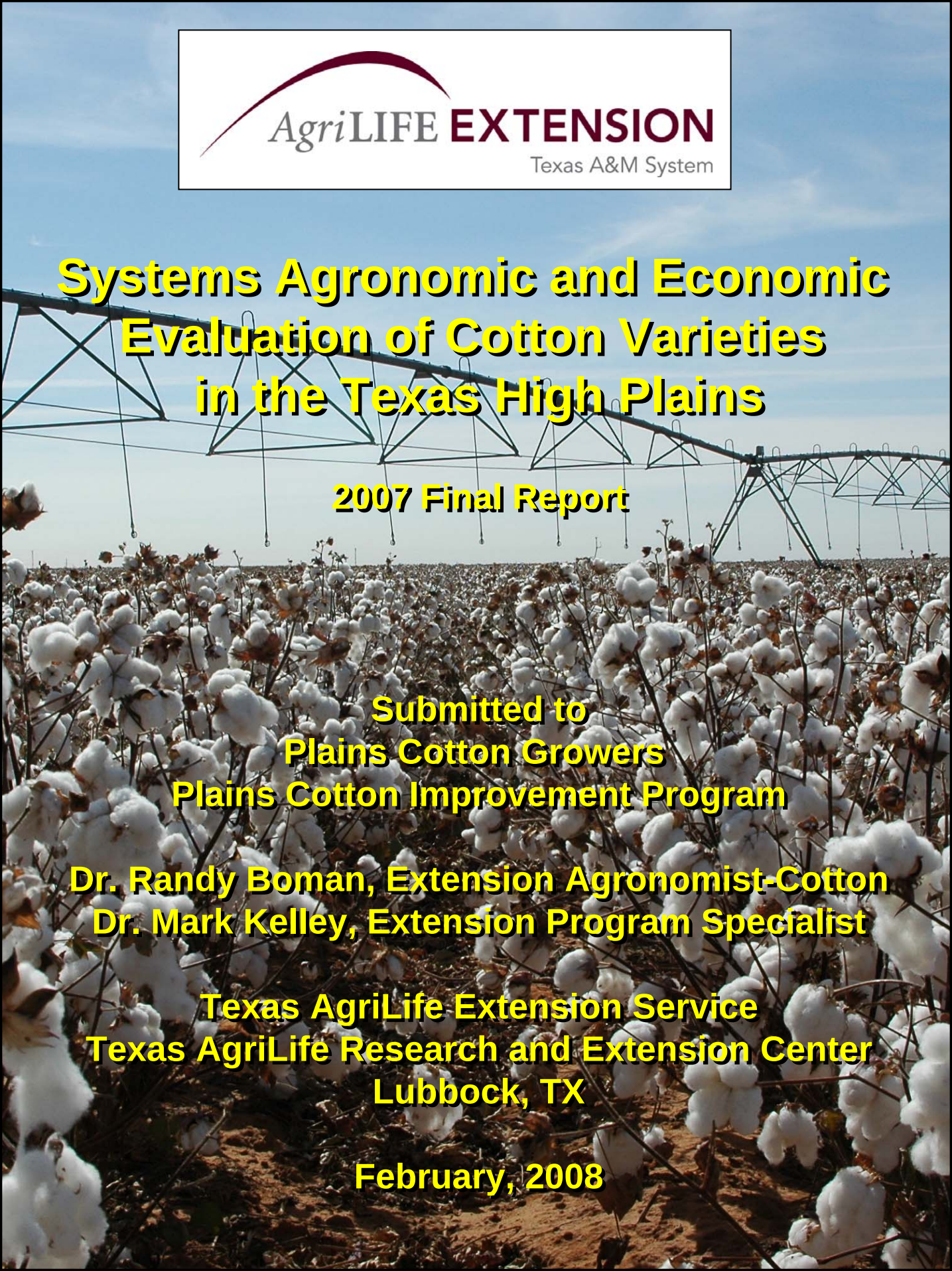

Systems Agronomic and Economic Evaluation of Cotton Varieties in the Texas High Plains

2007 Final Report

Submitted to
Plains Cotton Growers
Plains Cotton Improvement Program

Dr. Randy Boman, Extension Agronomist-Cotton
Dr. Mark Kelley, Extension Program Specialist

Texas AgriLife Extension Service
Texas AgriLife Research and Extension Center
Lubbock, TX

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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 each location. Plot size was of sufficient size to enable the combining of all replications of each individual variety into a single module at harvest. Each individual variety had at least three acres total (approximately one acre per plot with three replications equals three acres total). Plot weights were determined at harvest using a boll buggy with integral electronic scales. Modules were followed through the ginning process to determine lint turnout, USDA-AMS fiber quality, and CCC loan value. Three producer-cooperator locations were utilized for this project. Trials were planted in Parmer, Crosby and Yoakum counties.

At the Muleshoe (Parmer County) location, late-season heat unit accumulation allowed excellent crop maturation which resulted in the highest micronaire values and CCC loan values observed at this location since the project's initiation. No pre-harvest lint losses due to inclement weather were encountered in looser "picker-type" varieties. Three of the top five varieties were Roundup Ready Flex and two were Bollgard II/Roundup Ready Flex. FiberMax 9058F, Deltapine 121RF, FiberMax 9150F, Stoneville 5327B2RF and FiberMax 9180B2F produced the highest net values in $/acre.

Both record high yields and fiber quality were observed at the Blanco (Crosby County) location. No pre-harvest losses were encountered for the looser "picker-type" varieties. The highest net value was observed for FiberMax 9180B2F and it was statistically superior to all other varieties. Within the statistical "second tier" five Bollgard II/Roundup Ready Flex varieties produced the same net value. These varieties were, in numerical order from highest to lowest, Stoneville 4554B2RF, All-Tex Apex B2RF, Stoneville 5327B2RF, AFD 5065B2F, and Deltapine 164B2RF.

At Plains (Yoakum County), record high yields and quality were also observed due to timely rainfall events and no substantial pre-harvest losses in looser varieties. Within the statistical Aupper tier@ of net returns, five varieties produced the same net value. Four of the top five varieties were Bollgard II/Roundup Ready Flex and one was Roundup Ready Flex. These varieties were, in numerical order from highest to lowest, FiberMax 9180B2F, Stoneville 4554B2RF, Deltapine 104B2RF, All-Tex Apex B2RF, and FiberMax 9150F.

Results from the 2007 production season at varying locations in the Texas High Plains indicate that, in years when harvest is not hampered by precipitation events and pre-harvest losses are minimal, excellent yields and fiber quality can be obtained across the region. 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 were approximately $113 at Muleshoe, $208 at Blanco, and $201 at Plains. Additional multi-site and multi-year applied research is needed to evaluate varieties across a series of environments.

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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 acres of transgenic cottons (glyphosate- and glufosinate-herbicide tolerant and Bt insect-resistant types) from approximately 300 thousand in 1997 to approximately 3 million in 2007. Industry continues to increase the number of herbicide-tolerant, insect-resistant, and "stacked gene" varieties. The proliferation of transgenic varieties in the marketplace is expected to continue over the next several years. 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/AFD/Stoneville brands, and Dow AgroSciences- PhytoGen brand.

More transgenic varieties in both picker and stripper type cottons are expected to be released by these companies in the future. 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. This technology was available in a limited number of varieties including some containing Bollgard II "stacked" with Roundup Ready. Varieties containing Monsanto-s Roundup Ready Flex gene system were commercialized in 2006. Many Roundup Ready Flex only types, as well as those "stacked" with Bollgard II were available. 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. Additional cotton biotechnologies are also anticipated in the near future including the GlyTol glyphosate tolerance trait from Bayer CropScience.

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 replicates of each variety were included at each location. Plots were of sufficient size to enable the combining of all replicates of each individual variety into a single module at harvest. Each individual variety had at least three acres total (approximately one acre per plot with three replicates equals three acres total). A randomized complete block design was used at all three locations.

Preplant incorporated and/or preemergence herbicide applications were made at the discretion of the producer-cooperator. All varieties were Roundup Ready Flex, Bollgard II/Roundup Ready Flex stacked, or Widestrike/Roundup Ready Flex stacked; therefore, no differential herbicide applications were made. Broadcast over-the-top and post-directed herbicide applications were made by the cooperator when needed. Weed species spectrum was determined by project personnel working with the cooperator. Blanket applications of insecticides, plant growth regulators (PGRs), and harvest aids were applied by the cooperator or commercially as needed at each location.

In-season and final plant mapping data were derived from mapping 6 representative plants/plot. Plot weights were determined at harvest using a boll buggy with integral electronic scales. Modules were followed through the ginning process to determine lint turnout, USDA-AMS fiber quality, and Commodity Credit Corporation (CCC) loan value. Seed and technology costs were calculated using the appropriate seeding rate (seed/row-ft) for the row spacing and entries using the online Plains Cotton Growers Seed Cost Comparison Worksheet with Monsanto Cap Cost Thresholds available at: http://www.plainscotton.org/Seed/seedindex.html. Gin managers were asked to gin each module separately and to tie off any remnant bales obtained in the ginning process in order to determine more precisely the turnout and lint yields. Data were then converted to a per acre basis and appropriate statistical analyses were performed.

Three producer-cooperator locations were utilized for this project.

Location 1 - Muleshoe (Parmer County)

James Brown Farm, near Muleshoe
Clean tillage following corn
Irrigation: Low elevation spray, straight rows
Plot size: 12 30-inch rows
Area: Variable (1.0 to 1.8 acres/plot), 3 replications of each variety
Planted: May 15 at 4.1 seed/per row-ft or ~72,000 seed/acre.
Harvested: November 2

Varieties planted at this site included:

1. Deltapine 121RF
2. FiberMax 9058F
3. FiberMax 9150F
4. All-Tex Summit B2RF
5. Americot 1664B2RF
6. Deltapine 104B2RF
7. FiberMax 9063B2F
8. FiberMax 9180B2F
9. Stoneville 4554B2RF
10. Stoneville 5327B2RF
11. PhytoGen 485WRF

Weed Control Program: $77.00/acre

Dominant weed species: pigweed, morningglory, volunteer corn

Blanket herbicide applications were made by the producer via ground rig at this location. A preplant incorporated application of 2.0 pt/acre trifluralin was made on March 21. At planting, May 15, 1.0 qt/acre of Direx (diuron) was applied to a 15-inch band behind the press-wheel. Applications of 1.0 qt/acre Roundup Original Max (glyphosate) were made on June 14 and July 1 (with 1.0 qt/a 32-0-0) for control of pigweed and morningglory. For control of volunteer corn, two applications of Fusion (fluazifop-P-butyl) were made on June 8 and July 20 at 8.0 and 12 oz/acre, respectively. No cultivation or hoeing was conducted at this site for weed control.

Insect Control Program: $63.00/acre

Insecticide applications at this location made by the producer or commercially. Temik was applied in-furrow at planting (May 15) at 3.75 lb/acre. On June 8, 4 oz/acre acephate was applied by the producer (tank mix with Fusion) and again on June 14 (tank mix with Roundup Original Max) for control of thrips. An application of 2.0 oz/acre acephate was aerially applied in a tank mix with Ammo for control of lygus and fleahoppers on June 22. Another aerial application of acephate at 6.0 oz/acre occurred on June 30 for thrips control. Additional applications of acephate were applied by the producer on July 1 (2.0 oz/acre in tank mix with Roundup Original Max) and July 28 (2.0 oz/acre in tank mix with 3.2 oz/acre Ammo). Other insecticides included aerial applications of 1.25 oz/acre Centric, on August 2, and a tank mix of Baythroid (2.56 oz/acre) and Trimax PRO (0.9 oz/acre), on August 21. This location was in an active boll weevil eradication zone, but no applications were made by the Texas Boll Weevil Eradication Foundation.

PGR Program: $12.00/acre

For control of plant height, Stance (mepiquat chloride plus cyclanlide) was included in tank mixes with aerial applications on June 22 (2.0 oz/acre with acephate and Ammo), June 30 (1.5 oz/acre with acephate), and August 2 (2.0 oz/acre with Centric). Ground applications by the producer included 2.0 oz/acre tank mixed with Roundup Original Max and acephate on July 1 and an additional 0.5 oz/acre was included with the July 20 application of Fusion. In total, 8.0 oz/acre Stance was applied throughout the growing season at this location.

Harvest Aid Program: $31.30/acre

On October 11, 32.0 oz/acre Prep (ethephon) and 16.0 oz/acre Def (tribufos) were aerially applied for boll opening and defoliation. A sequential application of 32.0 oz/acre Gramoxone Inteon with 8.0 oz/acre Crop Oil Concentrate (COC) was aerially applied on October 19 for final desiccation.

Total input cost for this location was $183.30/acre and included all herbicide, insecticide, PGR, and harvest aid chemical costs (including additives) and application costs, when applicable (Table 6). This cost is not reflected in the net value/acre numbers in Table 3.

Location 2 - Blanco (Crosby County)

Appling Farm, near Blanco
Reduced tillage following cotton
Irrigation: LEPA, circular rows
Plot Size: 8 40-inch rows/plot
Area: Variable (0.7 to 1.5 acres/plot), 3 replications of each variety
Planted: May 16 at 3.3 seed/per row-ft, or ~43,000 seed/acre
Harvested: November 17 and 19

Varieties planted at this site included:

1. AFD 5064F
2. FiberMax 9058F
3. AFD 5065B2F
4. Americot 1622B2RF
5. All-Tex Apex B2RF
6. All-Tex Arid B2RF
7. Deltapine 104B2RF
8. Deltapine 164B2RF
9. FiberMax 1880B2F
10. FiberMax 9180B2F
11. PhytoGen 485WRF
12. Stoneville 4554B2RF
13. Stoneville 5327B2RF

Weed Control Program: $25.63/acre

Dominant weed species: pigweed, silverleaf nightshade, morningglory, kochia, lanceleaf sage

Blanket herbicide applications were made by the producer via ground rig at this location. Applications of 1.0 qt/acre Roundup Original Max (glyphosate) were made on July 4 and August 10 with AMS. No cultivation or hoeing was conducted at this site for weed control.

Insect Control Program: $14.40/acre

One Insecticide application was made at this location by the producer. On August 10, 3 oz/acre Centric (thiamethoxam) was applied by the producer (tank mixed with Roundup Original Max) for control of aphids. This location was in an active boll weevil eradication zone, but no applications were made by the Texas Boll Weevil Eradication Foundation.

