

Castro County Irrigated RACE Demonstration - 2012		
8 rows border FM 9250GL		
1	Rep I	AT Nitro-44 B2RF
2		NG 3348 B2RF
3		DP 0912B2RF
4		DG 2595B2RF
5		FM 2011GT
6		ST 4288B2F
7		PHY 367 WRF
3	Rep II	DP 0912B2RF
6		ST 4288B2F
1		AT Nitro-44 B2RF
7		PHY 367 WRF
4		DG 2595B2RF
2		NG 3348 B2RF
5		FM 2011GT
5	Rep III	FM 2011GT
7		PHY 367 WRF
2		NG 3348 B2RF
4		DG 2595B2RF
6		ST 4288B2F
1		AT Nitro-44 B2RF
3		DP 0912B2RF
Remainder of field FM 9250GL and mixed		

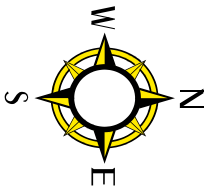
	Variety	Rep 1	Rep 2	Rep 3
1	AT Nitro-44 B2RF			
2	NG 3348 B2RF			
3	DP 0912B2RF			
4	DG 2595B2RF			
5	FM 2011GT			
6	ST 4288B2F			
7	PHY 367 WRF			

Planting date	5/2/2012
Seeding rate	~63K seed/acre
Insecticide	None
Herbicide	None
Fertilizer	None
Temp @ planting	97
Moisture @ planting	some moisture will water up

COMMENTS:
30" row spacing
8 rows buffer on north end
furrow irrigated



Lynn County Irrigated RACE Demonstration - 2012				Variety	Rep 1	Rep 2	Rep 3
	Rep I	Grower Standard	1	AT Nitro-44 B2RF			
1		AT Nitro-44 B2RF	2	AM 1511 B2RF			
2		AM 1511 B2RF	3	NG 4012 B2RF			
3		NG 4012 B2RF	4	DP 1044B2RF			
4		DP 1044B2RF	5	DG 2570B2RF			
5		DG 2570B2RF	6	FM 2989GLB2			
6		FM 2989GLB2	7	ST 5458B2RF			
7		ST 5458B2RF	8	PHY 367 WRF			
8		PHY 367 WRF					
3	Rep II	NG 4012 B2RF	Planting date	5/19/2012			
6		FM 2989GLB2	Seeding rate	39K/A			
1		AT Nitro-44 B2RF					
7		ST 5458B2RF	Insecticide				
7		Grower Standard	Herbicide				
4		DP 1044B2RF	Fertilizer				
8		PHY 367 WRF					
2		AM 1511 B2RF	Temp @ planting				
5		DG 2570B2RF	Moisture @ planting				
8	Rep III	PHY 367 WRF					
5		DG 2570B2RF	COMMENTS:				
7		ST 5458B2RF					
2		AM 1511 B2RF					
4		DP 1044B2RF					
6		FM 2989GLB2					
1		AT Nitro-44 B2RF					
3		NG 4012 B2RF					
		Grower Standard					



Irrigation Management Research Results

Subsurface Drip Irrigation Pre-plant Irrigation Timing Effects on Germination and Cotton Yield (Field 2).

James Bordovsky and Joe Mustian

Objective: To determine the effects on germination and cotton lint yield of three pre-plant irrigation sequences using SDI.

Methodology: Plot size was 8 rows by 1300' with three replications. Treatment factors were pre-plant irrigation sequence and depth of planting. SDI laterals were spaced at 60 inches. Crop rows were spaced 30 inches apart with two rows planted on single 60 inch beds. All tillage and seedbed shaping occurred immediately following the 2010 harvest, therefore, the seedbeds were undisturbed from December 2010 until cotton planting in May 2011. Three irrigation sequences were replicated three times in a complete randomized block design and are depicted graphically in Figure 1. Additional treatments within each of the three sequences included removing dry soil from the planting bed surface with disks in front of planter units in an attempt to place seed into wetted soil (deep planting).

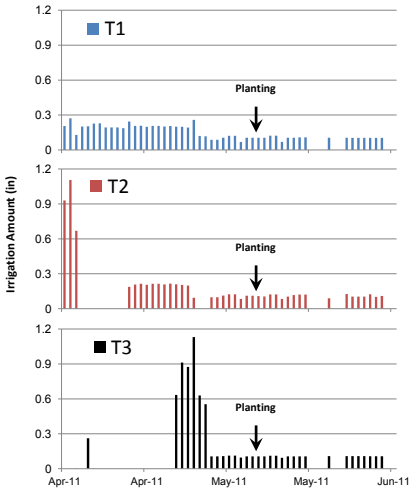


Figure 1. Pre-plant and early season irrigation sequences in germination study at the Texas AgriLife Research Center, Helm Farm, 2011.

Figure 2. Subsurface drip irrigated cotton germination test plot. This picture was taken on July 6 during the record drought of 2011 at the Helms Research Farm.

Results: Germination was low and erratic in all treatments with final plant stands at less than 25% of initial seed drop (Figure 2). All treatments were identically irrigated through the growing season at approximately 40% ETc. In-season rain was low at 1.5 inches. Plots from each treatment and replicate were harvested by traditional methods. Although plant stands were extremely poor, average cotton lint yield of all treatments was 859 lb/ac (Figure 3). Removing dry soil in front of the planter failed to improve germination, failed to consistently improve yield, and would have caused additional germination problems with significant rain immediately following planting. When considering normal planting methods, applying a large pre-plant irrigation immediately prior to planting (T3) resulted in significantly less yield than applying a sequence of smaller irrigations (T1 and T2). The 2011 growing season was extremely hot, dry, and windy, particularly during the early stages. As such, these single year test results may not represent those of a more typical growing season.

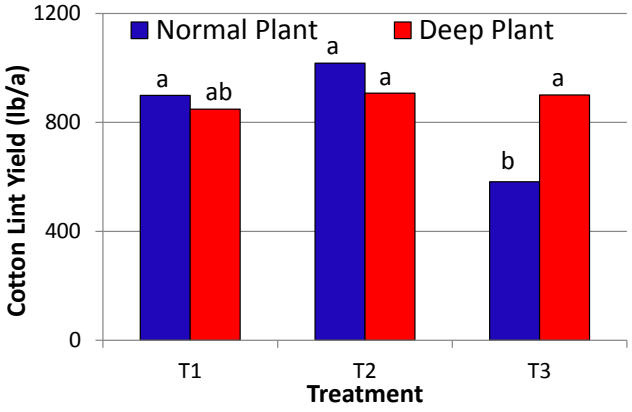


Figure 3. Cotton lint yield resulting from pre-plant irrigation sequences of 0.2 in/d for 25 days (T1), 2.5 inch plus 0.2 in/d for 12 days (T2), and 5.0 inch immediately prior to plant (T3). Cotton was planted with normal planter settings and also following the removal of some dry soil or "deep planting" at the Helms Research Farm, Halfway, TX, 2011.

Comparison of Cotton Germination Among Three SDI Fields During the Drought of 2011 (Fields 2, 3 and 6h).

James P. Bordovsky, Joe Mustian, and Casey Hardin

Objective: To make general comparisons of germination and cotton yield resulting from three SDI system/plant position strategies during the drought of 2011.

Methodology: Seed germination has been a major issue when irrigating with SDI, particularly in years with little rain during the planting period. The 2011 growing season was extreme in terms of low rainfall and high evaporation rates. Cotton was drip irrigated in three separate field experiments at the Helms Research Farm. The "traditional drip" installation and planting was discussed in a previous report (Figure 1). Cotton was planted in a second field where SDI laterals had were at 8 inches of depth or in a "shallow drip" installation (Figure 2). A third field, with traditional lateral installation, had been pre-plant irrigated with such poor soil wetting that the original experiment was abandoned. On June 14, to evaluate germination, cotton was planted in an alternate row pattern with one row over the lateral, the adjacent row 30 inches from the lateral, or in a "skip-row" fashion (Figure 3). The "traditional" and the "skip-row" drip were irrigated at approximately 50% ET_c due to the low plant populations, the "shallow" drip was irrigated at 80% ET_c.

Figure 1. "Traditional drip" with 60-inch lateral spacing, 14-inch lateral depth, 30-inch crop rows, and cotton planted on May 13. Picture was taken on July 6, 2011.

Figure 2. "Shallow lateral drip" with 60-inch lateral spacing, 8-inch lateral depth, 30-inch crop rows, and cotton planted on May 13. Picture was taken on July 6, 2011.

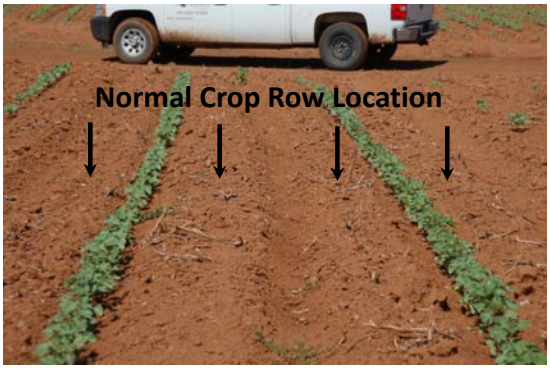


Figure 3. "Skip-row drip" with 60-inch lateral spacing, 14-inch lateral depth, and 60-inch cotton rows planted directly above laterals on June 16. Picture was taken on July 6, 2011.

Results: The cotton lint yields were 859, 1450, and 900 lb lint/ac from selected treatments of the "traditional", "shallow", and "skip-row" fields, respectively (Table 1). Considering the extreme weather conditions, seasonal IWUE was good (>50 lb/ac) in all fields. Due to the high pre-plant irrigation, total irrigation efficiency was poor for the traditional and skip-row fields at less than 50 lb/ac-in. If the skip-row field had been planted earlier, yield and IWUE would have been higher. Results indicate germination can be improved in dry years if alternate furrow SDI laterals are installed at depths of 8 to 9 inches or if rows are planted directly over the drip laterals.

Table1. Yield and water use efficiency from treatments in SDI fields at the Helms Research Farm, 2011.

	Traditional Drip	Shallow Drip	Skip Row Drip
Planting Date	5/13/2012	5/13/2012	6/14/2012
Pre & At Plant Irrigation (in)	8.6	7.3	13.71
Seasonal Irrigation (in)	10.8	15.4	9.26
Yield (lb/ac)	859	1540	900
Seasonal Irrigation WUE (lb/ac-in)	58	85	72
Total Irrigation Use Efficiency (lb/ac-in)	44	68	39

Effects of Variable In-Season Irrigation Capacity on Cotton
Project 11-811 TX

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Within the Ogallala Aquifer region, the available irrigation capacity on a given field can change within a growing season. Typically this is due to declining water tables. More recently, it is due to growers diverting irrigation from one crop (cotton) to other crops (corn) which may have higher value, or are at a more critical growth stage than cotton, particularly in a year of low rainfall. Furthermore, underground water conservation districts in the Texas High Plains will begin enforcing pumping restrictions which could cause abrupt changes in irrigation rates as limits are reached. Preplanned timing of irrigations with available water allowances complicated by erratic rainfall will become more critical.

The objectives of this project were to:

1. Determine cotton lint yield, fiber quality, and water use efficiency as a function of combinations of irrigation capacities during three cotton growth periods; and to
2. Develop strategies to improve water management and water value in a semi-arid environment where new policies restrict irrigation volume and irrigation capacities are limited.

The treatment factors included in-season irrigation capacity (maximums of 0 in/d, 0.125 in/d, and 0.25 in/d) and irrigation application within a specific growth period. Periods were determined by heat unit (hu) accumulation and were generally designated as early vegetative/juvenile (< 950 hu), reproductive (950-1350 hu) and maturation period (>1350 hu). Combinations of these factor levels resulted in 27 irrigation regimes or treatments. A 4-span LEPA pivot was used to irrigate 9.5 acres of this field experiment. The pivot was modified so that each 8-row section (40-in circular rows) along the lateral length could automatically provide different irrigation amounts depending on the treatments being irrigated and pivot position. Groups of four valves (irrigating an 8-row plot) were actuated using signals from a controller (Farmscan 7000, Dothan, Alabama) with specific time sequences for each irrigation treatment and distance from the pivot point. Inputs to the controller were pivot location (via GPS signal) and irrigation quantity (via application map) at each 8-row x 16-degree section for each irrigation sequence.

Test results to date were obtained from years representing record breaking extremes - high rainfall in 2010 and low and ineffective rainfall in 2011 and 2012. In all years, cotton yield and water productivity data indicated that building soil water in the profile, or irrigating in excess of the evapotranspiration rate of the cotton plants, reduced irrigation water value compared to applying irrigation later in the growing season. This was attributed to water loss from excessive evaporation (high wind, low humidity) that often occurs in May and June on the Texas High Plains. Irrigation water value during reproductive and maturation periods resulted in water use efficiencies in excess of 100 lb/ac-inch of irrigation applied. Additional field tests can provide the foundation for in-season irrigation recommendations that will optimize lint yield (and water value) based on irrigation pumping and volume restrictions.

From Cotton Incorporated Annual Report, Project TX 11-811 for 2012
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Disease Ratings and Verticillium Wilt Variety Testing

Table 1. Response of commercially available cotton varieties to Verticillium wilt, Bacterial blight, root-knot nematodes, and Fusarium wilt[†].

Brand	Variety	Verticillium wilt	Bacterial blight	Root-knot nematodes	Fusarium wilt
All-Tex	All-Tex 65207B2RF	I	Unk	S	S
All-Tex	All-Tex ApexB2RF	I	S	S	S
All-Tex	All-Tex AridB2RF	Poor	S	S	S
All-Tex	All-Tex DineroB2RF	Unk	S	S	S
All-Tex	All-Tex EdgeB2RF	I	S	S	S
All-Tex	All-Tex EpicRF	Poor	S	S	S
All-Tex	All-Tex MarathonB2RF	Poor	R	S	S
All-Tex	All-Tex Nitro-44B2RF	I	R	S	S
All-Tex	All-Tex OrbitRF	I	S	S	S
All-Tex	All-Tex PatriotRF	I	S	S	S
All-Tex	All-Tex RapidB2RF	Poor	Unk	S	S
All-Tex	All-Tex TitanB2RF	Poor	R	S	S
Americot	AM 1504B2RF	Poor	R	S	S
Americot	AM 1532B2RF	I	S	S	S
Americot	AM 1550B2RF	Poor	S	S	S
Americot	AM 1622B2RF	I	R	S	S
Americot	AM 1664 B2RF	Poor	S	S	S
Croplan Genetics	CG 3020B2RF	Poor	R	S	S
Croplan Genetics	CG 3035RF	Poor	S	S	S
Croplan Genetics	CG 3156B2RF	Unk	S	S	S
Croplan Genetics	CG 3220B2RF	Poor	S	S	S
Croplan Genetics	CG 3520B2RF	I	S	S	S
Croplan Genetics	CG 3787B2RF	Unk	R	S	S
Deltapine	DP 0912B2RF	I	S	S	S
Deltapine	DP 0920B2RF	Good	R	S	S
Deltapine	DP 09242RF	I	S	S	S
Deltapine	DP 0935B2RF	I	S	S	S
Deltapine	DP 0949B2RF	I	S	S	S
Deltapine	DP 1028B2RF	Poor	S	S	S
Deltapine	DP 1032B2RF	Poor	PR	S	S
Deltapine	DP 1034B2RF	Poor	S	S	S
Deltapine	DP 104B2RF	Good	S	S	S
Deltapine	DP 1044B2RF	I	S	S	S
Deltapine	DP 1048B2RF	Poor	S	S	S
Deltapine	DP 1050B2RF	Poor	S	S	S
Deltapine	DP 1133B2RF	I	R	S	S
Deltapine	DP 1137B2RF	Poor	S	S	S
Deltapine	DP 121RF	Poor	S	S	S
Deltapine	DP 1212B2RF	Poor-I	S	S	S

Table 1. cont.[†]

Brand	Variety	Verticillium wilt	Bacterial blight	Root-knot nematodes	Fusarium wilt
Deltapine	DP 1219B2RF	I	S	S	S
Deltapine	DP 1252B2RF	Poor	S	S	S
Deltapine	DP 141B2RF	Poor	S	S	S
Deltapine	DP 161B2RF	I	S	S	S
Deltapine	DP 164B2RF	I	S	S	S
Deltapine	DP 174RF	I	S	PR	PR
Fibermax	FM 1740B2F	I- good	R	S	S
Fibermax	FM 1773LLB2	Unk	S	S	S
Fibermax	FM 1845LLB2	Unk	PR	S	S
Fibermax	FM 1880B2F	Good	R	S	S
Fibermax	FM 1944GLB2	Good	S	S	S
Fibermax	FM 2011GT	Good	R	PR	Unk
Fibermax	FM 2484B2F	Good	R	S	S
Fibermax	FM 2989GLB2	Good	R	S	S
Fibermax	FM 8270GLB2	I	Unk	S	S
Fibermax	FM 832LL	Unk	R	S	S
Fibermax	FM 835LLB2	Unk	Unk	S	S
Fibermax	FM 840B2F	Poor	R	S	S
Fibermax	FM 9058F	Good	R	S	S
Fibermax	FM 9063B2F	Good	R	S	S
Fibermax	FM 9101GT	Unk	R	S	S
Fibermax	FM 9103GT	Poor	I	S	S
Fibermax	FM 9160B2F	Good	R	S	S
Fibermax	FM 9170B2F	Good	R	S	S
Fibermax	FM 9180B2F	Good	R	S	S
Fibermax	FM 9250GL	Good	R	S	S
Fibermax	FM 955LLB2	Unk	R	S	S
Fibermax	FM 958LL	Good	R	S	S
NexGen	NG 1511B2RF	Poor	Unk	S	S
NexGen	NG 1551RF	I	S	S	S
NexGen	NG 1556RF	Poor	S	S	S
NexGen	NG 1572RF	Poor	R	S	S
NexGen	NG 2501B2RF	Poor	PR	S	S
NexGen	NG 2549B2RF	Good	S	S	S
NexGen	NG 3273 B2RF	Poor	R	S	S
NexGen	NG 3348B2RF	Good	PR	S	S
NexGen	NG 3410RF	Good	PR	S	S
NexGen	NG 3538RF	Poor	S	S	S
NexGen	NG 3550RF	I	S	S	S
NexGen	NG 4010B2RF	Good	R	S	S
NexGen	NG 4012B2RF	Good	R	S	S
NexGen	NG 4111RF	Good	R	S	S