PGR Program: $0.00/acre

No PGR applications were made at this site.

Harvest Aid Program: $0.00/acre

No harvest aids were applied at this location.

Total input cost for this location was $40.03/acre and included all herbicide and insecticide costs (including additives) and application costs, when applicable (Table 11). This cost is not reflected in the net value/acre numbers in Table 9.

Location 3 - Plains (Yoakum County)

Rickey Bearden Farm, Plains (Yoakum County)
Clean-tillage following cotton
Irrigation: Low elevation spray, straight rows
Plot Size: 12 40-inch rows/plot
Area: Variable (0.8 to 2.4 acres/plot), 3 replications of each variety
Planted: May 24 at 4 seed/per row-ft, or 52,272 seed/acre
Harvested: November 8 and 9

Varieties planted at this site included:

1. All-Tex 65333RF
2. Deltapine 121RF
3. FiberMax 9058F
4. FiberMax 9150F
5. AFD 5065B2F
6. All-Tex Apex B2RF
7. Americot 1664B2RF
8. Deltapine 104B2RF
9. Deltapine 143B2RF
10. Deltapine 164B2RF
11. Dyna-Gro 2100B2RF
12. FiberMax 9063B2F
13. FiberMax 9180B2F
14. PhytoGen 485WRF
15. Stoneville 4427B2RF
16. Stoneville 4554B2RF
17. Stoneville 5327B2RF

Weed Control Program: $34.55/acre

Dominant weed species: silverleaf nightshade, russian thistle, devils claw, buffalobur, prairie sunflower

A blanket herbicide program was used across all varieties, which included 1 pt/acre trifluralin preplant incorporated on March 3. Trifluralin at 4.0 oz/acre applied on a 10-inch band over the row across all varieties at planting. Two applications of 1.0 qt/acre Roundup Original Max were applied on July 1 and August 22. No cultivation or hoeing for weed control was conducted at this site.

Insecticide Program: $23.78/acre

Temik was applied in-furrow at planting at 4 lb/acre. Also, on August 2, Intruder was applied by the producer at 0.75 oz/acre. This location was in an active boll weevil eradication zone, but no applications were made by the Texas Boll Weevil Eradication Foundation.

PGR Program: $9.62/acre

One application on June 25 of 4.0 oz/acre Pix was made by the producer at this site.

Harvest Aid Program: $30.56/acre

Harvest aids applied by the producer included, October 10, 32 oz/acre Prep with 6 oz/acre Ginstar, followed by 21.3 oz/acre Gramoxone Inteon with 8.0 oz/acre COC on October 23.

Total input cost for this location was $98.51/acre and included all herbicide, insecticide, PGR, and harvest aid chemical costs (including additives) and application costs, when applicable (Table 17). This cost is not reflected in the net value/acre numbers in Table 14.

Results

Agronomic and economic results by variety as well as summaries of expenses incurred at each location are provided in Tables 1-17.

Location 1 - Muleshoe

The early and late-season growth characteristics are presented in Tables 1 and 2. Plant stands averaged about 57,000 plants/acre on June 18. No significant differences were observed among varieties for plant stand with a range from a high of 62,726 for FiberMax 9058F to a low of 53,666 for Deltapine 121RF. Slight differences were observed among varieties for vigor parameters measured on July 3 with FiberMax 9180B2F numerically having the highest height to node ratio (plant height divided by mainstem nodes). Differences were also noted for nodes above 1st position white flower (NAWF) counts taken on July 31, August 7, August 14, and August 20 with averages of 7.4, 6.0, 3.5, and 2.1, respectively. Days to cutout (NAWF=5) was highest for PhytoGen 485WRF (89.0) and lowest for FiberMax 9058F (83.7) with a test average of 86.8. Final plant map data collected just prior to harvest indicated significant differences among varieties for plant height (alpha=0.10), node of first sympodium, total mainstem nodes, and height to node ratio. However, no differences were observed for number of fruiting branches (average 9.8) or percent first position fruit retention (average 56.7%). Deltapine 121RF had the highest plant height of 22.8 inches and FiberMax 9180B2F had the lowest with 19.3 inches. The highest node of first sympodium was recorded for FiberMax 9150F (7.4) and Americot 1664B2RF had the lowest (5.7) with a test average of 6.3. Total mainstem nodes averaged 15.1 with a range from 16.7 for FM 9150F to a low of 14.1 for All-Tex Summit B2RF. Final height to node ratios ranged from 1.28 (FiberMax 9150F) to 1.59 (Deltapine 121RF), with a test average of 1.41.

Commercial turnouts of non-field cleaned bur cotton ranged from 23.6% for PhytoGen 485WRF to 28.0% for FiberMax 9150F (Table 3). Bur cotton yields ranged from 4941 lb/acre for FiberMax 9150F to 5507 lb/acre for Stoneville 5327B2RF. This resulted in lint yields ranging from 1226 lb/acre for PhytoGen 485WRF to 1397 lb/acre for Deltapine 121RF. Lint loan values derived from USDA-AMS classing results of the bales obtained in the project indicated that values ranged from $0.5751 for All-Tex Summit B2RF to $0.5927 for FiberMax 9180B2F. After totaling lint and seed value per acre and subtracting out ginning costs and seed and technology costs (Table 5), the net value per acre ranged from a low of $667.60/acre for PhytoGen 485WRF to $780.23/acre for FiberMax 9058F, a difference of $112.63. Five varieties, including 3 with Roundup Ready Flex and 2 with Bollgard II/Roundup Ready Flex, were in the statistical upper tier for net value/acre. FiberMax 9058F resulted in the highest net value and was significantly greater than 6 of the 11 varieties. Deltapine 121RF, FiberMax 9150F, Stoneville 5327B2RF, and FiberMax 9180B2RF were included in the top five at this location and were not statistically different from one another.

Micronaire averages of 3.8 to 4.1 were encountered at this location (Table 4). It should be noted that fiber quality from all varieties was excellent and the highest ever encountered at this site. The highest

average micronaire value (4.1) was produced by PhytoGen 485WRF. Staple ranged from a high of 37.5 (FiberMax 9063B2F) to a low of 35.1 (All-Tex Summit B2RF). Only 1 leaf grade 4 was observed in all bales produced (PhytoGen 485WRF) and only one bale with bark contamination (220 point discount) was observed (Deltapine 121RF).

Location 2 - Blanco

The early season growth characteristics are presented in Table 7. Plant stands averaged about 32,000 plants/acre on June 22. No significant differences (alpha=0.05) were observed among varieties for plant stand with a range from a high of 35,894 for FiberMax 9058F to a low of 29,360 for AFD 5062B2F. Significant differences were observed among varieties for plant height, total mainstem nodes, and height to node ratio on July 9. FiberMax 1880B2F had the highest height to node ratio and Deltapine 104B2RF had the lowest, 0.95 and 0.82, respectively. Differences were also noted for NAWF counts taken on July 31, August 8, August 16, and August 22 with averages of 6.0, 6.2, 4.6, and 4.1, respectively. Stoneville 4554B2RF had the highest number of days to cutout (94.7) and FiberMax 9058F had the lowest (85.5) with a test average of 90.0. Final plant map data collected just prior to harvest indicated significant differences among varieties for all measured parameters with the exception of node of first sympodium (Table 8). Deltapine 164B2RF had the largest plant height of 31.4 inches and FiberMax 9180B2F had the lowest with 22.0 inches and a test average of 26.8 inches was observed. Node of first sympodium average was 6.9. The greatest number of fruiting branches was observed for Deltapine 164B2RF with 15.5 and the lowest number for All-Tex Apex B2RF with 12.4. Total mainstem nodes averaged 19.8 with a range from 21.4 for Deltapine 164B2RF to 17.7 for All-Tex Apex B2RF. Final height to node ratios ranged from 1.62 (Stoneville 5327B2RF) to 1.13 (FiberMax 9180B2F), with a test average of 1.37. Stoneville 5327B2RF had the highest percentage first position fruit retention with 61.3% and All-Tex Arid B2RF had the lowest with 43.5%. The test average retention of first position fruit was 52.3% at this location.

Commercial turnouts of field-cleaned bur cotton averaged 31.3% with a high of 34.4% for FiberMax 9180B2F and a low of 28.1% for All-Tex Arid B2RF (Table 9). Bur cotton yields ranged from 3613 lb/acre for FiberMax 9180B2F to 3300 lb/acre for All-Tex Arid B2RF. Lint yields ranged from 1244 lb/acre for FiberMax 9180B2F to 929 lb/acre for All-Tex Arid B2RF with a test average of 1090 lb/acre. Lint loan values derived from USDA-AMS classing results of the bales obtained in the project indicated that values ranged from $0.5435 for PhytoGen 485WRF to $0.5870 for Deltapine 164B2RF. After totaling lint and seed value per acre and subtracting out ginning costs and seed and technology costs (Table 11), the net value per acre ranged from a low of $513.10 for All-Tex Arid B2RF to a high of $721.94 for FiberMax 9180B2F, a difference of $208.84. FiberMax 9180B2F was significantly greater than all other varieties in terms of net value in $/acre. Within the second "statistical tier" of net returns, five varieties produced the same net value. All five varieties were Bollgard II/Roundup Ready Flex. These varieties were, in numerical order from highest to lowest, Stoneville 4554B2RF, All-Tex Apex B2RF, Stoneville 5327B2RF, AFD 5065B2F, and Deltapine 164B2RF.

Micronaire averages at this location ranged from 3.8 to 4.6 for Deltapine 104B2RF and AFD 5064F, respectively (Table 10). Average staple was highest for FiberMax 9058F (36.8) and lowest for AFD 5064F (34.3). Only one leaf grade 4 was observed in all bales produced (PhytoGen 485WRF) and none of the bales exhibited bark contamination. Average fiber strength values ranged from a high of 29.5 g/tex for AFD 5064F to a low of 26.1 for All-Tex Apex B2RF. The highest average uniformity (81.4%) was observed in two varieties, AFD 5064F and PhytoGen 485WRF and All-Tex Apex B2RF had the lowest with 79.5%.

Location 3 - Plains

The early and late season growth characteristics are presented in Tables 12 and 13. Plant stands averaged about 39,000 plants/acre on June 28. Stands ranged from a low of 35,284 for FiberMax 9063B2F to a high of 43,125 for Deltapine 143B2RF, and no statistical differences were noted at the alpha=0.05 level. No differences were observed among varieties for plant height or height to node ratio on June 29 and only slight differences in total mainstem nodes were observed. Differences were observed among varieties for NAWF counts taken on August 2, August 7, and August 21 with averages of 6.9, 5.8, and 4.0, respectively. However, no differences were observed on August 14 (4.9 average) nor were there any differences among varieties for number of days to cutout with a test average of 81.0. Final plant mapping conducted just prior to harvest indicated significant differences among varieties for all parameters measured. Plant heights ranged from a low of 26.3 inches for Deltapine 104B2RF to a high of 34.4 inches for Deltapine 121RF. The highest node of first sympodium was observed for FiberMax 9180B2F (7.8) and the lowest for Stoneville 5327B2RF (5.9) with a test average of 6.8. Mainstem node numbers ranged from a low of 15.6 for All-Tex Apex B2RF to a high of 18.3 for AFD 5065B2F. Height to node ratios averaged 1.71 across varieties with a low of 1.47 (FiberMax 9180B2R) and a high of 2.11 (Deltapine 121RF). The highest first position retention, 70.4%, was observed for Stoneville 5327B2RF while the lowest, 45.2% was observed for AFD 5065B2F.

Commercial turnouts of field-cleaned bur cotton averaged 30.6% with a high of 34.0% for All-Tex 65333RF and a low of 27.1% for AFD 5065B2F (Table 14). Bur cotton yields ranged from 4102 lb/acre for All-Tex 65333RF to a high of 5210 lb/acre for Deltapine 104B2RF. Lint yields ranged from 1289 lb/acre for Deltapine 121RF to 1620 lb/acre for Stoneville 4554B2RF with a test average of 1429 lb/acre. Lint loan values derived from USDA-AMS classing results of the bales obtained in the project indicated that values ranged from $0.5480 for PhytoGen 485WRF to $0.5914 for FiberMax 9063B2F. After totaling lint and seed value per acre and subtracting out ginning costs and seed and technology costs (Table 16), the net value per acre ranged from a low of $699.66 for Deltapine 121RF to $900.85 for FiberMax 9180B2F, a difference of $201.19. Within the statistical "upper tier" of net returns, five varieties produced the same net value. Four of the top five varieties were Bollgard II/Roundup Ready Flex and one was Roundup Ready Flex. These varieties were, in numerical order from highest to lowest, FiberMax 9180B2F, Stoneville 4554B2RF, Deltapine 104B2RF, All-Tex Apex B2RF, and FiberMax 9150F.

Micronaire averages ranged from a low of 3.5 for Deltapine 143B2RF to 4.3 for Deltapine 121RF (Table 15). Staple ranged from a high of 37.9 (FiberMax 9063B2F) to a low of 35.1 (Dyna-Gro 2100B2RF). Leaf grades of 4 were observed in some bales produced from Stoneville 4427B2RF, Stoneville 4554B2RF, and PhytoGen 485WRF. None of the bales produced at this location received bark discounts and color grades were mostly 11 and 21, however, some were color grade 22, indicating some light spot grades.

Summary and Conclusions

In 2007 (a year characterized by excessive early season rainfall, below average early season heat unit accumulation, but higher than normal July through October heat units) record fiber quality was observed at all locations, and record yields were observed at the Blanco and Plains sites.

At the Muleshoe location, late-season heat unit accumulation allowed excellent crop maturation which resulted in the highest micronaire values and CCC loan values observed at this location since the project's initiation in 2001. No pre-harvest lint losses due to inclement weather were encountered in looser "picker-type" varieties. Three of the top five varieties were Roundup Ready Flex and two were Bollgard II/Roundup Ready Flex. FiberMax 9058F, Deltapine 121RF, FiberMax 9150F, Stoneville 5327B2RF and FiberMax 9180B2F produced the highest net values in $/acre.