Table 1. cont.[†]

Brand	Variety	Verticillium wilt	Bacterial blight	Root-knot nematodes	Fusarium wilt
Phytogen	PHY 315RF	Poor	S	S	S
Phytogen	PHY 367ERF	I	S	PR	PR
Phytogen	PHY 375WRF	Poor	R	S	S
Phytogen	PHY 485WRF	I	S	S	S
Phytogen	PHY 499WRF	I	S	S	S
Phytogen	PHY 525RF	I	Unk	S	S
Phytogen	PHY 565WRF	I	S	S	S
Stoneville	ST 4145LLB2	Unk	S	S	S
Stoneville	ST 4288B2F	I	S	PR	PR
Stoneville	ST 4498B2F	I	S	S	S
Stoneville	ST 4946GLB2	Poor	S	PR	Unk
Stoneville	ST 5288B2F	I	R	S	S
Stoneville	ST 5458B2F	Poor	S	PR	PR
Stoneville	ST 6448GLB2	I	R	S	S

[†]I=Intermediate, PR=partially resistant, R=Resistant, S=Susceptible, Unk=unknown.

Verticillium wilt variety test results, 2012

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and

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There were six locations planted in 2012, all with a history of Verticillium wilt. Each site was planted with 32 entries, in plots that were 36 ft. long and 2 rows wide, with four replications per variety, arranged in a randomized complete design. The hot weather in 2012 resulted in little to no wilt at three of the six sites, so the three sites that had sufficient wilt to impact yield will be presented. These sites are Floydada, Plainview, and Garden City. The results were remarkably similar in terms of the top yielding varieties at each site. The following varieties yielded in the top five at each of the Verticillium wilt sites that they were planted: Fibermax (FM) 2484B2F, FM 2011GT, FM 9170B2F, BX 1347GLB2, and NexGen 4111RF.

Table 1: Effect of variety in a Verticillium wilt trial in Floydada on yield and wilt.

Variety[a]	Yield x loan	Lbs of Lint/ Acre	Plants/ Ft. of row	%Wilt On 28 Aug.	Defol-ation on 7 Sept.[b]	Turnout	Loan ($/lb)
FM 2484B2F	801	1711	3.58	27.6	0.95	0.2875	0.46800
FM 9170B2F	795	1665	3.55	40.2	0.99	0.2875	0.47750
BX 1347GLB2	763	1613	3.84	20.1	1.16	0.2727	0.47325
FM 2011GT	732	1551	3.47	32.7	1.82	0.2868	0.47175
FM 9160B2F	706	1455	3.20	39.7	1.09	0.2803	0.48500
DG 4	698	1535	3.54	46.0	1.46	0.2645	0.45475
FM 1740B2F	693	1472	3.34	39.2	1.65	0.2956	0.47075
NG 4111RF	692	1475	3.24	45.2	1.20	0.2693	0.46900
DP 1219B2RF	661	1414	3.40	40.7	1.61	0.2705	0.46725
FM 9250GL	658	1451	3.41	37.5	1.73	0.2680	0.45325
NG 3348B2RF	654	1464	3.06	36.4	1.33	0.2736	0.44700
DG 3	650	1295	3.28	37.8	1.92	0.2707	0.50225
NG X00012	633	1232	3.07	55.6	1.80	0.2689	0.51350
AT C253B2RF	620	1392	3.64	53.5	2.20	0.2798	0.44575
FM 9180B2F	614	1325	3.17	45.7	1.28	0.2584	0.46300
DP 0912B2RF	595	1304	3.30	45.0	1.77	0.2764	0.45625
ST 4288B2F	595	1268	3.54	34.6	1.53	0.2391	0.46925
DP 104B2RF	584	1305	3.36	45.2	1.52	0.2503	0.44725
DP 1212B2RF	582	1226	3.38	46.4	2.55	0.2571	0.47450
NG 1511B2RF	573	1249	3.34	50.6	1.86	0.2740	0.45825
PG 367WRF	567	1302	3.56	38.6	1.60	0.2555	0.43450
FM 9103GT	559	1262	3.33	49.5	1.88	0.2431	0.44325
DP 0949B2RF	553	1219	3.47	37.6	1.97	0.2713	0.45350
AM1550B2RF	542	1266	3.39	41.1	2.12	0.2513	0.42850
AT RapidB2RF	537	1245	3.55	38.8	2.05	0.2565	0.43100
NG 2051B2RF	533	1217	3.20	51.4	1.34	0.2268	0.43850
DG 10	517	1203	3.60	50.2	2.20	0.2593	0.43000
AT 789381RF	514	1152	3.05	60.3	1.78	0.2582	0.44675
DG 2	511	1124	2.71	50.8	1.90	0.2520	0.45450
AT C106466B2RF	505	1176	3.63	56.5	1.97	0.2418	0.42975
DG 8	501	1123	3.51	48.0	2.39	0.2531	0.44575
DG 7	491	1107	3.57	41.9	2.13	0.2588	0.44300
Minimum Significant Difference (0.05)	48	105	0.20	12.5	0.55	0.019	0.049

[a]AM=Americot, AT = All Tex, BX = Experimental for Bayer CropScience, DP=Deltapine, DG = DynaGro, FM = Fibermax, NG = NexGen, PG=Phytogen, ST = Stoneville.

[b]The defoliation goes from 0 (no defoliation), 1 = 1/3 or less of plant is defoliated, 2 = 1/3 – 2/3 of plant is defoliated, and 3 = > 2/3 of plant is defoliated.

Table 2. HVI ratings for varieties in a Verticillium wilt trial in Floydada.

Variety[a]	Micronaire	Length	Uniformity	Strength	Elongation	Rd	+b	Leaf
AM1550B2RF	2.50	1.045	77.15	26.40	9.30	81.1	8.6	2.0
AT 789381RF	2.35	1.115	77.75	27.75	9.20	81.8	7.6	4.0
AT C106466B2RF	2.30	1.080	76.80	27.00	8.05	81.7	7.6	4.0
AT C253B2RF	2.70	1.095	78.50	30.15	8.85	82.2	8.0	4.5
AT RapidB2RF	2.80	1.125	81.40	32.40	9.50	79.2	7.0	6.0
BX 1347GLB2	2.70	1.135	78.45	28.65	7.35	82.9	7.2	3.5
DG 2	2.40	1.125	78.65	29.75	8.50	81.8	7.8	3.5
DG 3	3.00	1.140	80.40	30.90	8.45	82.7	7.7	3.5
DG 4	2.35	1.145	79.55	32.20	9.20	82.3	7.7	4.0
DG 7	2.50	1.080	77.85	27.55	8.75	81.8	7.9	3.5
DG 8	2.35	1.085	77.75	28.20	9.55	81.1	8.2	3.5
DG 10	2.10	1.070	76.85	26.80	10.25	81.5	8.4	2.5
DP 0912B2RF	2.55	1.080	78.60	29.95	9.30	81.3	8.2	3.5
DP 0949B2RF	2.45	1.080	79.20	28.40	9.25	81.9	7.9	2.5
DP 104B2RF	2.55	1.090	80.25	31.30	9.90	80.8	7.8	4.0
DP 1212B2RF	2.40	1.130	80.20	31.30	10.10	80.4	8.1	3.0
DP 1219B2RF	2.45	1.105	76.40	29.30	8.30	82.3	8.4	1.5
FM 1740B2F	3.00	1.040	78.00	28.05	8.85	82.0	7.6	2.0
FM 2011GT	2.80	1.110	78.80	30.25	8.25	82.1	7.6	3.5
FM 2484B2F	2.60	1.125	77.60	29.50	7.80	83.8	7.5	2.0
FM 9103GT	2.35	1.115	77.50	29.50	8.20	81.3	7.7	4.0
FM 9160B2F	2.60	1.110	79.25	28.85	7.85	83.2	7.6	2.0
FM 9170B2F	2.55	1.145	79.45	31.10	7.90	83.5	7.2	2.5
FM 9180B2F	2.55	1.135	79.10	31.50	8.40	82.6	7.4	3.5
FM 9250GL	2.60	1.075	78.05	29.35	7.55	82.9	7.6	2.0
NG 1511B2RF	2.50	1.095	79.65	30.20	9.90	81.1	8.0	3.5
NG 2051B2RF	2.75	1.100	77.65	27.35	8.15	80.7	7.4	5.5
NG 3348B2RF	2.95	1.110	80.10	30.15	8.55	79.6	7.8	5.5
NG 4111RF	2.55	1.075	78.25	30.90	9.40	81.2	8.5	2.0
NG X00012	2.95	1.110	79.70	28.70	9.90	82.2	8.4	2.0
PG 367WRF	2.50	1.065	77.75	27.50	9.45	78.5	8.5	3.5
ST 4288B2F	2.90	1.085	78.90	28.55	9.15	80.9	8.2	3.5
Minimum Significant Difference (0.05)	0.44	0.051	NS[b]	2.45	0.55	1.94	0.38	2.4

[a]AM=Americot, AT = All Tex, BX = Experimental for Bayer CropScience, DP=Deltapine, DG = DynaGro, FM = Fibermax, NG = NexGen, PG=Phytogen, ST = Stoneville.

[b] NS = not significant.

Table 3. Effect of variety in a Verticillium wilt trial in Plainview on yield and wilt.

Variety[a]	Yield X Loan ($/a)	Lbs of Lint/ Acre	Plants/ Ft. of row	%Wilt On 13 Aug.	Defol-ation on 5 Sept.[b]	Turnout	Loan Value ($/lb)
FM 2484B2F	947	1,673	2.87	10	0.27	0.302	0.566
FM 9180B2F	829	1,455	2.41	20	0.40	0.281	0.570
NG 4111RF	812	1,425	1.45	28	0.61	0.281	0.570
FM 2011GT	810	1,540	2.68	17	0.79	0.306	0.526
FM 9250GL	757	1,443	2.49	16	0.83	0.284	0.525
FM 1944GLB2	738	1,373	2.06	23	0.56	0.275	0.537
BX 1348GLB2	704	1,267	2.06	24	0.61	0.268	0.555
FM 9160B2F	698	1,232	1.67	15	0.58	0.280	0.567
NG 3348B2RF	696	1,281	1.89	14	0.59	0.288	0.543
DG 9	696	1,251	2.34	18	0.77	0.281	0.556
DP 1219B2RF	687	1,304	2.18	19	0.83	0.277	0.527
FM 1740B2F	680	1,310	2.31	24	0.70	0.287	0.519
AT EdgeB2RF	650	1,267	3.05	23	0.82	0.263	0.513
BX 1346GLB2	641	1,240	1.95	19	0.75	0.280	0.517
NG 2051B2RF	635	1,206	2.41	18	0.64	0.247	0.526
DP 1212B2RF	623	1,225	2.69	23	1.49	0.284	0.509
DP 104B2RF	620	1,254	2.26	21	0.55	0.250	0.494
DP 0912B2RF	614	1,184	1.69	28	0.84	0.276	0.518
AT C202B2RF	608	1,125	1.97	25	0.75	0.267	0.540
DG 3	596	1,141	1.86	32	1.17	0.258	0.522
PG 367WRF	562	1,157	2.13	23	0.77	0.256	0.486
DP 0949B2RF	556	1,167	2.08	25	0.85	0.270	0.476
AT 10WR585RF	545	1,000	1.05	36	0.57	0.287	0.545
DG 1	543	977	1.39	33	0.87	0.257	0.556
NG 1511B2RF	543	1,088	1.98	23	1.03	0.269	0.499
DG 2	533	957	1.09	42	0.93	0.292	0.557
DG 5	533	1,046	1.31	36	0.83	0.277	0.509
DG 6	522	1,025	2.04	34	0.99	0.278	0.509
FM 9103GT	520	1,048	1.29	28	0.70	0.258	0.496
AT RapidB2RF	487	982	2.48	23	1.70	0.255	0.496
AM 1550B2RF	428	1,023	2.29	26	1.31	0.254	0.419
AT 91139B2RF	363	772	1.03	55	1.30	0.257	0.470
Minimum Significant Difference (0.05)	70	134	0.4	9	0.31	0.023	0.057

[a]AM=Americot, AT = All Tex, BX = Experimental for Bayer CropScience, DP=Deltapine, DG = DynaGro, FM = Fibermax, NG = NexGen, PG=Phytogen, ST = Stoneville.

[b]The defoliation goes from 0 (no defoliation), 1 = 1/3 or less of plant is defoliated, 2 = 1/3 – 2/3 of plant is defoliated, and 3 = > 2/3 of plant is defoliated.

Table 4. HVI ratings for varieties in a Verticillium wilt trial in Plainview.

Variety[a]	Micronaire	Length	Uniformity	Strength	Elongation	Rd	+b	Leaf
AM 1550B2RF	2.75	1.015	78.15	27.95	9.50	78.00	8.65	3.00
AT 10WR585RF	3.40	1.120	79.45	29.10	8.75	79.65	8.05	1.50
AT 91139B2RF	2.65	1.120	79.30	28.10	9.05	79.45	7.50	2.50
AT EdgeB2RF	3.35	1.130	80.80	31.35	9.15	76.70	7.65	4.00
AT RapidB2RF	3.40	1.110	82.65	32.25	10.00	75.10	7.10	3.50
AT C202B2RF	3.55	1.145	81.35	33.00	8.95	79.15	7.25	2.00
BX 1346GLB2	3.05	1.120	80.00	32.25	10.05	78.75	8.40	1.50
BX 1348GLB2	3.35	1.180	82.10	29.95	7.70	80.20	7.80	1.00
DG 1	3.50	1.120	82.45	32.90	8.75	79.50	7.35	2.50
DG 2	3.40	1.145	82.00	32.00	8.90	80.00	7.80	2.00
DG 3	3.10	1.165	82.05	32.65	8.70	80.70	7.40	2.00
DG 5	2.90	1.135	81.05	29.70	9.75	80.55	8.10	1.50
DG 6	3.15	1.080	79.45	28.30	10.35	79.05	8.35	1.00
DG 9	4.05	1.080	81.75	31.90	8.55	78.80	8.00	1.50
DP 0912B2RF	3.65	1.055	80.25	29.65	9.85	77.90	8.10	2.00
DP 0949B2RF	2.85	1.090	80.00	30.65	9.85	79.90	8.15	2.50
DP 104B2RF	3.05	1.095	81.00	31.15	10.70	77.70	7.65	4.00
DP 1212B2RF	3.30	1.090	80.20	31.25	11.30	75.40	8.60	2.50
DP 1219B2RF	3.15	1.115	78.30	32.40	9.25	81.00	8.40	1.00
FM 1740B2F	3.20	1.075	80.10	30.55	9.45	79.50	7.80	2.00
FM 1944GLB2	3.25	1.170	81.60	31.05	8.55	80.95	7.20	2.00
FM 2011GT	3.50	1.090	79.50	30.20	8.75	78.50	7.65	1.50
FM 2484B2F	3.55	1.190	80.50	31.50	8.90	81.70	7.75	1.00
FM 9103GT	2.80	1.105	79.35	31.00	8.30	79.40	7.95	2.00
FM 9160B2F	3.50	1.155	83.00	31.45	8.40	79.85	7.65	2.00
FM 9180B2F	3.70	1.150	81.50	32.35	9.15	78.85	7.25	2.50
FM 9250GL	3.35	1.095	80.25	31.20	8.20	79.40	7.70	2.00
NG 1511B2RF	3.15	1.055	81.00	31.40	10.70	76.45	8.40	2.00
NG 2051B2RF	4.00	1.080	80.40	28.05	8.90	77.20	7.40	3.50
NG 3348B2RF	3.75	1.090	82.35	31.20	9.20	76.10	8.45	2.50
NG 4111RF	3.60	1.110	81.70	31.90	9.30	78.50	8.85	1.50
PG 367WRF	2.80	1.090	79.35	31.10	9.65	77.90	8.75	2.00
Minimum Significant Difference (0.05)	0.74	0.032	2.63	1.83	0.54	2.11	0.60	2.26

[a]AM=Americot, AT = All Tex, BX = Experimental for Bayer CropScience, DP=Deltapine, DG = DynaGro, FM = Fibermax, NG = NexGen, PG=Phytogen, ST = Stoneville.

Table 5. Effect of variety in a Verticillium wilt trial in Garden City on yield and wilt.

Variety[a]	Yield X Loan	Lbs of Lint/ Acre	Plants/ Ft. of row	%Wilt On 21 Aug.	Defol-ation on 12 Sept.[b]	Turnout	Loan ($/lb)
FM 2484B2F	1,363	2,454	3.43	7	0.79	0.285	0.556
FM 2011GT	1,357	2,501	3.18	17	1.31	0.316	0.542
NG 4111RF	1,353	2,386	2.61	19	1.50	0.283	0.567
FM 9170B2F	1,321	2,365	2.82	15	1.05	0.284	0.559
FM 9250GL	1,228	2,263	3.05	15	1.50	0.269	0.543
BX 1347GLB2	1,227	2,390	3.52	8	1.05	0.292	0.514
FM 2989GLB2	1,226	2,224	2.63	21	1.38	0.274	0.551
FM 9160B2F	1,213	2,273	2.94	14	1.01	0.293	0.534
NG 4012B2RF	1,170	2,186	2.83	15	1.53	0.283	0.536
AT CR253B2RF	1,158	2,218	2.76	19	1.54	0.250	0.522
AT Nitro-44B2RF	1,126	2,133	2.68	18	1.50	0.282	0.528
DP 0935B2RF	1,124	2,054	2.79	23	2.01	0.291	0.548
FM 1944GLB2	1,102	2,082	2.91	15	1.58	0.280	0.529
FM 9180B2F	1,094	2,114	2.81	21	1.37	0.264	0.518
DP 1137B2RF	1,062	1,939	2.58	28	1.78	0.303	0.548
DP 1133B2RF	1,052	1,989	1.97	34	1.66	0.293	0.529
BX 1346GLB2	1,049	2,039	2.76	26	2.11	0.269	0.515
DP 1050B2RF	1,034	1,835	2.21	36	1.80	0.303	0.564
DP 1044B2RF	1,030	1,987	2.94	19	1.74	0.259	0.493
DP 1032B2RF	1,019	1,872	2.09	34	1.93	0.294	0.545
BX 1348GLB2	994	1,949	3.10	20	1.70	0.279	0.510
FM 8720GLB2	986	1,858	2.89	10	1.35	0.275	0.531
PG 499WRF	943	1,798	3.07	23	1.81	0.278	0.525
NG X00012	937	1,694	1.94	48	1.80	0.303	0.553
DG 8	930	1,742	2.95	22	2.07	0.270	0.534
DP 1252B2RF	929	1,750	2.05	41	1.82	0.305	0.531
DP 0912B2RF	923	1,750	2.22	27	1.83	0.282	0.528
PG 375WRF	918	1,736	2.48	21	2.13	0.273	0.529
DG 10	915	1,690	3.12	31	2.08	0.279	0.541
DP 1048B2RF	914	1,671	2.40	29	1.82	0.283	0.547
AM 1550B2RF	835	1,684	2.85	25	2.44	0.264	0.498
AT CR106466B2RF	777	1,641	2.94	20	1.66	0.311	0.474
Minimum Significant Difference (0.05)	108	203	0.34	9	0.4	0.037	0.053