Both record high yields and fiber quality were observed at the Blanco location. No pre-harvest losses were encountered for the looser "picker-type" varieties. The highest net value was observed for FiberMax 9180B2F and it was statistically superior to all other varieties. Within the statistical "second tier" five Bollgard II/Roundup Ready Flex varieties produced the same net value. These varieties were, in numerical order from highest to lowest, Stoneville 4554B2RF, All-Tex Apex B2RF, Stoneville 5327B2RF, AFD 5065B2F, and Deltapine 164B2RF.

At Plains, record high yields and quality were also observed due to timely rainfall events and no substantial pre-harvest losses in looser varieties. Within the statistical "upper tier" of net returns, five varieties produced the same net value. Four of the top five varieties were Bollgard II/Roundup Ready Flex and one was Roundup Ready Flex. These varieties were, in numerical order from highest to lowest, FiberMax 9180B2F, Stoneville 4554B2RF, Deltapine 104B2RF, All-Tex Apex B2RF, and FiberMax 9150F.

Results from the 2007 production season at varying locations in the Texas High Plains indicate that, in years when harvest is not hampered by precipitation events and pre-harvest losses are minimal, excellent yields and fiber quality can be obtained across the region. 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 were approximately $113 at Muleshoe, $208 and $201 at Plains. Additional multi-site and multi-year applied research is needed to evaluate varieties across a series of environments.

Additional Verticillium Wilt Evaluations by Dr. Jason Woodward at Muleshoe and Plains Locations

Verticillium dahliae populations were quantified at each location by randomly taking composite soil samples from each replication. Sub-samples of soil (100 cc) were placed on petri plates containing a semi-selective media. *V. dahliae* colonies were counted using a dissecting microscope following two weeks incubation, in the dark at room temperature. Soil populations of *V. dahliae* were 3.6 and 18.5 microsclerotia per cc soil for the Muleshoe and Plains locations, respectively. Disease development was monitored at each location throughout the season. Final wilt ratings were taken in late-August to mid-September by counting the number of symptomatic plants within two locations. A total of 100 row feet were sampled from each plot, therefore, final disease ratings equated to a percentage. The average final wilt incidence was 2.5% at Muleshoe and 15.5% at Plains. There were no differences in wilt incidence between the cotton varieties evaluated at either location, which may be a result of variability of the pathogen within and across replications.

Muleshoe		Plains	
Variety	**Disease incidence**	**Variety**	**Disease incidence**
	%		**%**
All-Tex Summit B2RF	**1.3**	**AFD 5065B2F**	**12.3**
Americot 1664B2RF	**1.7**	**All-Tex 65333RF**	**22.0**
Deltapine 104B2RF	**3.0**	**All-Tex Apex B2RF**	**11.3**
Deltapine 121RF	**3.7**	**Americot 1664B2RF**	**8.7**
FiberMax 9058F	**4.3**	**Deltapine 104B2RF**	**12.0**
FiberMax 9063B2RF	**1.7**	**Deltapine 121RF**	**25.3**
FiberMax 9150F	**5.0**	**Deltapine 143B2RF**	**15.7**
FiberMax 9180B2RF	**0.7**	**Deltapine 164B2RF**	**14.3**
PhytoGen 485WRF	**3.0**	**Dyna-Gro 2100B2RF**	**16.3**
Stoneville 4554B2RF	**1.3**	**FiberMax 9058F**	**23.3**
Stoneville 5327B2RF	**2.3**	**FiberMax 9063B2F**	**13.0**
		FiberMax 9150F	**18.0**
		FiberMax 9180B2F	**13.3**
		PhytoGen 485WRF	**26.7**
		Stoneville 4427B2RF	**11.7**
		Stoneville 4554B2RF	**9.7**
		Stoneville 5327B2RF	**10.3**
	NS		**NS**

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Table 1. Stand count, vigor and nodes above white flower (NAWF) results from the irrigated large plot replicated systems trial, James Brown Farm, Muleshoe, TX, 2007.

Variety	18-Jun		3-Jul			NAWF				Days to cutout
	Plant stand		height	mainstem	height/node	31-Jul	7-Aug	14-Aug	20-Aug	NAWF=5
	#/row ft	#/acre	inches	nodes	ratio					
PhytoGen 485WRF	3.3	56,570	7.1	7.8	0.91	7.6	6.8	4.2	2.7	89.0 a
Stoneville 4554B2RF	3.2	56,221	6.0	7.5	0.81	8.0	6.6	3.8	2.6	88.0 ab
Stoneville 5327B2RF	3.1	54,595	6.4	7.3	0.87	7.4	6.4	3.8	2.1	87.8 b
Americot 1664B2RF	3.3	56,570	7.2	7.8	0.93	7.4	6.2	3.9	2.6	87.7 b
All-Tex Summit B2RF	3.3	57,499	6.0	7.1	0.86	7.4	6.0	3.8	2.2	87.3 bc
Deltapine 121RF	3.1	53,666	6.8	7.6	0.90	7.3	6.1	3.5	2.5	87.3 bc
Deltapine 104B2RF	3.3	56,570	7.6	8.4	0.92	7.3	5.9	3.3	1.8	86.4 cd
FiberMax 9063B2F	3.4	58,312	7.0	8.3	0.85	7.4	5.7	3.3	1.4	86.3 cd
FiberMax 9150F	3.3	58,312	7.2	8.3	0.86	7.4	5.7	3.1	1.8	85.9 de
FiberMax 9180B2F	3.2	55,989	7.3	7.9	0.94	6.7	5.4	3.0	1.7	85.1 e
FiberMax 9058F	3.6	62,726	7.7	9.0	0.86	7.1	4.9	2.4	1.4	83.7 f
Test average	3.3	57,003	6.9	7.9	0.88	7.4	6.0	3.5	2.1	86.8
CV, %	5.2	5.0	5.0	3.9	5.1	3.0	4.6	7.2	12.4	0.7
OSL	0.1300	0.0855	<0.0001	<0.0001	0.0424	0.0002	<0.0001	<0.0001	<0.0001	<0.0001
LSD 0.05	NS	NS	0.6	0.5	0.08	0.4	0.5	0.4	0.4	1.1

Nodes above white flower (NAWF) numbers represent an average of 30 plants per variety (10 plants/variety/rep with 3 reps)
CV - coefficient of variation, percent.
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. Plant map results from the irrigated large plot replicated systems trial, James Brown Farm, Muleshoe, TX, 2007.

Entry	Plant height	Node of first fruiting branch	Fruiting nodes	Mainstem nodes	Height to node	1st position fruit retention
	inches	node number	total/plant	total/plant	ratio	percent
All-Tex Summit B2RF	20.1	5.8	9.3	14.1	1.43	61.4
Americot 1664B2RF	20.7	5.7	10.2	14.9	1.39	52.6
Deltapine 104B2RF	20.9	5.9	10.2	15.2	1.38	55.8
Deltapine 121RF	22.8	6.1	9.3	14.3	1.59	55.7
FiberMax 9058F	20.9	6.9	9.2	15.2	1.39	49.6
FiberMax 9063B2F	20.3	6.7	9.6	15.3	1.32	57.2
FiberMax 9150F	21.3	7.4	10.3	16.7	1.28	58.0
FiberMax 9180B2F	19.3	6.0	9.4	14.5	1.34	53.8
PhytoGen 485WRF	22.6	6.2	9.7	14.9	1.52	55.3
Stoneville 4554B2RF	22.0	6.2	10.3	15.5	1.42	60.1
Stoneville 5327B2RF	22.7	6.0	10.4	15.4	1.47	64.6
Test average	21.2	6.3	9.8	15.1	1.41	56.7
CV, %	6.5	6.8	6.9	3.8	4.5	11.9
OSL	0.0744	0.0017	0.1999	0.0019	0.0003	0.3630
LSD	2.0†	0.7	NS	1.0	0.11	NS

Numbers in table represent an average of 18 plants per variety (6 plants/variety/rep with 3 reps).
CV - coefficient of variation, percent.
OSL - observed significance level, or probability of a greater F value.
LSD - least significant difference at the 0.05 level, † denotes significance at the 0.10 level, NS - not significant.

Table 3. Harvest results from the irrigated large plot replicated systems trial, James Brown Farm, Muleshoe, TX, 2007.

Variety	Commercial turnout	Bur cotton yield	Lint yield	Seed yield	Seed	Lint loan value	Lint value	Seed value	Total value	Ginning cost	Seed/technology cost	Net value	
	%	lb/acre	lb/acre	lb/acre	lb/bale	$/lb	$/acre	$/acre	$/acre	$/acre	$/acre	$/acre	
FiberMax 9058F	27.0	5155	1392	1958	675	0.5878	818.23	146.87	965.09	126.30	58.56	780.23	a
Deltapine 121RF	27.3	5114	1397	1962	674	0.5841	815.85	147.15	963.00	125.30	61.12	776.58	a
FiberMax 9150F	28.0	4941	1381	1926	669	0.5869	810.48	144.44	954.92	121.05	58.56	775.30	a
Stoneville 5327B2RF	25.0	5507	1377	2094	730	0.5767	794.04	157.09	951.14	134.93	69.56	746.65	ab
FiberMax 9180B2F	25.3	5183	1309	2025	743	0.5927	775.81	151.90	927.71	126.99	67.56	733.16	ab
Stoneville 4554B2RF	25.1	5184	1301	2038	752	0.5876	764.62	152.83	917.45	127.00	69.56	720.89	b
Americot 1664B2RF	24.3	5282	1284	2058	769	0.5871	753.77	154.32	908.09	129.41	63.78	714.90	bc
Deltapine 104B2RF	24.5	5178	1267	2163	820	0.5804	735.25	162.24	897.49	126.86	61.17	709.45	bc
All-Tex Summit B2RF	24.8	5169	1282	2083	780	0.5751	737.29	156.24	893.53	126.63	62.38	704.52	bc
FiberMax 9063B2F	25.0	5029	1259	2004	764	0.5914	744.50	150.29	894.79	123.21	68.32	703.26	bc
PhytoGen 485WRF	23.6	5203	1226	2001	784	0.5817	712.92	150.06	862.97	127.49	67.90	667.60	c
Test mean	25.4	5177	1316	2028	742	0.5847	769.34	152.13	921.47	126.83	64.41	730.23	
CV, %	--	3.4	3.6	3.3	--	--	3.6	3.3	3.6	3.4	--	3.9	
OSL	--	0.0972	0.0013	0.0146	--	--	0.0010	0.0146	0.0140	0.0968	--	0.0014	
LSD	--	NS	81	115	--	--	47.41	8.66	56.03	NS	--	48.68	

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:
$2.45/100 lbs bur cotton for ginning cost
$150/ton for seed.
Value for lint based on CCC loan value from USDA-AMS results.

Table 4. USDA-AMS classing results of commercially ginned bales from the irrigated large plot replicated systems trial, James Brown Farm, Muleshoe, TX, 2007

Variety		Color 1	Color 2	Staple	Leaf	Mic	Remarks	rd	+b	Length	Strength	Unif	Loan
		units	units	32nds	units	units	bales	%	units	100ths	g/tex	%	$/lb
Americot 1664B2RF	Mean	1.0	1.0	36.3	2.3	3.9	0/7	82.1	8.6	113.0	29.2	81.6	0.5871
	Std Dev	0.0	0.0	0.5	0.5	0.1		0.6	0.2	1.5	0.6	0.6	0.0040
All-Tex Summit B2RF	Mean	1.0	1.0	35.1	2.0	3.9	0/8	82.5	9.5	109.5	28.8	81.5	0.5751
	Std Dev	0.0	0.0	0.6	0.0	0.1		0.3	0.3	1.4	1.0	0.3	0.0128
Deltapine 121RF	Mean	1.0	1.0	35.4	1.8	4.0	1/9	82.0	9.3	110.3	31.7	82.0	0.5841
	Std Dev	0.0	0.0	0.5	0.4	0.1		1.0	0.2	1.4	1.3	0.8	0.0073
FiberMax 9058F	Mean	1.4	1.0	36.7	2.0	3.8	0/9	82.3	8.2	114.1	30.2	80.3	0.5878
	Std Dev	0.5	0.0	0.7	0.5	0.1		1.0	0.2	2.0	1.2	0.6	0.0041
FiberMax 9063B2F	Mean	1.0	1.0	37.5	2.0	4.0	0/8	83.7	8.1	117.5	31.6	80.5	0.5914
	Std Dev	0.0	0.0	0.5	0.0	0.1		0.2	0.1	1.8	1.8	1.0	0.0042
FiberMax 9150F	Mean	1.4	1.0	36.8	2.6	3.9	0/9	81.9	8.4	114.1	31.1	80.0	0.5869
	Std Dev	0.5	0.0	0.4	0.5	0.1		0.4	0.2	1.5	0.9	0.9	0.0046
FiberMax 9180B2F	Mean	1.1	1.0	37.1	2.0	4.0	0/9	83.5	8.0	115.3	31.9	81.4	0.5927
	Std Dev	0.3	0.0	0.3	0.5	0.1		0.7	0.1	1.5	1.3	0.6	0.0030
PhytoGen 485WRF	Mean	1.4	1.0	36.3	3.1	4.1	0/8	80.0	9.3	112.8	31.3	82.0	0.5817
	Std Dev	0.5	0.0	0.7	0.4	0.1		0.3	0.1	1.6	0.9	0.7	0.0077
Deltapine 104B2RF	Mean	1.0	1.0	35.7	2.9	3.8	0/9	81.7	9.3	111.2	32.0	81.6	0.5804
	Std Dev	0.0	0.0	0.7	0.3	0.1		0.9	0.6	2.4	1.1	0.6	0.0071
Stoneville 4554B2RF	Mean	1.1	1.0	36.4	2.6	3.8	0/8	81.1	9.4	112.6	31.4	81.3	0.5876
	Std Dev	0.4	0.0	0.5	0.5	0.1		0.8	0.2	1.8	0.6	0.8	0.0039
Stoneville 5327B2RF	Mean	1.0	1.0	35.3	2.9	3.8	0/9	80.3	9.7	109.9	32.3	80.8	0.5767
	Std Dev	0.0	0.0	0.7	0.3	0.1		0.4	0.3	1.8	0.8	0.9	0.0123

Table 5. Seed and technology costs for the irrigated large plot replicated systems trial, James Brown Farm, Muleshoe, TX, 2007.