[a]AM=Americot, AT = All Tex, BX = Experimental for Bayer CropScience, DP=Deltapine, DG = DynaGro, FM = Fibermax, NG = NexGen, PG=Phytogen, ST = Stoneville.

[b]The defoliation goes from 0 (no defoliation), 1 = 1/3 or less of plant is defoliated, 2 = 1/3 – 2/3 of plant is defoliated, and 3 = > 2/3 of plant is defoliated.

Table 6. Effect of variety on HVI ratings in a Verticillium wilt field in Garden City.

Variety[a]	Micronaire	Length	Uniformity	Strength	Elongation	Rd	+b	Leaf
AM 1550B2RF	3.40	1.050	78.60	28.00	9.65	75.6	7.90	2.0
AT CR106466B2RF	3.30	1.060	77.55	27.90	8.90	74.8	7.65	2.5
AT CR253B2RF	4.75	1.050	80.35	28.25	9.70	77.2	7.80	1.0
AT Nitro-44B2RF	3.60	1.195	82.30	32.45	10.40	74.8	7.80	3.0
BX 1346GLB2	3.35	1.100	80.65	30.85	10.40	74.7	7.90	2.0
BX 1347GLB2	4.20	1.070	77.20	26.05	7.75	74.5	7.55	3.5
BX 1348GLB2	3.65	1.105	79.15	27.65	9.40	75.4	7.65	3.0
DG 10	3.60	1.135	81.15	29.25	9.50	75.2	7.55	2.0
DG 8	3.45	1.095	80.35	29.85	11.00	75.6	8.75	1.0
DP 0912B2RF	3.85	1.055	79.55	29.25	10.20	75.4	7.90	2.5
DP 0935B2RF	3.95	1.075	80.50	29.35	10.15	77.1	8.25	2.0
DP 1032B2RF	3.90	1.075	79.85	28.80	9.35	77.3	8.30	1.5
DP 1044B2RF	3.55	1.090	80.95	30.30	10.40	73.4	7.55	4.5
DP 1048B2RF	3.50	1.125	82.00	29.25	10.75	76.5	8.00	2.0
DP 1050B2RF	3.95	1.105	80.25	28.15	10.50	76.3	8.45	1.5
DP 1133B2RF	4.40	1.070	79.80	29.25	11.35	75.8	8.00	2.0
DP 1137B2RF	4.15	1.075	82.00	28.00	10.70	77.5	8.10	1.5
DP 1252B2RF	4.30	1.070	80.85	27.90	11.30	74.8	8.75	1.0
FM 1944GLB2	3.80	1.100	79.05	27.45	8.85	76.3	6.75	2.0
FM 2011GT	3.90	1.105	81.20	30.65	9.00	75.3	7.70	1.5
FM 2484B2F	3.85	1.170	80.55	30.50	8.70	77.8	7.25	2.0
FM 2989GLB2	4.30	1.105	81.55	30.10	8.15	76.3	7.80	2.5
FM 8720GLB2	3.30	1.105	79.65	29.95	8.85	77.2	7.45	1.5
FM 9160B2F	3.75	1.105	80.80	28.20	8.30	76.7	7.45	2.0
FM 9170B2F	3.85	1.165	81.30	30.90	8.75	77.3	7.45	2.5
FM 9180B2F	3.80	1.105	80.30	30.05	9.60	76.3	7.70	2.5
FM 9250GL	3.60	1.090	79.70	29.00	8.65	75.8	8.10	1.5
NG 4012B2RF	3.95	1.065	79.80	29.05	8.85	77.2	8.00	1.5
NG 4111RF	3.85	1.105	82.25	32.85	10.15	76.0	8.75	1.5
NG X00012	3.95	1.090	80.55	27.60	11.35	77.5	8.40	2.0
PG 375WRF	3.70	1.075	80.95	30.00	8.85	76.4	7.90	2.0
PG 499WRF	3.60	1.110	81.55	31.30	10.70	75.1	8.10	2.5
Minimum Significant Difference (0.05)	0.73	0.059	2.59	2.66	1.36	NS	0.98	2.7

[a]AM=Americot, AT = All Tex, BX = Experimental for Bayer CropScience, DP=Deltapine, DG = DynaGro, FM = Fibermax, NG = NexGen, PG=Phytogen, ST = Stoneville.
[b] NS = not significant.

Table 7. Relative[a] (Rel.) value, yield, wilt, and defoliation (Defol) for varieties tested in Plainview, Floydada, and Garden City in 2012.

Variety[b]	Rel. Value	Rank Value	Rel. Yield	Rank Yield	Rel. Wilt	Rank Wilt	Rel. Defol	Rank Defol
FM 2484B2F	1	1	0.994	1	0.261	2	0.287	1
FM 9170B2F	0.955	2	0.945	2	0.442	11	0.348	2
FM 2011GT	0.922	3	0.943	3	0.405	6	0.570	21
NG 4111RF	0.905	4	0.889	5	0.553	30	0.481	8
BX 1347GLB2	0.901	5	0.934	4	0.205	1	0.380	3
FM 2989GLB2	0.877	6	0.872	7	0.532	26	0.496	12
DynaGro-4	0.843	7	0.885	6	0.558	33	0.753	48
FM 9250GL	0.841	8	0.872	8	0.410	9	0.594	25
NG 4012B2RF	0.836	9	0.857	9	0.409	8	0.558	18
FM 9160B2F	0.836	10	0.832	13	0.406	7	0.394	4
FM 9180B2F	0.815	11	0.830	15	0.522	24	0.434	5
FM 1944GLB2	0.808	12	0.833	12	0.454	12	0.517	14
All-Tex Nitro-44 B2RF	0.803	13	0.836	10	0.462	13	0.547	16
FM 1740B2F	0.803	14	0.830	14	0.497	19	0.561	19
DP 0935B2RF	0.802	15	0.804	18	0.575	35	0.757	49
NG 3348B2RF	0.787	16	0.819	16	0.386	4	0.467	7
DP 1219B2RF	0.786	17	0.812	17	0.466	14	0.593	24
DynaGro-9	0.786	18	0.777	23	0.578	36	0.829	53
All-Tex CR253B2RF	0.786	19	0.835	11	0.594	39	0.685	44
DP 1137B2RF	0.757	20	0.758	26	0.673	43	0.660	35
BX 1348GLB2	0.751	21	0.775	24	0.513	22	0.556	17
DP 1133B2RF	0.749	22	0.778	21	0.789	51	0.611	28
BX 1346GLB2	0.738	23	0.784	20	0.532	27	0.681	43
All-Tex Edge B2RF	0.738	24	0.787	19	0.508	20	0.605	26
DP 1050B2RF	0.736	25	0.716	35	0.845	54	0.671	38
DP 1044B2RF	0.733	26	0.777	22	0.492	17	0.646	33
DynaGro-3	0.732	27	0.728	31	0.762	50	0.681	42
DP 1032B2RF	0.725	28	0.731	29	0.797	52	0.723	47
ST 4288B2F	0.714	29	0.729	30	0.391	5	0.544	15
NG X00012	0.713	30	0.684	41	0.912	55	0.659	34
DP 1212B2RF	0.704	31	0.733	28	0.548	28	0.970	57
DP 104B2RF	0.703	32	0.765	25	0.520	23	0.492	11
FM 8270GLB2	0.701	33	0.726	32	0.300	3	0.486	10
All-Tex CR202B2RF	0.693	34	0.702	37	0.554	31	0.566	20
DP 0912B2RF	0.689	35	0.723	34	0.605	40	0.645	32
NG 2501B2RF	0.680	36	0.725	33	0.551	29	0.485	9
PHY 499WRF	0.669	37	0.702	38	0.559	34	0.673	39
PHY 367WRF	0.661	38	0.735	27	0.484	15	0.575	23
DP 1252B2RF	0.659	39	0.683	42	0.939	56	0.679	41
NG 1511B2RF	0.655	40	0.699	39	0.589	38	0.703	45
PHY 375WRF	0.651	41	0.677	43	0.526	25	0.807	52

Table 7. cont.

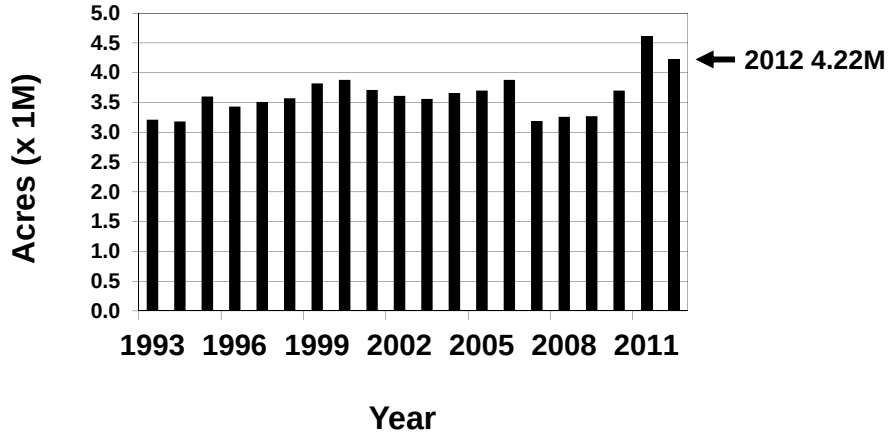
Variety[b]	Rel. Value	Rank Value	Rel. Yield	Rank Yield	Rel. Wilt	Rank Wilt	Rel. Defol	Rank Defol
DP 0949B2RF	0.650	42	0.714	36	0.492	18	0.668	37
DP 1048B2RF	0.648	43	0.651	51	0.699	45	0.676	40
FM 9103GT	0.635	44	0.691	40	0.621	41	0.609	27
DynaGro-10	0.633	45	0.675	45	0.428	10	0.575	22
DynaGro-8	0.628	46	0.662	47	0.511	21	0.777	50
All-Tex 10WR585RF	0.627	47	0.627	54	0.747	48	0.460	6
DynaGro-1	0.625	48	0.614	56	0.699	46	0.637	30
DynaGro-5	0.614	49	0.655	50	0.579	37	0.517	13
All-Tex 789381RF	0.613	50	0.661	48	0.816	53	0.641	31
DynaGro-2	0.612	51	0.623	55	0.687	44	0.794	51
All-Tex Rapid B2RF	0.604	52	0.666	46	0.487	16	0.936	56
DynaGro-6	0.603	53	0.642	52	0.757	49	0.614	29
DynaGro-7	0.583	54	0.635	53	0.715	47	0.705	46
AM 1550B2RF	0.581	55	0.675	44	0.554	32	0.866	54
All-Tex CR106466B2RF	0.575	56	0.657	49	0.624	42	0.664	36
All-Tex 91139B2RF	0.435	57	0.491	57	1.099	57	0.900	55

[a]Every variety in each test is placed in a 0 to 1 scale, where the actual yield is divided by the highest mean yield for a variety at that site, or the highest wilt value, or the highest defoliation value. A ranking of 1 is the best and 57 is the worse.

[b]AM=Americot, AT = All Tex, BX = Experimental for Bayer CropScience, DP=Deltapine, DG = DynaGro, FM = Fibermax, NG = NexGen, PG=Phytogen, ST = Stoneville.

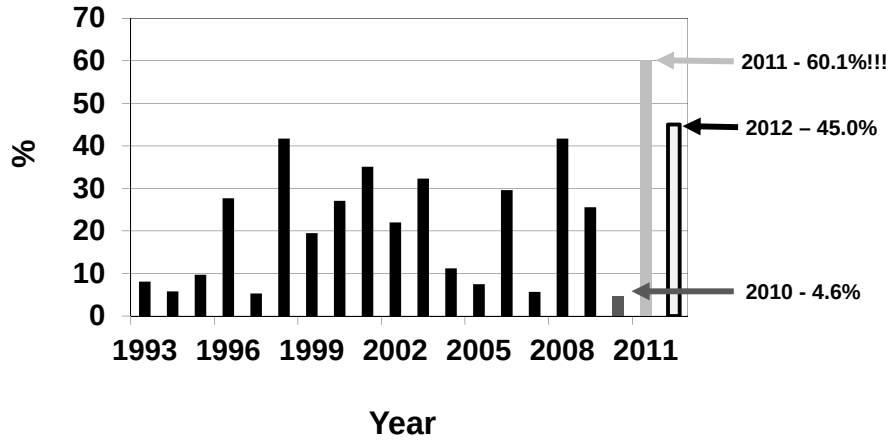
2012 Texas High Plains Production and Weather