Entry	Technology	Seed cost/bag	Tech fees/bag	Total cost/bag	Seed count seed/bag	Seed cost/acre	Tech fees/acre	Seed & tech fee/ac
FiberMax 9058F	Roundup Ready Flex	99.50	102.10	201.60	220,000	32.56	26.00	58.56
Deltapine 121RF	Roundup Ready Flex	121.95	116.10	215.60	250,000	35.12	26.00	61.12
FiberMax 9150F	Roundup Ready Flex	99.50	102.10	224.05	220,000	32.56	26.00	58.56
Stoneville 5327B2RF	Bollgard II/Roundup Ready Flex	110.40	143.80	254.20	230,000	34.56	35.00	69.56
FiberMax 9180B2F	Bollgard II/Roundup Ready Flex	99.50	137.50	237.00	220,000	32.56	35.00	67.56
Stoneville 4554B2RF	Bollgard II/Roundup Ready Flex	110.40	143.80	254.20	230,000	34.56	35.00	69.56
Americot 1664B2RF	Bollgard II/Roundup Ready Flex	91.95	143.80	235.75	230,000	28.78	35.00	63.78
Deltapine 104B2RF	Bollgard II/Roundup Ready Flex	79.95	137.50	217.45	220,000	26.17	35.00	61.17
All-Tex Summit B2RF	Bollgard II/Roundup Ready Flex	87.46	150.00	237.46	230,000	27.38	35.00	62.38
FiberMax 9063B2F	Bollgard II/Roundup Ready Flex	99.50	134.40	233.90	215,000	33.32	35.00	68.32
PhytoGen 485WRF	Widestrike/Roundup Ready Flex	115.00	106.80	221.80	230,000	36.00	31.90	67.90

30 inch rows
4.1 seed/row-ft
72,000 seed/ac

Table 6. Total blanket inputs costs for the irrigated large plot replicated systems trial, James Brown Farm, Muleshoe, TX, 2007.

Weed control program		Application method	chem cost	app cost	total cost
21-Mar	2 pts/acre trifluralin PPI	PPI	$ 3.88	$ 4.50	$ 8.38
15-May	1 qt/acre Direx 4L	At-planting (15" band)	$ 4.35	N/A	$ 4.35
8-Jun	8 oz/a Fusion (w/ 8 oz/a COC)	Ground	$ 11.06	$ 4.50	$ 15.56
14-Jun	1 qt/acre Roundup Original Max (w/ 1.0 qt/a 32-0-0)	Ground	$ 9.31	$ 4.50	$ 13.81
1-Jul	1 qt/acre Roundup Original Max (w/ 1.0 qt/a 32-0-0)	Ground	$ 9.31	$ 4.50	$ 13.81
20-Jul	12 oz/acre Fusion (w/ 8 oz/a COC)	Ground	$ 16.59	$ 4.50	$ 21.09
Total blanket weed control program					$ 77.00
Insecticide program					
15-May	3.75 lb/acre Temik	At-planting	$ 11.85	N/A	$ 11.85
8-Jun	4 oz/acre acephate (applied w/ Fusion)	Ground	$ 1.88	N/A	$ 1.88
14-Jun	4 oz/acre acephate (applied w/ Roundup Original Max)	Ground	$ 1.88	N/A	$ 1.88
22-Jun	2 oz/acre acephate (w/ 2.0 oz/a Activator 90) 2.56 oz/acre Ammo	Aerial	$ 1.26 $ 1.80	$ 5.00	$ 8.06
30-Jun	6 oz/acre acephate (w/ 2.0 oz/a Activator 90)	Aerial	$ 3.13	$ 5.00	$ 8.13
1-Jul	2 oz/acre acephate (applied w/ Roundup Original Max)	Ground	$ 0.94	N/A	$ 0.94
28-Jul	2 oz/acre acephate 3.2 oz/a Ammo	Ground	$ 0.94 $ 2.25	$ 4.50	$ 7.69
2-Aug	1.25 oz/a Centric	Aerial	$ 6.00	$ 5.00	$ 11.00
21-Aug	2.56 oz/a Baythroid 0.9 oz/a Trimax PRO	Aerial	$ 6.59 $ 4.05	$ 5.00	$ 11.59
Total blanket insecticide program					$ 63.00
PGR program			chem cost	app cost	total cost
22-Jun	2 oz/a Stance (applied w/ acephate and Ammo)	Aerial	$ 3.00	N/A	$ 3.00
30-Jun	1.5 oz/a Stance (applied w/ acephate)	Aerial	$ 2.25	N/A	$ 2.25
1-Jul	2 oz/a Stance (applied w/ Roundup Original Max)	Ground	$ 3.00	N/A	$ 3.00
20-Jul	0.5 oz/a Stance (applied w/ Fusion)	Ground	$ 0.75	N/A	$ 0.75
2-Aug	2 oz/a Stance (applied w/ Centric)	Aerial	$ 3.00	N/A	$ 3.00
Total blanket PGR program					$ 12.00
Harvest aid program					
11-Oct	1 qt/acre Prep 1 pt/acre Def 6	Aerial	$ 6.50 $ 6.88	$ 5.00	$ 18.38
19-Oct	32.0 oz/acre Gramoxone Inteon 8.0 oz/acre crop oil	Aerial	$ 7.38 $ 0.55	$ 5.00	$ 12.92
Total blanket harvest aid program					$ 31.30
Total blanket input cost ($/acre)					$ 183.30

Table 7. Stand count, vigor and nodes above white flower (NAWF) results from the irrigated large plot replicated systems trial, Appling Farm, Blanco, TX, 2007.

Variety	22-Jun		9-Jul			NAWF				Days to cutout
	Plant stand		height	mainstem	height/node	31-Jul	8-Aug	16-Aug	22-Aug	NAWF=5
	#/row ft	#/acre	inches	nodes	ratio					
Stoneville 4554B2RF	2.3	30,840	5.8	6.7	0.86	6.3	6.6	5.5	4.4	94.7 a
PhytoGen 485WRF	2.3	29,447	5.9	7.2	0.83	6.7	6.9	5.4	4.9	94.2 a
Deltapine 164B2RF	2.5	32,322	7.1	7.7	0.92	6.5	6.9	5.2	4.8	93.5 ab
Stoneville 5327B2RF	2.3	30,143	6.6	7.4	0.88	6.2	6.4	4.9	4.4	91.3 abc
All-Tex Apex B2RF	2.7	35,545	6.2	6.9	0.90	6.1	6.3	4.5	4.6	90.2 bcd
AFD 5064F	2.7	35,196	7.2	7.8	0.93	5.4	6.0	4.3	3.9	89.2 cd
Deltapine 104B2RF	2.3	30,144	7.5	9.2	0.82	5.9	6.4	4.2	3.4	89.2 cd
AFD 5065B2F	2.2	29,360	6.4	7.1	0.91	5.8	5.9	4.3	4.0	89.0 cde
Americot 1622B2RF	2.7	35,632	6.3	7.1	0.89	5.6	6.0	4.4	4.1	89.0 cde
FiberMax 9180B2F	2.4	30,928	7.1	8.3	0.86	5.8	5.8	4.6	3.9	88.7 cde
FiberMax 1880B2F	2.3	30,318	7.5	7.9	0.95	6.2	6.1	4.3	3.9	88.5 cde
All-Tex Arid B2RF	2.4	30,753	7.2	8.2	0.88	5.7	5.7	4.0	3.9	86.8 de
FiberMax 9058F	2.7	35,894	7.5	8.4	0.89	5.3	5.2	4.0	3.6	85.5 e
Test average	2.4	32,040	6.8	7.7	0.89	6.0	6.2	4.6	4.1	90.0
CV, %	10.0	10.0	9.1	7.6	4.0	5.0	5.9	8.5	9.6	2.3
OSL	0.0950	0.0846	0.0120	0.0008	0.0061	0.0001	0.0004	0.0004	0.0024	0.0003
LSD 0.05	NS	NS	1.0	1.0	0.06	0.5	0.6	0.7	0.7	3.5

Nodes above white flower (NAWF) numbers represent an average of 30 plants per variety (10 plants/variety/rep with 3 reps)
CV - coefficient of variation, percent.
OSL - observed significance level, or probability of a greater F value.
LSD - least significant difference at the 0.05 level, NS - not significant.

Table 8. Plant map results from the irrigated large plot replicated systems trial, Appling Farm, Blanco, TX, 2007.

Entry	Plant height	Node of first fruiting branch	Fruiting nodes	Mainstem nodes	Height to node	1st position fruit retention
	inches	node number	total/plant	total/plant	ratio	percent
Stoneville 5327B2RF	31.1	6.3	14.0	19.3	1.62	61.3 a
Deltapine 104B2RF	25.6	7.3	13.6	19.9	1.29	57.8 ab
Deltapine 164B2RF	31.4	6.9	15.5	21.4	1.55	57.6 ab
All-Tex Apex B2RF	26.1	6.2	12.4	17.7	1.48	55.9 abc
AFD 5064F	27.1	6.5	13.8	19.3	1.40	54.1 abc
FiberMax 9058F	24.7	7.2	13.8	20.0	1.24	53.6 abc
Americot 1622B2RF	24.6	7.0	13.3	19.4	1.28	52.5 abcd
PhytoGen 485WRF	29.4	7.2	14.0	20.2	1.46	51.1 bcd
Stoneville 4554B2RF	27.5	7.1	14.1	20.2	1.36	49.1 bcd
FiberMax 9180B2F	22.0	7.2	13.4	19.6	1.13	49.0 bcd
FiberMax 1880B2F	28.5	6.8	14.0	19.8	1.44	47.1 cd
AFD 5065B2F	25.5	6.7	14.6	20.3	1.26	46.9 cd
All-Tex Arid B2RF	25.2	7.2	13.6	19.8	1.27	43.5 d
Test average	26.8	6.9	13.8	19.8	1.37	52.3
CV, %	8.6	8.8	4.6	4.7	8.1	10.9
OSL	0.0014	0.3839	0.0033	0.0311	0.0005	0.0306
LSD	3.9	NS	1.1	1.6	0.19	9.6

Numbers in table represent an average of 18 plants per variety (6 plants/variety/rep with 3 reps).
CV - coefficient of variation, percent.
OSL - observed significance level, or probability of a greater F value.
LSD - least significant difference at the 0.05 level, NS - not significant.

Table 9. Harvest results from the irrigated large plot replicated systems trial, Appling Farm, Blanco, TX, 2007.

Variety	Commercial turnout	Bur cotton yield	Lint yield	Seed yield	Seed	Lint loan value	Lint value	Seed value	Total value	Ginning cost	Seed/technology cost	Net value	
	%	lb/acre	lb/acre	lb/acre	lb/bale	$/lb	$/acre	$/acre	$/acre	$/acre	$/acre	$/acre	
FiberMax 9180B2F	34.4	3613	1244	1861	718	0.5764	717.22	139.56	856.78	88.53	46.32	721.94	a
Stoneville 4554B2RF	32.7	3546	1161	1784	738	0.5677	659.02	133.79	792.82	86.89	47.52	658.41	b
All-Tex Apex B2RF	32.5	3578	1162	1642	678	0.5661	657.87	123.16	781.02	87.65	44.39	648.98	b
Stoneville 5327B2RF	32.4	3544	1149	1722	720	0.5684	653.00	129.17	782.17	86.82	47.52	647.83	b
AFD 5065B2F	32.4	3368	1090	1879	828	0.5780	629.86	140.96	770.82	82.52	43.16	645.14	b
Deltapine 164B2RF	30.3	3600	1092	1767	777	0.5870	641.28	132.56	773.84	88.19	48.55	637.10	bc
FiberMax 9058F	30.1	3560	1073	1552	695	0.5829	625.39	116.43	741.81	87.23	39.40	615.18	cd
FiberMax 1880B2F	31.0	3396	1052	1742	795	0.5804	610.83	130.67	741.50	83.21	46.32	611.97	cd
Deltapine 104B2RF	31.8	3347	1064	1707	770	0.5718	608.19	128.03	736.21	82.00	42.50	611.71	cd
Americot 1622B2RF	30.0	3481	1043	1761	811	0.5834	608.23	132.10	740.33	85.28	44.08	610.97	d
AFD 5064F	30.3	3543	1073	1740	778	0.5520	592.44	130.46	722.90	86.80	36.65	599.45	d
PhytoGen 485WRF	30.6	3391	1039	1614	746	0.5435	564.64	121.05	685.70	83.08	48.57	554.05	e
All-Tex Arid B2RF	28.1	3300	929	1531	791	0.5606	520.55	114.83	635.38	80.84	41.43	513.10	f
Test mean	31.3	3482	1090	1716	757	0.5706	622.19	128.67	750.87	85.31	44.34	621.22	
CV, %	--	2.3	2.3	2.3	--	--	2.3	2.3	2.3	2.4	--	2.5	
OSL	--	0.0003	<0.0001	<0.0001	--	--	<0.0001	<0.0001	<0.0001	0.0003	--	<0.0001	
LSD	--	138	43	68	--	--	24.24	5.07	29.30	3.39	--	25.92	

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:
$2.45/cwt ginning cost.
$150/ton for seed.
Value for lint based on CCC loan value from USDA-AMS HVI results.

Table 10. USDA-AMS classing results of commercially ginned bales from the irrigated large plot replicated systems trial, Appling Farm, Blanco, TX, 2007.