High Plains (TASS 1N and 1S)
Planted Acres
1993-2012



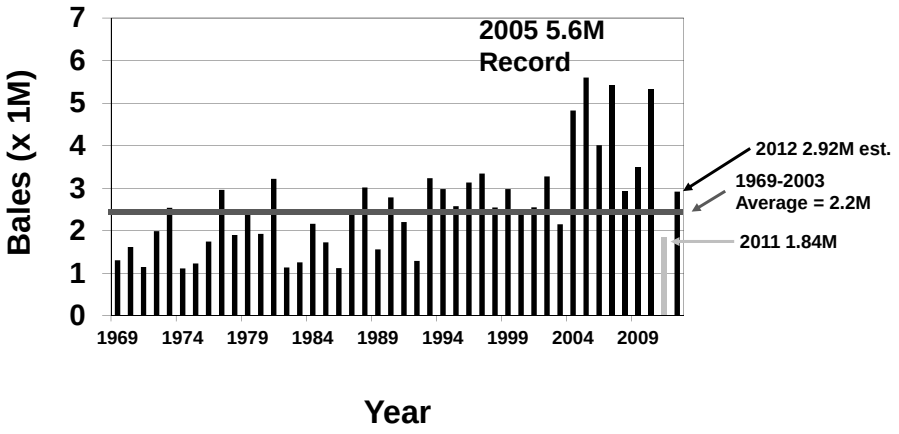
Source: USDA-NASS

High Plains (TASS 1N and 1S)
Abandoned Acres
1993-2011 and 2012 Estimate



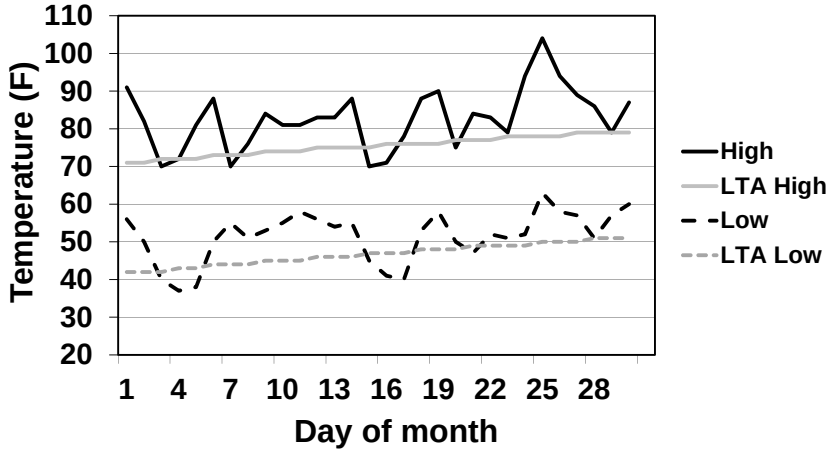
Source: USDA-NASS

High Plains (TASS 1N and 1S)
Total Bale Production
1969-2011 and 2012 Estimate

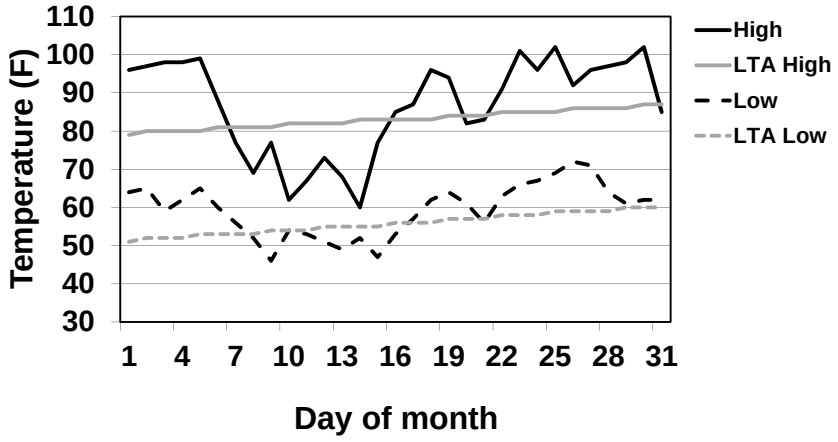


Source: USDA-NASS

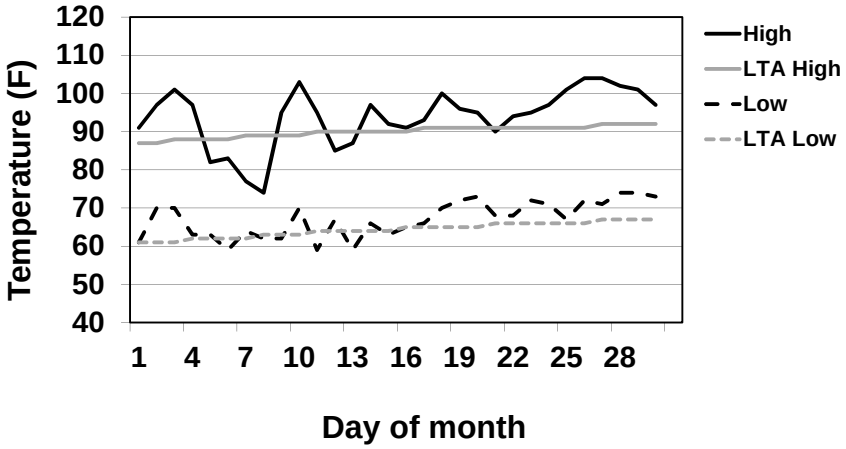
Lubbock Air Temperatures
April, 2012



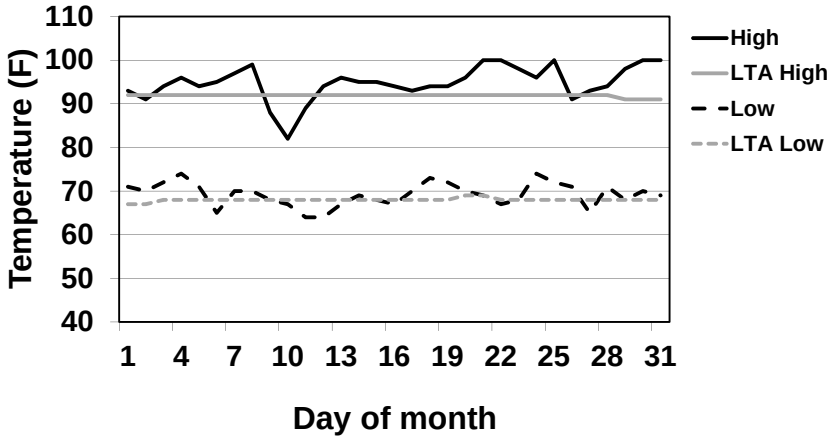
Lubbock Air Temperatures
May, 2012



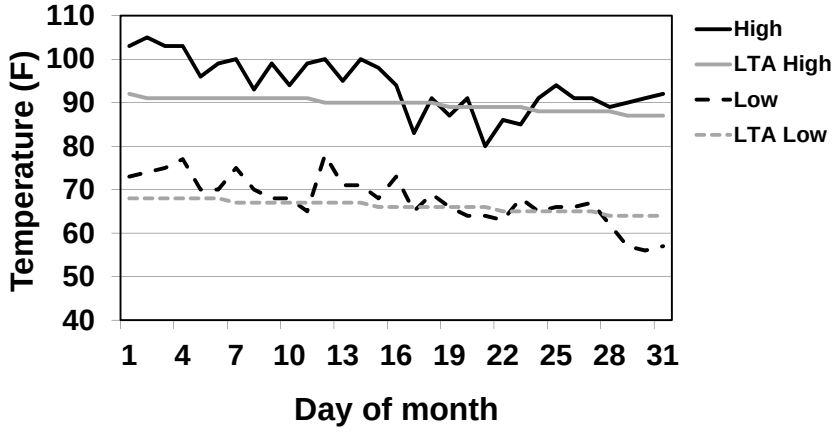
Lubbock Air Temperatures
June, 2012



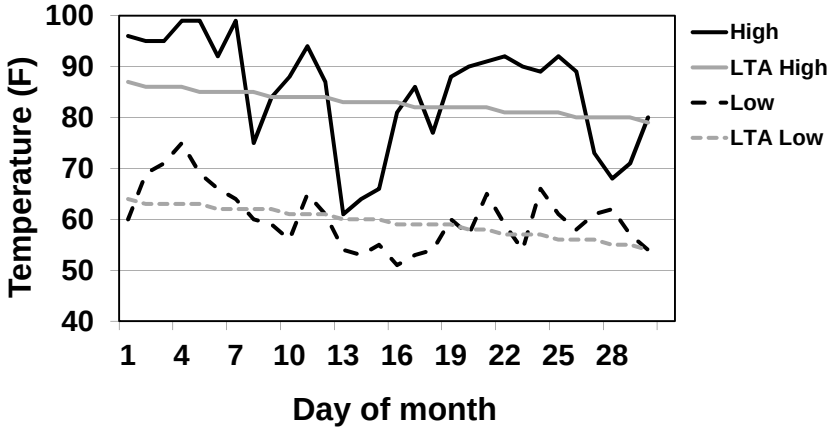
Lubbock Air Temperatures
July, 2012



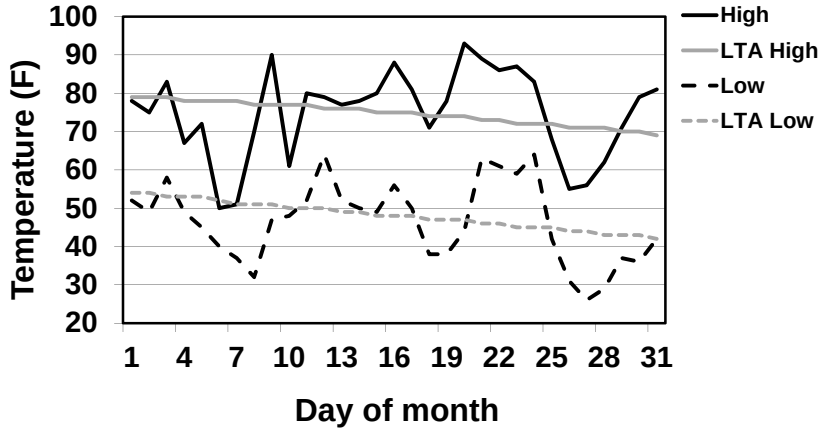
Lubbock Air Temperatures
August, 2012



Lubbock Air Temperatures
September, 2012

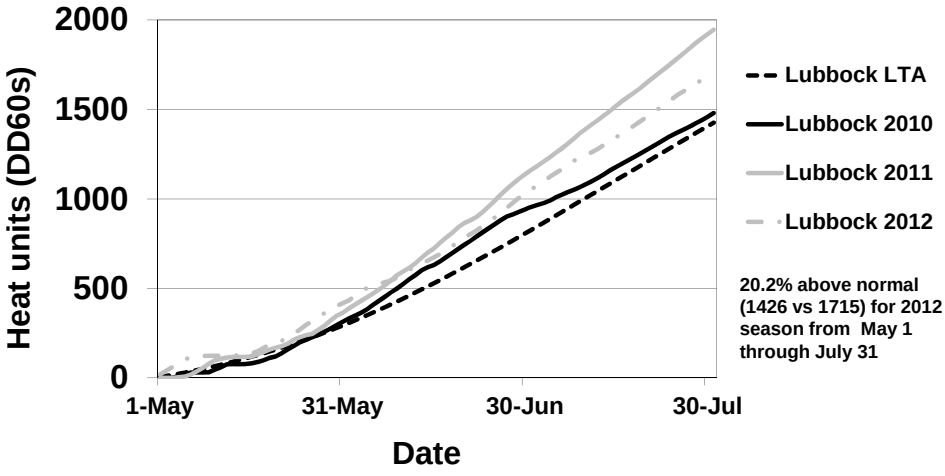


Lubbock Air Temperatures
October, 2012



Lubbock 30-Yr Long Term Average (1971-2000) vs. 2010-2012

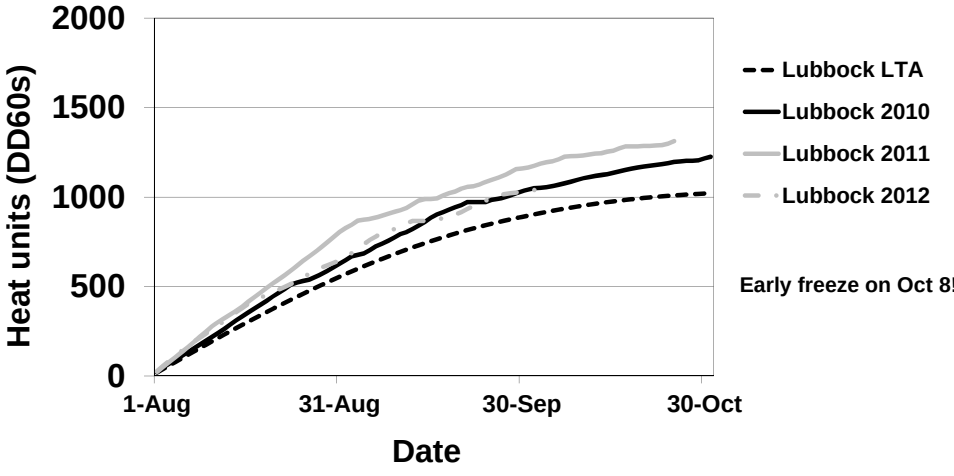
Cotton Heat Unit Accumulation From May 1 through July 31