Variety		Color 1	Color 2	Staple	Leaf	Mic	Remarks	rd	+b	Length	Strength	Unif	Loan
		units	units	32nds	units	units	bales	%	units	100ths	g/tex	%	$/lb
AFD 5064F	Mean	2.0	1.0	34.3	3.0	4.6	0/6	79.7	8.5	1.07	29.2	81.4	0.5520
	Std Dev	0.0	0.0	0.5	0.0	0.1		1.0	0.4	0.01	1.0	0.4	0.0147
AFD 5065B2F	Mean	1.8	1.0	35.7	2.3	4.3	0/6	81.0	8.3	1.11	28.4	80.7	0.5780
	Std Dev	0.4	0.0	0.8	0.5	0.1		1.3	0.4	0.02	1.2	0.8	0.0090
All-Tex Apex B2RF	Mean	1.3	1.1	35.3	2.0	4.1	0/8	81.4	8.5	1.10	26.1	79.5	0.5661
	Std Dev	0.5	0.4	0.7	0.0	0.1		2.2	0.8	0.02	0.7	1.1	0.0176
All-Tex Arid B2RF	Mean	2.0	1.0	34.7	3.0	4.2	0/6	79.3	8.7	1.08	28.6	80.7	0.5606
	Std Dev	0.0	0.0	0.5	0.0	0.1		0.5	0.1	0.01	1.4	1.1	0.0149
Americot 1622B2RF	Mean	1.4	1.0	36.4	2.2	4.0	0/5	82.4	7.9	1.13	27.6	80.2	0.5834
	Std Dev	0.5	0.0	0.9	0.4	0.1		0.5	0.1	0.02	1.0	1.1	0.0089
Deltapine 104B2RF	Mean	1.8	1.0	35.0	2.3	3.8	0/6	81.7	8.1	1.09	29.5	81.1	0.5718
	Std Dev	0.4	0.0	0.6	0.5	0.1		0.5	0.3	0.01	0.9	0.6	0.0118
Deltapine 164B2RF	Mean	1.1	1.0	36.4	2.0	4.0	0/7	84.0	7.9	1.13	28.3	79.6	0.5870
	Std Dev	0.4	0.0	0.5	0.0	0.1		4.0	0.1	0.02	0.9	0.7	0.0033
FiberMax 1880B2F	Mean	2.0	1.0	35.6	2.0	3.9	0/7	83.7	7.5	1.10	29.4	79.8	0.5804
	Std Dev	0.0	0.0	0.5	0.0	0.0		3.7	0.2	0.01	0.7	0.9	0.0100
FiberMax 9058F	Mean	2.2	1.0	36.8	2.7	4.1	0/6	80.8	8.0	1.14	28.2	80.7	0.5829
	Std Dev	0.4	0.0	0.4	0.5	0.1		1.0	0.5	0.02	0.6	0.3	0.0052
FiberMax 9180B2F	Mean	1.7	1.2	36.0	2.3	4.2	0/6	77.5	8.5	1.12	28.7	80.5	0.5764
	Std Dev	0.5	0.4	0.6	0.5	0.2		7.9	0.8	0.03	1.0	1.0	0.0131
PhytoGen 485WRF	Mean	2.2	1.3	34.7	3.2	4.4	0/6	77.0	9.5	1.08	28.3	81.4	0.5435
	Std Dev	0.4	0.5	1.0	0.4	0.1		1.4	0.5	0.03	1.2	1.1	0.0208
Stoneville 4554B2RF	Mean	1.5	1.0	35.1	2.8	4.2	0/8	78.1	8.6	1.10	28.2	80.7	0.5677
	Std Dev	0.5	0.0	0.8	0.5	0.0		7.0	0.3	0.03	0.8	1.3	0.0168
Stoneville 5327B2RF	Mean	1.9	1.1	35.0	2.3	4.1	0/8	74.3	9.0	1.09	29.4	80.5	0.5684
	Std Dev	0.4	0.4	0.8	0.5	0.0		8.3	0.6	0.02	0.8	0.8	0.0215

Table 11. Seed and technology costs and blanket input costs for the irrigated large plot replicated systems trial, Appling Farm, Blanco, TX, 2007.

Entry	Technology	Seed cost/bag	Tech fees/bag	Total cost/bag	Seed count seed/bag	Seed cost/acre	Tech fees/acre	Seed & tech fee/ac
AFD 5064F	Roundup Ready Flex	79.50	95.20	174.70	204,996	16.68	19.97	36.65
FiberMax 9058F	Roundup Ready Flex	99.50	102.10	181.60	220,000	19.45	19.96	39.40
AFD 5065B2F	Bollgard II/Roundup Ready Flex	79.50	131.30	230.80	210,000	16.28	26.89	43.16
All-Tex Apex B2RF	Bollgard II/Roundup Ready Flex	87.46	150.00	237.46	230,000	16.35	28.04	44.39
All-Tex Arid B2RF	Bollgard II/Roundup Ready Flex	65.63	137.50	203.13	210,850	13.38	28.04	41.43
Americot 1622B2RF	Bollgard II/Roundup Ready Flex	91.95	143.80	235.75	230,000	17.19	26.88	44.08
Deltapine 104B2RF	Bollgard II/Roundup Ready Flex	79.95	137.50	217.45	220,000	15.63	26.88	42.50
Deltapine 164B2RF	Bollgard II/Roundup Ready Flex	125.95	156.30	282.25	250,000	21.66	26.88	48.55
FiberMax 1880B2F	Bollgard II/Roundup Ready Flex	99.50	137.50	237.00	220,000	19.45	26.88	46.32
FiberMax 9180B2F	Bollgard II/Roundup Ready Flex	99.50	137.50	237.00	220,000	19.45	26.88	46.32
Stoneville 4554B2RF	Bollgard II/Roundup Ready Flex	110.40	143.80	254.20	230,000	20.64	26.88	47.52
Stoneville 5327B2RF	Bollgard II/Roundup Ready Flex	110.40	143.80	254.20	230,000	20.64	26.88	47.52
PhytoGen 485WRF	Widestrike/Roundup Ready Flex	115.00	106.80	221.80	230,000	21.50	27.07	48.57

40 inch rows
3.3 seed/row-ft
43,000 seed/ac

Weed control program		Application method	chem cost	app cost	total cost
4-Jul	32 oz/acre Roundup Original Max	Ground	$ 9.31	$ 4.50	$ 13.81
10-Aug	32 oz/acre Roundup Original Max	Ground	$ 9.31	$ 4.50	$ 13.81
Total blanket weed control program					$ 25.63
Insecticide program					
10-Aug	3 oz/acre Centric (applied w/Roundup Original Max)	Ground	$ 14.40		$ 14.40
Total blanket insecticide program					$ 14.40
Total blanket input cost ($/acre)					$ 40.03

Table 12. Stand count, vigor and nodes above white flower (NAWF) results from the irrigated large plot replicated systems trial, Rickey Bearden Farm, Plains, TX, 2007.

Variety	28-Jun		29-Jun			NAWF				Days to cutout
	Plant stand		height	mainstem	height/node	2-Aug	7-Aug	14-Aug	21-Aug	NAWF=5
	#/row ft	#/acre	inches	nodes	ratio					
Stoneville 4427B2RF	2.9	37,287	4.0	5.6	0.71	7.0	5.9	5.1	4.1	83.2
Stoneville 4554B2RF	2.8	36,765	3.9	5.6	0.70	7.2	6.1	5.2	4.4	83.2
PhytoGen 485WRF	2.9	38,158	4.2	5.5	0.75	7.3	6.1	5.0	4.8	83.0
All-Tex Apex B2RF	3.2	41,817	4.8	5.9	0.81	7.2	5.6	4.9	3.8	82.7
Deltapine 121RF	2.9	37,897	4.5	5.6	0.80	7.0	5.9	4.9	4.1	82.3
Dyna-Gro 2100B2RF	3.1	39,988	4.5	5.7	0.78	7.0	5.7	5.1	3.5	82.2
AFD 5065B2F	3.2	41,469	4.6	6.0	0.77	6.5	5.7	5.0	3.9	82.0
Americot 1664B2RF	3.3	42,689	4.4	5.9	0.74	6.9	5.9	5.0	3.8	81.8
Deltapine 143B2RF	3.3	43,125	4.7	5.8	0.80	7.0	6.1	5.1	4.1	81.7
All-Tex 65333RF	2.7	35,458	4.7	6.2	0.75	7.2	6.8	4.9	4.6	81.5
FiberMax 9058F	2.9	37,723	4.4	6.1	0.71	6.7	6.0	4.6	4.1	81.3
Deltapine 104B2RF	2.9	37,984	4.6	6.1	0.75	6.4	5.4	4.7	3.5	80.8
FiberMax 9180B2F	3.1	41,120	4.2	6.0	0.69	6.5	5.6	4.9	3.8	80.0
Stoneville 5327B2RF	2.7	36,068	4.1	5.6	0.72	6.9	5.8	4.7	4.3	79.5
Deltapine 164B2RF	3.1	40,772	4.5	5.9	0.76	7.0	5.9	4.3	4.4	78.7
FiberMax 9150F	3.0	39,204	4.6	6.5	0.71	6.7	5.9	4.4	3.9	78.3
FiberMax 9063B2F	2.7	35,284	4.8	6.2	0.77	6.4	4.9	4.7	3.4	74.3
Test average	3.0	38,989	4.4	5.9	0.75	6.9	5.8	4.9	4.0	81.0
CV, %	8.4	8.1	9.2	5.1	8.5	4.3	5.3	9.9	7.2	3.8
OSL	0.0764	0.0618	0.2188	0.0104	0.4430	0.0057	0.0003	0.6747	<0.0001	0.1079
LSD 0.05	NS	NS	NS	0.5	NS	0.5	0.5	NS	0.5	NS

Nodes above white flower (NAWF) numbers represent an average of 30 plants per variety (10 plants/variety/rep with 3 reps)
CV - coefficient of variation, percent.
OSL - observed significance level, or probability of a greater F value.
LSD - least significant difference at the 0.05 level, NS - not significant.

Table 13. Plant map results from the irrigated large plot replicated systems trial, Rickey Bearden Farm, Plains, TX, 2007.

Entry	Plant height	Node of first fruiting branch	Fruiting nodes	Mainstem nodes	Height to node	1st position fruit retention
	inches	node number	total/plant	total/plant	ratio	percent
Stoneville 5327B2RF	28.7	5.9	11.2	16.1	1.78	70.4
Americot 1664B2RF	29.2	7.1	11.3	17.4	1.67	62.8
All-Tex Apex B2RF	30.1	6.6	9.9	15.6	1.95	62.7
Stoneville 4427B2RF	28.9	7.2	10.8	17.0	1.71	60.4
Deltapine 164B2RF	29.5	7.3	11.3	17.6	1.69	60.4
FiberMax 9063B2F	27.3	6.7	11.0	16.7	1.64	59.5
Stoneville 4554B2RF	29.6	6.8	11.2	16.9	1.76	59.3
FiberMax 9150F	26.6	7.1	11.7	17.8	1.51	58.1
Dyna-Gro 2100B2RF	28.8	6.2	11.2	16.4	1.77	56.2
PhytoGen 485WRF	28.5	6.4	10.5	15.9	1.80	56.0
Deltapine 104B2RF	26.3	6.3	12.1	17.3	1.52	55.3
FiberMax 9058F	27.2	6.9	11.6	17.4	1.59	54.9
Deltapine 121RF	34.4	6.5	10.9	16.4	2.11	53.1
Deltapine 143B2RF	28.1	7.4	11.4	17.8	1.59	52.8
All-Tex 65333RF	31.4	6.9	11.1	17.0	1.87	51.1
FiberMax 9180B2F	26.6	7.8	11.4	18.2	1.47	46.4
AFD 5065B2F	30.3	6.3	13.0	18.3	1.67	45.2
Test average	28.9	6.8	11.3	17.0	1.71	56.7
CV, %	7.4	8.0	6.1	4.0	8.2	13.0
OSL	0.0097	0.0098	0.0072	0.0004	0.0003	0.0383
LSD	3.6	0.9	1.1	1.1	0.23	12.3

Numbers in table represent an average of 18 plants per variety (6 plants/variety/rep with 3 reps).
CV - coefficient of variation, percent.
OSL - observed significance level, or probability of a greater F value.
LSD - least significant difference at the 0.05 level.

Table 14. Harvest results from the irrigated large plot replicated systems trial, Rickey Bearden Farm, Plains, TX, 2007.

Variety	Commercial turnout	Bur cotton yield	Lint yield	Seed yield	Seed	Lint loan value	Lint value	Seed value	Total value	Ginning cost	Seed/technology cost	Net value	
	%	lb/acre	lb/acre	lb/acre	lb/bale	$/lb	$/acre	$/acre	$/acre	$/acre	$/acre	$/acre	
FiberMax 9180B2F	32.8	4658	1529	2242	704	0.5906	903.15	168.13	1071.28	114.12	56.31	900.85	a
Stoneville 4554B2RF	32.0	5062	1620	2455	728	0.5492	889.55	184.11	1073.67	124.01	57.77	891.89	a
Deltapine 104B2RF	29.2	5210	1520	2427	767	0.5815	883.81	182.01	1065.82	127.65	51.67	886.51	a
All-Tex Apex B2RF	32.4	4618	1497	2281	731	0.5879	880.11	171.04	1051.15	113.15	53.97	884.03	ab
FiberMax 9150F	32.1	4752	1526	1992	627	0.5844	891.53	149.37	1040.90	116.43	47.90	876.57	ab
PhytoGen 485WRF	30.8	4761	1466	2528	828	0.5480	803.43	189.59	993.02	116.63	54.77	821.62	bc
Dyna-Gro 2100B2RF	30.4	4679	1422	2166	731	0.5745	816.67	162.44	979.11	114.64	57.91	806.56	cd
All-Tex 65333RF	34.0	4102	1395	2051	706	0.5699	794.85	153.84	948.69	100.51	42.63	805.55	cd
Deltapine 143B2RF	31.1	4641	1442	2227	741	0.5611	808.89	167.01	975.90	113.71	59.02	803.17	cd
Deltapine 164B2RF	29.3	4690	1372	2235	782	0.5875	805.99	167.63	973.62	114.90	59.02	799.70	cd
Americot 1664B2RF	29.0	4847	1406	2068	706	0.5812	816.89	155.12	972.00	118.74	53.58	799.69	cd
FiberMax 9063B2F	29.5	4651	1372	1992	697	0.5914	811.46	149.42	960.88	113.95	56.87	790.07	cd
FiberMax 9058F	30.0	4409	1322	2050	744	0.5879	777.61	153.77	931.38	108.03	47.90	775.45	cd
AFD 5065B2F	27.1	4885	1324	2139	775	0.5885	779.32	160.39	939.71	119.70	52.47	767.55	cd
Stoneville 4427B2RF	30.4	4547	1384	2125	737	0.5535	765.96	159.36	925.32	111.40	57.77	756.14	de
Stoneville 5327B2RF	30.6	4610	1411	2016	686	0.5498	775.49	151.19	926.68	112.94	57.77	755.97	de
Deltapine 121RF	29.9	4312	1289	1624	604	0.5688	733.31	121.76	855.07	105.64	49.77	699.66	e
Test mean	30.6	4673	1429	2154	723	0.5739	819.88	161.54	981.42	114.48	53.95	813.00	
CV, %	--	4.4	4.5	4.4	--	--	4.5	4.4	4.4	4.4	--	4.7	
OSL	--	<0.0001	<0.0001	<0.0001	--	--	<0.0001	<0.0001	<0.0001	<0.0001	--	<0.0001	
LSD	--	342	106	156	--	--	60.92	11.73	72.55	8.37	--	64.21	

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:
$2.45/cwt ginning cost.
$150/ton for seed.
Value for lint based on CCC loan value from USDA-AMS results.

Table 15. USDA-AMS classing results of commercially ginned bales from the irrigated large plot replicated systems trial, Rickey Bearden Farm, Plains, TX, 2007.

Variety	Color 1	Color 2	Staple	Leaf	Mic	Remarks	rd	+b	Length	Strength	Unif	Loan
	units	units	32nds	units	units	bales	%	units	100ths	g/tex	%	$/lb
Americot 1664B2RF	1.3	1.0	36.5	2.9	3.9	0/10	79.9	9.3	113.1	27.5	81.0	0.5812
	0.5	0.0	0.5	0.3	0.0		0.3	0.1	1.3	0.8	1.0	0.0038
Deltapine 121RF	1.1	1.3	35.8	2.8	4.3	0/9	78.8	9.9	111.4	29.5	81.8	0.5688
	0.3	0.5	0.7	0.4	0.1		0.6	0.2	2.7	0.9	1.0	0.0167
FiberMax 9150F	2.0	1.0	36.8	3.0	3.9	0/11	79.4	9.1	115.4	30.3	81.1	0.5844
	0.0	0.0	0.6	0.0	0.1		0.5	0.2	1.7	1.0	0.7	0.0025
Stoneville 4427B2RF	1.3	1.8	35.9	3.3	3.7	0/10	78.2	10.0	112.1	29.3	81.3	0.5535
	0.5	0.4	0.6	0.5	0.1		0.8	0.4	1.7	0.9	0.9	0.0167
Stoneville 5327B2RF	1.3	2.0	35.4	2.5	3.8	0/10	76.9	10.7	110.4	30.1	81.0	0.5498
	0.5	0.0	0.5	0.5	0.1		0.4	0.1	1.3	1.0	0.6	0.0052
FiberMax 9180B2F	1.2	1.0	36.9	1.9	4.1	0/11	81.3	8.8	115.1	30.4	81.0	0.5906
	0.4	0.0	0.5	0.3	0.2		1.1	0.3	1.7	0.9	0.9	0.0033
Deltapine 104B2RF	1.1	1.0	35.5	2.4	3.9	0/11	80.4	9.3	110.6	30.0	82.0	0.5815
	0.3	0.0	0.5	0.5	0.1		0.4	0.1	1.4	0.8	0.6	0.0076
Deltapine 164B2RF	1.0	1.0	37.4	2.2	3.7	0/10	80.1	9.6	116.8	29.6	80.2	0.5875
	0.0	0.0	0.5	0.4	0.1		0.3	0.1	1.2	1.1	1.0	0.0043
Dyna-Gro 2100B2RF	1.2	1.0	35.1	2.1	3.9	0/10	81.0	8.8	109.4	27.5	81.7	0.5745
	0.4	0.0	0.6	0.3	0.1		0.3	0.1	1.5	1.0	0.8	0.0115
Deltapine 143B2RF	1.6	1.1	37.1	2.9	3.5	0/10	78.8	9.7	116.3	29.4	79.6	0.5611
	0.5	0.3	0.6	0.3	0.2		0.6	0.3	1.7	1.1	1.0	0.0166
AFD 5065B2F	1.1	1.0	36.9	2.6	4.0	0/9	80.8	8.9	114.4	30.3	81.7	0.5885
	0.3	0.0	0.3	0.5	0.1		0.4	0.2	1.3	0.9	0.5	0.0039
All-Tex Apex B2RF	1.1	1.0	36.7	1.9	3.8	0/10	80.5	9.3	114.4	27.6	80.3	0.5879
	0.3	0.0	0.5	0.3	0.1		0.5	0.4	1.3	1.4	1.0	0.0034
All-Tex 65333RF	1.4	1.2	35.3	2.0	3.6	0/10	78.8	9.8	110.1	28.5	80.3	0.5699
	0.5	0.4	0.7	0.0	0.1		1.0	0.2	1.8	1.1	0.8	0.0183
FiberMax 9058F	1.8	1.0	37.3	2.5	3.8	0/8	81.2	8.6	116.6	29.9	80.8	0.5879
	0.5	0.0	0.5	0.5	0.1		0.6	0.2	1.3	0.6	0.7	0.0046
FiberMax 9063B2F	1.6	1.0	37.9	2.3	4.1	0/8	82.4	8.3	118.6	30.6	81.4	0.5914
	0.5	0.0	0.6	0.5	0.1		0.2	0.1	1.6	0.7	0.8	0.0032
PhytoGen 485WRF	2.0	1.8	35.9	3.7	3.9	0/10	76.7	9.9	112.3	29.0	81.8	0.5480
	0.0	0.4	0.3	0.5	0.1		0.7	0.3	1.1	0.6	0.6	0.0132
Stoneville 4554B2RF	2.0	2.0	36.3	3.3	3.8	0/7	76.2	10.2	112.7	30.1	81.4	0.5492
	0.0	0.0	0.8	0.5	0.2		0.6	0.1	2.3	0.8	0.9	0.0057

Table 16. Seed and technology costs for the irrigated large plot replicated systems trial, Rickey Bearden Farm, Plains, TX, 2007.

Entry	Technology	Seed cost/bag	Tech fees/bag	Total cost/bag	Seed count seed/bag	Seed cost/acre	Tech fees/acre	Seed & tech fee/ac
All-Tex 65333RF	Roundup Ready Flex	70.00	111.10	181.10	220000	16.63	26.00	42.63
Deltapine 121RF	Roundup Ready Flex	121.95	116.10	238.05	250000	25.50	24.28	49.77
FiberMax 9058F	Roundup Ready Flex	99.50	102.10	201.60	220000	23.64	24.26	47.90
FiberMax 9150F	Roundup Ready Flex	99.50	102.10	201.60	220000	23.64	24.26	47.90
Deltapine 143B2RF	Roundup Ready Flex	125.95	156.30	282.25	250000	26.33	32.68	59.02
AFD 5065B2F	Bollgard II/Roundup Ready Flex	79.50	131.30	210.80	210000	19.79	32.68	52.47
All-Tex Apex B2RF	Bollgard II/Roundup Ready Flex	87.46	150.00	237.46	230000	19.88	34.09	53.97
Americot 1664B2RF	Bollgard II/Roundup Ready Flex	91.95	143.80	235.75	230000	20.90	32.68	53.58
Deltapine 104B2RF	Bollgard II/Roundup Ready Flex	79.95	137.50	217.45	220000	19.00	32.67	51.67
Deltapine 164B2RF	Bollgard II/Roundup Ready Flex	125.95	156.30	282.25	250000	26.33	32.68	59.02
Dyna-Gro 2100B2RF	Bollgard II/Roundup Ready Flex	111.00	143.80	254.80	230000	25.23	32.68	57.91
FiberMax 9063B2F	Bollgard II/Roundup Ready Flex	99.50	134.40	233.90	215000	24.19	32.68	56.87
FiberMax 9180B2F	Bollgard II/Roundup Ready Flex	99.50	137.50	237.00	220000	23.64	32.67	56.31
Stoneville 4427B2RF	Bollgard II/Roundup Ready Flex	110.40	143.80	254.20	230000	25.09	32.68	57.77
Stoneville 4554B2RF	Bollgard II/Roundup Ready Flex	110.40	143.80	254.20	230000	25.09	32.68	57.77
Stoneville 5327B2RF	Bollgard II/Roundup Ready Flex	110.40	143.80	254.20	230000	25.09	32.68	57.77
PhytoGen 485WRF	Widestrike/Roundup Ready Flex	115.00	106.80	221.80	230000	26.14	28.64	54.77

40 inch rows
4 seed/row-ft
52,272 seed/ac

Table 17. Total blanket inputs costs for the irrigated large plot replicated systems trial, Rickey Bearden Farm, Plains, TX, 2007.

Weed control program		Application method	Chemical cost $/acre	Application $/acre	Total cost $/acre
3-Mar	1 pt/acre trifluralin	Ground	$ 1.94	$ 4.50	$ 6.44
24-May	4 oz/acre Treflan	At planting	$ 0.48	N/A	$ 0.48
1-Jul	1 qt/acre Roundup Original Max	Ground	$ 9.31	$ 4.50	$ 13.81
22-Aug	1 qt/acre Roundup Original Max	Ground	$ 9.31	$ 4.50	$ 13.81
Total Blanket Base Weed Control Program					$ 34.55
Insecticide program					
24-May	4 lbs/acre Temik	In-furrow	$ 12.64	N/A	$ 12.64
2-Aug	0.75 oz/acre Intruder	Ground	$ 6.64	$ 4.50	$ 11.14
Total Blanket Insecticide Program					$ 23.78
PGR program					
25-Jun	4 oz/acre Pix	Ground	$ 5.12	$ 4.50	$ 9.62
Total Blanket PGR program					$ 9.62
Harvest aid program					
10-Oct	1 qt/acre Prep 6 oz/acre Ginstar	Ground	$ 6.50 $ 9.61	$ 4.50	$ 20.61
23-Oct	21.3 oz/acre Gramoxone Inteon 8 oz/acre COC	Ground	$ 4.91 $ 0.55	$ 4.50	$ 9.95
Total Blanket Harvest Aid Program					$ 30.56
Total blanket input cost ($/acre)					$ 98.51

Additional Large Plot Replicated Sites

AgriLIFE EXTENSION
Texas A&M System

Replicated Roundup Ready Flex Cotton Variety Demonstration Under LEPA Irrigation, AG-CARES, Lamesa, TX - 2007

Cooperators: Lamesa Cotton Growers/Texas AgriLife Research/Texas AgriLife Extension Service

Jeff Wyatt, Tommy Doederlein, Randy Boman, Mark Kelley, Aaron Alexander, and Rhett Overman
CEA-ANR Dawson County, EA-IPM Dawson/Lynn Counties, Extension Agronomist-Cotton, Extension Program Specialist-Cotton, Graduate Student Assistant, and Extension Assistant-Cotton

Dawson County

Summary: Significant differences were noted for most parameters measured (Tables 1 and 2). Lint turnout ranged from 32.9% for Americot 1622B2RF, to 38.1% for Deltapine 121RF. Lint yields varied from 1224 lb/acre to 1585 lb/acre for All-Tex Arid B2RF and Stoneville 4554B2RF, respectively with a test average of 1414 lb/acre. Lint loan values ranged from a low of $0.5627/lb, for PhytoGen 485WRF, to a high of $0.5945/lb for FiberMax 9180B2F. Net value ranged from a high of $909.46 for Stoneville 4554B2RF to a low of $713.34 for All-Tex Arid B2RF, a difference of $196.12. Micronaire ranged from a low of 4.1 for Deltapine 143B2RF to a high of 4.7 for Deltapine 121RF, Stoneville 4554B2RF, and PhytoGen 485WRF. Staple length averaged 36.5 across all varieties with a low of 35.2 (All-Tex Arid B2RF) and a high of 38.1 (Americot 1622B2RF). Percent uniformity ranged from a low of 80.2 (Deltapine 143B2RF) to a high of 83.2 (Americot 1622B2RF). A test average strength of 29.4 g/tex was observed and Americot 1664B2RF produced the lowest value (27.2), and FiberMax 9068F produced the highest (31.9).

Objective: The objective of this project was to compare yields, gin turnout, and fiber quality of transgenic Bollgard II/Roundup Ready Flex “stacked” gene varieties under LEPA irrigation.

Materials and Methods:

Varieties: All-Tex Apex B2RF, All-Tex Arid B2RF, Americot 1622B2RF, Americot 1664B2RF, Deltapine 104B2RF, Deltapine 121RF, Deltapine 143B2RF, FiberMax 9058F, FiberMax 9063B2F, FiberMax 9068F, FiberMax 9150F, FiberMax 9180B2F, PhytoGen 485WRF, Stoneville 4427B2RF, Stoneville 4554B2RF, and Stoneville 5327B2RF

Experimental design:	Randomized complete block with 3 replications
Seeding rate:	4.0 seed/row-ft in 40-inch row spacing (John Deere MaxEmerge vacuum planter)
Plot size:	4 rows by variable length due to circular pivot rows (348-872 ft long).
Planting date:	15-May
Weed management:	Roundup Weather Max was applied at 22 oz/acre on 13-June and on 16-July with 22 oz/acre Class Act.
Irrigation:	LEPA irrigation

April:	0.00"	May:	0.00"
June:	0.00"	July:	0.88"
August:	0.00"	September:	2.84"

Total irrigation: 4.52"

Rainfall:

April:	0.60"	July:	2.40"
May:	6.90"	August:	2.30"
June:	4.74"	September:	1.50"

Total rainfall: 18.50"

Total moisture: 23.02"

Insecticides:	Temik was applied at in-furrow at planting at 3.5 lbs/acre. Aphids were controlled at this site with an application of Centric. This location is in an active boll weevil eradication zone, but no applications were made by the Texas Boll Weevil Eradication Program.
Fertilizer management:	Preplant fertilizer consisting of 10-34-0 was applied at a rate of 100 lb/acre in April. An additional 90 lbs N/acre using 32-0-0 was fertigated in 3 - 30 lb N/acre increments during the growing season.
Harvest aids:	Harvest aids included Boll'd (6-lb ethephon/gal) at 21.0 oz/acre with Def at 12 oz/acre ground applied 20-October. A follow-up application of Gramoxone Inteon at 16 oz/acre plus NIS was applied via ground rig on 30-October.
Harvest:	Plots were harvested on 6-November using a commercial John Deere 7445 with field cleaner. Harvested material was transferred into a weigh wagon with integral electronic scales to determine individual plot weights. Plot yields were adjusted to lb/acre.
Gin turnout:	Grab samples were taken by plot and ginned at the Texas AgriLife Research and Extension Center at Lubbock to determine gin turnouts.

Fiber analysis: Lint samples were submitted to the International Textile Center 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 $2.45 per cwt. of bur cotton and seed value/acre was based on $150/ton. Ginning costs did not include checkoff.