20.2% above normal (1426 vs 1715) for 2012 season from May 1 through July 31

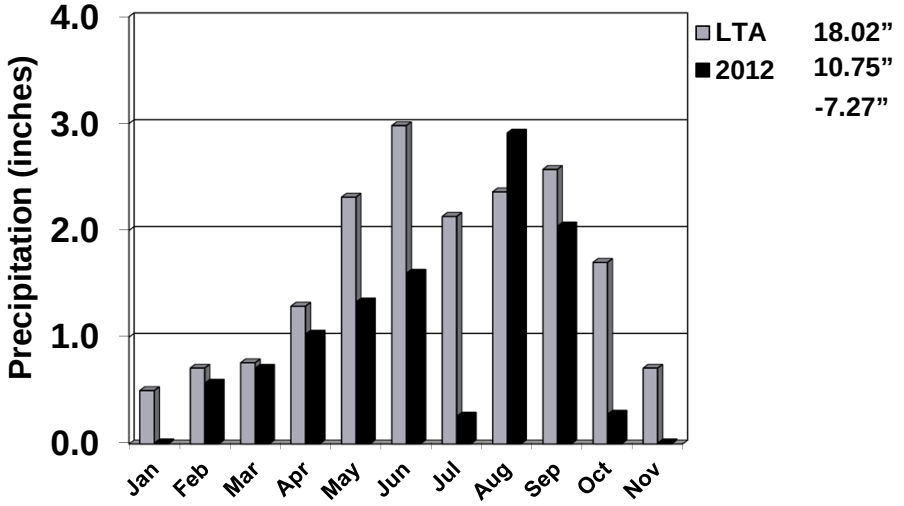
Lubbock 30-Yr Long Term Average (1971-2000) vs. 2010-2012

Cotton Heat Unit Accumulation From August 1 through October 31



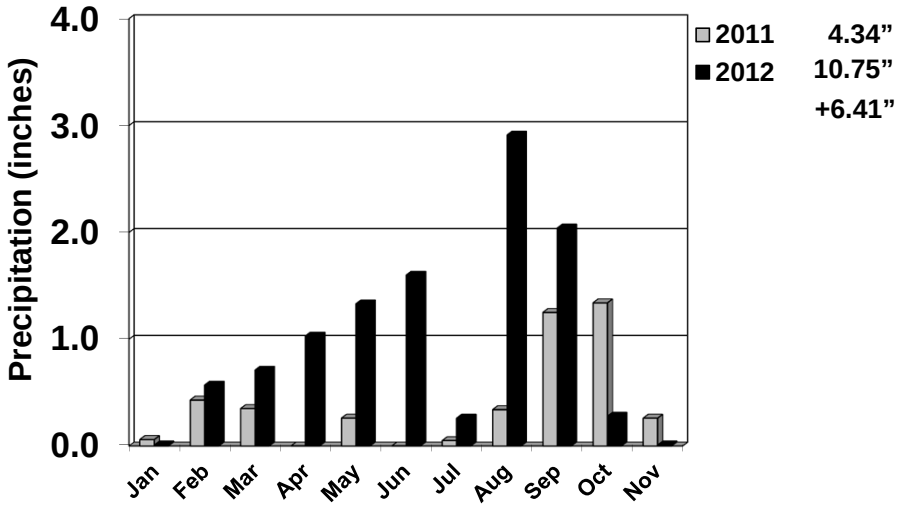
Early freeze on Oct 8!!!

Lubbock LTA (1971-2000) vs. 2012 Rainfall



Source: http://www.weather.gov/climate/index.php?wfo=lub

Lubbock 2011 vs. 2012 Rainfall



Source: http://www.weather.gov/climate/index.php?wfo=lub

EVALUATING FIELD TRIAL DATA

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Field trials can provide helpful information to producers as they compare products and practices for their operations. However, field trials must be evaluated carefully to make sure results are scientifically sound, not misleading and indicate realistic expectations for on-farm performance.

This fact sheet is designed to give you the tools to help you determine whether data from a field trial is science fact or science fiction.

What are the best sources of field trial data?

Field trials are conducted by a broad range of individuals and institutions, including universities, ag input suppliers, chemical and seed companies and growers themselves. All are potentially good sources of information.

What are the common types of field trials?

Most field trials fall into one of two categories: side-by-side trials (often referred to as strip trials) or small-plot replicated trials. Side-by-side trials are the most common form of on-farm tests. As the name suggests, these trials involve testing practices or products against one another in plots arrayed across a field, often in strips the width of the harvesting equipment.

These strips should be replicated across the field or repeated at several locations to increase reliability. Small-plot replicated trials often are conducted by universities and companies at central locations because of the complexity of managing them and the special planting and harvesting equipment often required.

Replicated treatments increase the reliability of an experiment. They compare practices or products against one another multiple times under uniform growing conditions in several randomized small plots in the same field or location.

Small-plot replicated trials also may be conducted on farmers' fields where special conditions exist, for example, a weed infestation that does not occur on an experiment station.

Are side-by-side plots more valuable than small-plot replicated trials, or vice versa?

Both types of plots can provide good information. The key is to evaluate the reliability of the data. It is also important to consider the applicability of the trial to your farming operation.

When is plot data valid, and when isn't it?

There isn't a black-and-white answer to that questions. But there are good rules of thumb that can help guide you. Consider these three field trial scenarios:

Scenario 1:

A single on-farm side-by-side trial comparing 10 varieties. Each variety is planted in one strip the width of the harvesting equipment and is 250 to 300 feet long.

What you can learn:

This trial will allow you to get a general feel for each variety or hybrid in the test, including how it grows and develops during the season. However, this trial, by itself, probably won't be able to reliably measure differences in yield. This is because variability within the field, even if it appears to be relatively uniform, may be large enough to cause yield variations that mask genetic difference among the varieties. Other varietal characteristics, such as maturity or micronaire in cotton, can also be masked by soil variation.

Scenario 2:

Yield data from side-by-side variety trials conducted on the same varieties on multiple farms in your region.

What you can learn:

When data from multiple side-by-side trials are considered together, reliability increases. In this case, the more trials comparing the same varieties, the better. As you go from three to five to 10 or more locations, the certainty goes up that yield differences represent genetic differences and not field variability. Be aware, however, that small differences between treatments (in this case varieties) may still be within the margin of random variability of the combined trial and may not indicate actual genetic differences. One treatment will almost always be numerically higher. Statistical analysis helps determine if differences are significant (consistent).

Scenario 3:

A university-style small-block replicated trial comparing the same 10 varieties.

What can you learn:

Data from such trials, if they are designed well and carried out precisely, generally are reliable. That is, the results generally determine the yield potential of crop varieties. However, it is still important to consider whether results are applicable to your farming operation and are consistent with other research.

How do I know whether differences in yield, for example, are real and not caused by field variability or sloppy research?

Scientists use statistical analysis to help determine whether differences are real or are the result of experimental error, such as field variation.

The two most commonly used statistics are Least Significant Difference (LSD) and the Coefficient of Variation (CV), both of which can provide insight on the validity of trial data. If these values aren't provided with trial results, ask for them.

Least Significant Difference (LSD) is the minimum amount that two varieties must differ to be considered significantly different. Consider a trial where the LSD for yield is four bushels per acre. If one variety yields 45 bushels per acre and another yields 43 bushels per acre, the two are not statistically different in yield. The difference in their yields is due to normal field variation, not to their genetics. In this example, a variety that yields 45 bushels per acre is significantly better than those yielding less than 41 bushels per acre. In many research trials, LSDs are calculated at confidence level of 75 to 95 percent. For example, a confidence level of 95 percent means you can be 95 percent certain that yield differences greater than the LSD amount are due to genetics and not to plot variability.

Coefficient of Variation (CV) measures the relative amount of random experimental variability not accounted for in the design of a test. It is expressed as a percent of the overall average of the test.

For measuring yield differences, CV's of up to five percent are considered excellent; 5.1 to 10 percent are considered good; and 10.1 to 15 percent are fair.

A high CV means there must be larger differences among treatments to conclude that significant differences exist. The bottom line: When considering yield test data, be skeptical when the CV exceeds 15 percent.

Is a one-year test valid, or are several years of results necessary to know whether one product or practice is superior to another?

In an ideal world, having several years of tests to verify use of a practice or product is best. But where changes are rapid, such as with crop varieties, having university data from multiple years isn't always possible.

When multi-year university data aren't available, pay more careful attention to statistical measures like CV and LSD, and the number of locations and testing environments.

Multi-year data on yield and performance can also be requested from the developers of new products prior to university testing. In either case, be cautious about making major production changes and trying large acreages of a given variety based on one year's data.

How should I evaluate trial results that are markedly different from other research in my area?

When research results are at odds with the preponderance of scientific evidence, examine the new research with extra care.

Pay special attention to factors that might have influenced the outcome, such as soil type, planting date, soil moisture and other environmental conditions, and disease, insect and weed pressures. For example, was the growing season unusually wet or unusually dry? When was it dry or wet? What was the crop growth stage when it was wet or dry? Was there a disease that affected one variety or hybrid more than another one? Were there insect problems? Could this have influenced the trial's outcome and its applicability to your operation? If you determine that unusual circumstances affected the outcome, be cautious about how you use the results.