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 with Monsanto Cap Cost Thresholds. Available at: http://www.plainscotton.org/Seed/seedindex.html .

Results and Discussion:

Significant differences were noted for most parameters measured (Tables 1 and 2). Lint turnout ranged from 32.9% for Americot 1622B2RF, to 38.1% for Deltapine 121RF. Bur cotton yields varied from a low of 3641 lb/acre (All-Tex Arid B2RF) to a high of 4285 lb/acre (Deltapine 143B2RF). This resulted in lint yields from 1224 lb/acre to 1585 lb/acre for All-Tex Arid B2RF and Stoneville 4554B2RF, respectively. A test average 1414 lb/acre lint yield was observed at this location. Lint loan values ranged from a low of $0.5627/lb, for PhytoGen 485WRF, to a high of $0.5945/lb for FiberMax 9180B2F. Lint value ranged from a high of $912.39 (Stoneville 4554B2RF) to a low of $707.08 (All-Tex Arid B2RF). After adding lint and seed values and subtracting ginning and seed/technology costs, net values per acre averaged $821.37/acre. A high of $909.46 for Stoneville 4554B2RF, and a low of $713.34 for All-Tex Arid B2RF was observed, a difference of $196.12/acre. Micronaire ranged from a low of 4.1 for Deltapine 143B2RF to a high of 4.7 for Deltapine 121RF, Stoneville 4554B2RF, and PhytoGen 485WRF. Staple length averaged 36.5 across all varieties with a low of 35.2 (All-Tex Arid B2RF) and a high of 38.1 (Americot 1622B2RF). Percent uniformity ranged from a low of 80.2 (Deltapine 143B2RF) to a high of 83.2 (Americot 1622B2RF). A test average strength of 29.4 g/tex was observed and Americot 1664B2RF produced the lowest value (27.2), and FiberMax 9068F produced the highest (31.9). Elongation percent ranged from a high of 10.1% (Stoneville 4554B2RF) to a low of 7.2% (FiberMax 9150F). These data indicate that substantial differences can be obtained in terms of gross value/acre due to variety and technology selection. It should be noted that no inclement weather was encountered at this location prior to harvest. Additional multi-site and multi-year applied research is needed to evaluate varieties across a series of environments.

Acknowledgments:

Appreciation is expressed to Danny Carmichael, Texas AgriLife Research Associate - AG-CARES, Lamesa; and John Everitt, Research Associate - Texas AgriLife Research, Lubbock, for their assistance with this project, to Dr. John Gannaway - Texas AgriLife Research, Lubbock, for his cooperation, and to the Texas Department of Agriculture - Food and Fiber Research for funding of HVI testing at the Texas Tech University - International Textile Center.

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 University 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 replicated irrigated cotton variety demonstration, AG-CARES, Lamesa, TX, 2007.

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 4554B2RF	38.0	50.2	4171	1585	2094	0.5757	912.39	157.03	1069.42	102.19	57.77	909.46	a
Deltapine 121RF	38.1	48.7	4018	1530	1954	0.5863	897.21	146.58	1043.79	98.43	49.77	895.59	ab
Stoneville 5327B2RF	37.0	48.9	4117	1524	2014	0.5842	890.40	151.08	1041.49	100.88	57.77	882.84	abc
Stoneville 4427B2RF	35.9	50.1	4244	1526	2127	0.5662	863.21	159.51	1022.72	103.98	57.77	860.97	abcd
FiberMax 9180B2F	35.4	49.4	4043	1434	2004	0.5945	852.47	150.27	1002.74	99.05	56.31	847.39	abcd
Deltapine 104B2RF	33.7	52.0	4195	1413	2182	0.5875	829.85	163.67	993.52	102.77	51.67	839.08	abcde
Deltapine 143B2RF	33.5	48.8	4285	1434	2093	0.5847	838.71	156.97	995.68	104.98	59.02	831.68	abcde
Americot 1664B2RF	36.3	50.9	3876	1405	1972	0.5837	820.26	147.88	968.13	94.97	53.58	819.59	abcde
FiberMax 9068F	36.4	50.5	3792	1380	1917	0.5918	816.72	143.80	960.51	92.91	50.29	817.32	abcde
FiberMax 9058F	36.6	48.6	3856	1412	1876	0.5802	818.85	140.73	959.58	94.49	47.90	817.19	abcde
All-Tex Apex B2RF	37.4	50.9	3699	1381	1882	0.5835	806.22	141.20	947.42	90.61	53.97	802.84	bcdef
FiberMax 9150F	36.9	47.7	3739	1379	1785	0.5770	795.81	133.85	929.66	91.61	47.90	790.15	cdef
PhytoGen 485WRF	35.0	50.0	4025	1405	2011	0.5627	790.64	150.83	941.47	98.60	54.77	788.09	def
Americot 1622B2RF	32.9	51.2	3961	1305	2031	0.5913	771.72	152.30	924.01	97.06	53.58	773.38	def
FiberMax 9063B2F	35.3	49.8	3646	1290	1819	0.5912	762.84	136.46	899.29	89.33	56.87	753.10	ef
All-Tex Arid B2RF	33.6	53.4	3641	1224	1944	0.5778	707.08	145.82	852.90	89.20	50.36	713.34	f
Test average	35.7	50.1	3957	1414	1982	0.5824	823.40	148.62	972.02	96.94	53.71	821.37	
CV, %	2.7	2.6	5.3	5.9	6.4	1.7	6.2	6.4	6.2	5.3	--	6.8	
OSL	<0.0001	0.0011	0.0035	0.0008	0.0287	0.0155	0.0029	0.0287	0.0096	0.0035	--	0.0122	
LSD	1.6	2.1	348	140	213	0.0163	85.34	15.98	100.55	8.52	--	93.18	

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

Assumes:
$2.45/cwt ginning cost.
$150/ton for seed.
Value for lint based on CCC loan value from grab samples and ITC HVI results.

Table 2. HVI fiber property results from the replicated irrigated cotton variety demonstration, AG-CARES, Lamesa, TX, 2007.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32nds inches	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
Stoneville 4554B2RF	4.7	35.6	82.2	28.9	10.1	2.7	79.3	9.0	2.3	1
PhytoGen 485WRF	4.7	35.6	83.0	30.1	9.8	3.3	77.9	9.0	2.3	1
Deltapine 104B2RF	4.2	35.8	82.6	30.7	9.4	2.7	80.5	8.6	2.0	1
Deltapine 121RF	4.7	35.5	82.9	29.3	9.2	1.7	80.4	9.0	1.7	1
Americot 1664B2RF	4.4	36.5	82.1	27.2	9.0	2.0	80.4	8.6	2.0	1
All-Tex Apex B2RF	4.4	36.1	80.9	27.5	8.9	1.0	80.8	8.9	1.7	1
Stoneville 5327B2RF	4.6	36.7	81.8	29.7	8.6	1.7	80.4	9.1	1.7	1
Americot 1622B2RF	4.2	38.1	83.2	27.6	8.5	1.3	81.8	8.4	1.7	1
All-Tex Arid B2RF	4.3	35.2	80.9	29.5	8.4	2.3	80.3	8.1	2.3	1
Deltapine 143B2RF	4.1	37.2	80.2	28.5	8.4	2.3	81.3	8.4	1.7	1
Stoneville 4427B2RF	4.5	35.5	82.2	28.0	8.1	3.0	79.9	8.9	1.7	1
FiberMax 9068F	4.4	37.5	82.5	31.9	7.9	2.0	82.4	8.0	1.7	1
FiberMax 9180B2F	4.3	37.0	82.7	30.8	7.9	1.3	82.3	8.1	1.7	1
FiberMax 9063B2F	4.4	37.8	82.0	30.3	7.6	1.0	82.2	7.8	1.7	1
FiberMax 9058F	4.1	37.4	81.8	28.1	7.4	2.0	82.3	8.1	1.3	1
FiberMax 9150F	4.2	36.6	81.4	31.5	7.2	3.0	80.2	7.8	3.0	1
Test average	4.4	36.5	82.0	29.4	8.5	2.1	80.8	8.5	1.9	1.0
CV, %	2.9	1.9	1.1	3.9	3.6	42.8	1.2	2.2	--	--
OSL	<0.0001	<0.0001	0.0085	0.0001	<0.0001	0.0535	<0.0001	<0.0001	--	--
LSD	0.2	1.1	1.4	1.9	0.5	1.5	1.6	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.

AgriLIFE EXTENSION
Texas A&M System

Replicated Irrigated Transgenic Cotton Variety Demonstration, Silverton, TX - 2007

Cooperator: Wayne Reed

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Graduate Student Assistant and Extension Assistant-Cotton

Briscoe County

Summary: Significant differences were observed for several parameters measured (Tables 1 and 2). Lint turnout ranged from a low of 30.7% to 35.0% for Deltapine 143B2RF and Stoneville 5327B2RF, respectively. Lint yields varied with a low of 1517 lb/acre (Deltapine 143B2RF) and a high of 1792 lb/acre (Stoneville 5327B2RF). Lint loan values ranged from a low of $0.5500/lb (Deltapine 143B2RF) to a high of $0.5872/lb (Americot 1532B2RF). When subtracting ginning, seed and technology fee costs, the net value/acre among varieties ranged from a high of $1044.23 (Stoneville 5327B2RF) to a low of $839.68 (Deltapine 143B2RF), a difference of $204.56. Micronaire values ranged from a low of 3.2 for Deltapine 143B2RF to a high of 4.0 for FiberMax 9063B2F. Staple length averaged 37.9 across all varieties with a low of 37.0 for Dyna-Gro 2242B2RF and Stoneville 5327B2RF and a high of 39.7 for FiberMax 9063B2F. The highest percent uniformity was observed for Stoneville 5327B2RF (83.2%) and Deltapine 143B2RF had the lowest (80.7%). Strength values averaged 29.1 g/tex with a high of 31.3 g/tex for Stoneville 5327B2RF, and a low of 26.7 g/tex for All-Tex Marathon B2RF. These data indicate that substantial differences can be obtained in terms of net value/acre due to variety and technology selection.

Objective: The objective of this project was to compare yields, gin turnout, fiber quality, and economics of transgenic varieties under irrigation production systems.

Materials and Methods:

Varieties: Americot 1532B2RF, All-Tex Marathon B2RF, Dyna-Gro 2242B2RF, Deltapine 143B2RF, FiberMax 9063B2F, and Stoneville 5327B2RF

Experimental design: Randomized complete block with 3 replications

Seeding rate:	2.9 seed per row-ft in 30-inch row spacing (John Deere 7300 vacuum planter)
Plot size:	5 rows by variable length of field (1264 to 2605 ft long).
Planting date:	23-May
Weed management:	Treflan was applied pre-plant incorporated at 1.0 pt/acre. Two applications of Roundup Original Max were applied over-the-top at 32 oz/acre with AMS during the growing season.
Rainfall and Irrigation:	According to personal correspondence with cooperator, 14.75 inches for rainfall accumulated during the growing season and 10.0 inches of irrigation were applied for a total of 24.75 inches of moisture.
Insecticides:	Temik was applied at in-furrow at planting at 3.5 lb/acre. No other insecticides were applied at this site. This location is in an active boll weevil eradication zone, but no applications were made by the Texas Boll Weevil Eradication Program.
Fertilizer management:	200 lb/acre of 44-20-0-10 was applied pre-plant. Also, approximately 170 lb/acre 32-0-0 was applied through pivot during the growing season.
Plant growth regulators:	A single application of 10 oz/acre Pentia (mepiquat pentaborate) was made across all entries at this location during the growing season.
Harvest aids:	Prep at 21 oz/acre plus Aim at 0.75 oz/acre with Prime Oil at 1.5 pt/acre were applied on 4-October followed by 12 oz/acre Def and 1 oz/a Aim applied on 2-November with 1 pt/acre Prime Oil.
Harvest:	Plots were harvested on 10-November using a commercial 7445 John Deere stripper harvester with field cleaner. Harvested material was transferred into a weigh wagon with integral electronic scales to determine individual plot weights. Plot yields were adjusted to lb/acre.
Gin turnout:	Grab samples were taken by plot and ginned at the Texas AgriLife Research and Extension Center at Lubbock to determine gin turnouts.
Fiber analysis:	Lint samples were submitted to the International Textile Center at Texas Tech University for HVI analysis and USDA loan values were determined for each variety by plot.
Ginning costs and seed values:	Ginning costs were based on $2.45 per cwt. of bur cotton and seed value/acre was based on $150/ton. Ginning costs did not include checkoff.
Seed and technology fees:	Seed and technology costs were calculated using the appropriate seeding rate (2.9 seed/row-ft) for the 30-inch row spacing and entries using the online Plains Cotton Growers Seed Cost Comparison Worksheet with Monsanto Cap Cost Thresholds. Available at: http://www.plainscotton.org/Seed/seedindex.html .

Results and Discussion:

Significant differences were observed for several parameters measured (Tables 1 and 2). Lint turnout ranged from a low of 30.7% to 35.0% for Deltapine 143B2RF and Stoneville 5327B2RF, respectively. Bur cotton yields averaged 5119 lb/acre with a high of 5517 lb/acre for FiberMax 9063B2F, to a low of 4938 lb/acre for Deltapine 143B2RF. Lint yields varied with a low of 1517 lb/acre (Deltapine 143B2RF) and a high of 1792 lb/acre (Stoneville 5327B2RF). Lint loan values ranged from a low of $0.5500/lb (Deltapine 143B2RF) to a high of $0.5872/lb (Americot 1532B2RF). After adding lint and seed value, total value/acre for varieties ranged from a low of $1017.11 for Deltapine 143B2RF to a high of $1224.78 for Stoneville 5327B2RF. When subtracting ginning, seed and technology fee costs, the net value/acre among varieties ranged from a high of $1044.23 (Stoneville 5327B2RF) to a low of $839.68 (Deltapine 143B2RF), a difference of $204.56. Micronaire values ranged from a low of 3.2 for Deltapine 143B2RF to a high of 4.0 for FiberMax 9063B2F. Staple length averaged 37.9 across all varieties with a low of 37.0 for Dyna-Gro 2242B2RF and Stoneville 5327B2RF and a high of 39.7 for FiberMax 9063B2F. The highest percent uniformity was observed for Stoneville 5327B2RF (83.2%) and Deltapine 143B2RF had the lowest (80.7%). Strength values averaged 29.1 g/tex with a high of 31.3 g/tex for Stoneville 5327B2RF, and a low of 26.7 g/tex for All-Tex Marathon B2RF. Elongation ranged from a high of 9.4% for Dyna-Gro 2242B2RF to a low of 8.1% for FiberMax 9063B2F. Leaf grades were mostly 2s and 3s at this location. Values for reflectance (Rd) and yellowness (+b) averaged 80.3 and 7.6, respectively. This resulted in color grades of mostly 21s and 31s across varieties. These data indicate that substantial differences can be obtained in terms of net value/acre due to variety and technology selection. It should be noted no inclement weather was encountered at this location prior to harvest 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.

Acknowledgments:

Appreciation is expressed to Wayne Reed for the use of his land, equipment and labor for this project. Further assistance with this project was provided by Dr. John Gannaway - Texas AgriLife Research and Extension Center, Lubbock, and Dr. Eric Hequet - Associate Director, International Textile Center, Texas Tech University. Furthermore, we greatly appreciate the Texas Department of Agriculture - Food and Fiber Research for funding of HVI testing at the Texas Tech University - International Textile Center.

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 University 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 replicated irrigated variety demonstration, Wayne Reed Farm, Silverton, TX, 2007.

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 5327B2RF	35.0	48.4	5114	1792	2476	0.5797	1039.13	185.65	1224.78	125.29	55.26	1044.23	a
FiberMax 9063B2F	31.7	47.5	5517	1750	2621	0.5837	1021.81	196.60	1218.41	135.18	54.40	1028.83	ab
Americot 1532B2RF	32.6	47.9	5130	1672	2457	0.5872	982.51	184.27	1166.79	125.69	51.25	989.84	ab
Dyna-Gro 2242B2RF	32.1	47.8	5035	1617	2405	0.5763	932.05	180.39	1112.45	123.36	53.65	935.44	abc
All-Tex Marathon B2RF	31.9	50.2	4982	1589	2501	0.5745	913.19	187.56	1100.75	122.05	51.62	927.07	bc
Deltapine 143B2RF	30.7	48.8	4938	1517	2412	0.5500	836.19	180.92	1017.11	120.99	56.45	839.68	c
Test average	32.3	48.4	5119	1656	2479	0.5752	954.15	185.90	1140.05	125.43	53.77	960.85	
CV, %	3.1	2.4	5.3	5.5	5.3	1.6	6.1	5.3	6.0	5.3	--	6.4	
OSL	0.0074	0.1496	0.2104	0.0349	0.4278	0.0063	0.0142	0.4265	0.0280	0.2108	--	0.0195	
LSD	1.8	NS	NS	167	NS	0.0164	106.04	NS	123.71	12.16	--	111.72	

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:
$2.45/cwt ginning cost.
$150/ton for seed.
Value for lint based on CCC loan value from grab samples and ITC HVI results.

Table 2. HVI fiber property results from the replicated irrigated variety demonstration, Wayne Reed Farm, Silverton, TX, 2007.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32^{nds} inches	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
Americot 1532B2RF	3.9	38.0	82.4	28.0	8.7	2.3	81.1	7.9	2.0	1.0
All-Tex Marathon B2RF	3.6	37.3	83.0	26.7	8.9	2.3	81.1	7.4	2.7	1.0
Dyna-Gro 2242B2RF	3.7	37.0	82.6	28.5	9.4	3.0	79.4	7.6	3.0	1.0
Deltapine 143B2RF	3.2	38.7	80.7	29.1	8.2	3.0	79.5	7.2	3.0	1.0
FiberMax 9063B2F	4.0	39.7	82.8	31.0	8.1	2.0	81.8	7.2	3.0	1.0
Stoneville 5327B2RF	3.8	37.0	83.2	31.3	9.0	3.0	78.9	8.0	3.0	1.0
Test average	3.7	37.9	82.5	29.1	8.7	2.6	80.3	7.6	2.8	1.0
CV, %	5.1	1.3	0.9	3.6	3.1	21.7	1.1	2.2	--	--
OSL	0.0064	0.0004	0.0308	0.0025	0.0012	0.1950	0.0157	0.0003	--	--
LSD	0.3	0.9	1.4	1.9	0.5	NS	1.7	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.

AgriLIFE EXTENSION
Texas A&M System

Replicated Irrigated Transgenic Cotton Variety Demonstration, Seminole, TX - 2007

Cooperator: Shelby Elam

Clyde Crumley, Terry Millican, Randy Boman, Mark Kelley, Aaron Alexander, and Rhett Overman
EA-IPM, Gaines County, CEA-ANR, Gaines County, Extension Agronomist-Cotton, Extension Program Specialist I-Cotton, Graduate Student Assistant and Extension Assistant-Cotton

Gaines County

Summary: Significant differences were observed for most parameters measured (Tables 1 and 2). Lint turnout ranged from a low of 24.1% to 28.0% for Americot 1622B2RF and Stoneville 4554B2RF, respectively. Lint yields varied with a low of 1160 lb/acre (Americot 1622B2RF) and a high of 1386 lb/acre (Stoneville 5327B2RF). Lint loan values ranged from a low of $0.5283/lb (PhytoGen 485WRF) to a high of $0.5700/lb (Americot 1622B2RF). When subtracting ginning, seed and technology fee costs, the net value/acre among varieties ranged from a high of $751.89 (Stoneville 4554B2RF) to a low of $633.24 (Americot 1622B2RF), a difference of $118.65. Micronaire values ranged from a low of 4.1 for FiberMax 9058F to a high of 4.8 for Stoneville 4554B2RF. Staple length averaged 36.2 across all varieties with a low of 35.3 for PhytoGen 485WRF and Stoneville 5327B2RF and a high of 37.3 for FiberMax 1880B2F. These data indicate that substantial differences can be obtained in terms of net value/acre due to variety and technology selection.

Objective: The objective of this project was to compare yields, gin turnout, fiber quality, and economics of transgenic varieties under limited irrigation production systems.

Materials and Methods:

Varieties: Americot 1622B2RF, Deltapine 143B2RF, FiberMax 1880B2F, FiberMax 9058F, FiberMax 9063B2F, PhytoGen 485WRF, Stoneville 4554B2RF, and Stoneville 5327B2RF

Experimental design: Randomized complete block with 3 replications

Seeding rate: 4 seed per row-ft in 40-inch row spacing

Plot size:	4 rows by variable length of field (~2500 ft long).
Planting date:	29-May (No tilled into grazed out wheat stubble)
Weed management:	Trifluralin was chemigated preplant at 1.0 pt/acre. An additional 1.0 pt/acre trifluralin was chemigated on 20-June. Glyphosate herbicide was applied over-the-top at 32 oz/acre with AMS (28 lbs/100 gallon spray mix with 10 gpa application rate) at preplant, 5 leaf stage and mid July.
Rainfall and Irrigation:	According to personal correspondence with cooperator, rainfall amounts of 10" (May), 3.67" (June), 1.0 " (July), 2.12" (August), and 3.39" (September) accumulated during the growing season and 12.0 inches of irrigation were applied for a total of 32.18 inches of moisture.
Insecticides:	Temik was applied at in-furrow at planting at 5 lb/acre. No other insecticides were applied at this site. This location is in an active boll weevil eradication zone, but no applications were made by the Texas Boll Weevil Eradication Program.
Fertilizer management:	250 lb/acre of 5-20-05 was applied pre-plant (coulter rig - 4" from seed row). Also, 100 lb/acre 0-0-60 was applied at first bloom and 110 lb N/acre were applied through pivot during June and July using 32-0-0.
Plant growth regulators:	18 oz/acre Mepex was applied across all varieties during the growing season.
Harvest aids:	Prep at 1.0 qt/acre with Aim at 1.0 oz/acre and AgriPlex 8020 at 1 pt/100 gallons spray solution (10 gpa) were applied on 10-October followed by 1.5 pt/acre Gramoxone Inteon with 0.25 %v/v NIS.
Harvest:	Plots were harvested on 13-November using a commercial 1800 International stripper harvester. 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 AgriLife Research and Extension Center at Lubbock to determine gin turnouts.
Fiber analysis:	Lint samples were submitted to the International Textile Center at Texas Tech University for HVI analysis and USDA loan values were determined for each variety by plot.
Ginning costs and seed values:	Ginning costs were based on $2.45 per cwt. of bur cotton and seed value/acre was based on $150/ton. Ginning costs did not include checkoff.
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 with Monsanto Cap Cost Thresholds. Available at: http://www.plainscotton.org/Seed/seedindex.html .

Results and Discussion:

Significant differences were observed for most parameters measured (Tables 1 and 2). Lint turnout ranged from a low of 24.1% to 28.0% for Americot 1622B2RF and Stoneville 4554B2RF, respectively. Lint yields varied with a low of 1160 lb/acre (Americot 1622B2RF) and a high of 1386 lb/acre (Stoneville 5327B2RF). Lint loan values ranged from a low of $0.5283/lb (PhytoGen 485WRF) to a high of $0.5700/lb (Americot 1622B2RF). After adding lint and seed value, total value/acre for varieties ranged from a low of $804.94 for Americot 1622B2RF to a high of $930.79 for Stoneville 4554B2RF. When subtracting ginning, seed and technology fee costs, the net value/acre among varieties ranged from a high of $751.89 (Stoneville 4554B2RF) to a low of $633.24 (Americot 1622B2RF), a difference of $118.65. Micronaire values ranged from a low of 4.1 for FiberMax 9058F to a high of 4.8 for Stoneville 4554B2RF. Staple length averaged 36.2 across all varieties with a low of 35.3 for PhytoGen 485WRF and Stoneville 5327B2RF and a high of 37.3 for FiberMax 1880B2F. Significant differences were observed among varieties for micronaire, staple, elongation, reflectance (Rd), and yellowness (+b). These data indicate that substantial differences can be obtained in terms of net value/acre due to variety and technology selection. These data indicate that substantial differences can be obtained in terms of net value/acre due to variety and technology selection. It should be noted no inclement weather was encountered at this location prior to harvest. Additional multi-site and multi-year applied research is needed to evaluate varieties and technology across a series of environments.

Acknowledgments:

Appreciation is expressed to Shelby Elam for the use of his land, equipment and labor for this project. Further assistance with this project was provided by Dr. John Gannaway - Texas AgriLife Research and Extension Center, Lubbock, and Dr. Eric Hequet - Associate Director, International Textile Center, Texas Tech University. Furthermore, we greatly appreciate the Texas Department of Agriculture - Food and Fiber Research for funding of HVI testing at the Texas Tech University - International Textile Center.

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Table 1. Harvest results from the replicated irrigated transgenic cotton variety demonstration, Shelby Elam Farm, Seminole, TX, 2007.

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 4554B2RF	28.0	40.5	4944	1384	2003	0.5640	780.57	150.21	930.79	121.12	57.77	751.89	a
Stoneville 5327B2RF	27.3	40.1	5084	1386	2039	0.5518	765.33	152.92	918.25	124.55	57.77	735.93	ab
FiberMax 1880B2F	27.3	42.9	4656	1272	1997	0.5673	721.49	149.77	871.26	114.06	56.31	700.88	abc
Deltapine 143B2RF	27.1	42.4	4944	1341	2095	0.5372	720.31	157.09	877.41	121.11	59.02	697.27	abc
PhytoGen 485WRF	26.8	40.8	4983	1337	2034	0.5283	706.56	152.54	859.11	122.09	54.77	682.25	bc
FiberMax 9063B2F	26.7	39.7	4615	1231	1833	0.5610	690.66	137.52	828.17	113.06	56.87	658.24	c
FiberMax 9058F	26.4	36.8	4712	1244	1734	0.5462	678.62	130.08	808.70	115.44	47.90	645.36	c
Americot 1622B2RF	24.1	39.6	4821	1160	1909	0.5700	661.77	143.17	804.94	118.13	53.58	633.24	c
Test average	26.7	40.4	4845	1294	1956	0.5532	715.67	146.66	862.33	118.70	55.50	688.13	
CV, %	3.7	2.9	2.5	2.5	2.5	3.9	5.4	2.5	4.8	2.5	--	5.7	
OSL	0.0115	0.0007	0.0022	<0.0001	<0.0001	0.2634	0.0246	<0.0001	0.0146	0.0022	--	0.0225	
LSD	1.7	2.1	211	56	84	NS	67.37	6.31	72.23	5.16	--	68.34	

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:
$2.45/cwt ginning cost.
$150/ton for seed.
Value for lint based on CCC loan value from grab samples and ITC HVI results.

Table 2. HVI fiber property results from the replicated irrigated transgenic cotton variety demonstration, Shelby Elam Farm, Seminole, TX, 2007.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32nds inches	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
Americot 1622B2RF	4.4	36.7	81.8	26.6	9.0	3.0	79.3	8.0	2.7	1.0
Deltapine 143B2RF	4.3	36.7	80.9	27.6	8.5	4.3	77.9	7.4	3.3	1.0
FiberMax 1880B2F	4.5	37.3	82.7	28.8	8.2	3.3	79.7	7.4	3.0	1.0
FiberMax 9058F	4.1	36.7	81.1	28.3	7.4	4.0	78.6	7.5	3.3	1.0
FiberMax 9063B2F	4.7	35.7	80.6	29.0	7.9	3.3	79.4	7.5	3.0	1.0
PhytoGen 485WRF	4.7	35.3	82.3	27.6	9.7	4.3	75.4	8.3	3.7	1.0
Stoneville 4554B2RF	4.8	36.0	82.4	27.1	10.1	3.3	77.8	8.4	3.0	1.0
Stoneville 5327B2RF	4.6	35.3	82.0	27.7	9.3	3.0	77.1	8.4	3.0	1.0
Test average	4.5	36.2	81.7	27.8	8.8	3.6	78.2	7.9	3.1	1.0
CV, %	4.2	2.3	1.7	3.7	4.0	18.6	1.3	3.0	--	--
OSL	0.0151	0.0943	0.5434	0.1373	<0.0001	0.1154	0.0024	0.0001	--	--
LSD	0.3	1.2†	NS	NS	0.6	NS	1.8	0.4	--	--

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

AgriLIFE EXTENSION
Texas A&M System

Replicated Irrigated Transgenic Cotton Variety Demonstration, Hale Center, TX - 2007

Cooperator: Kim Norris

Michael Dolle, Randy Boman, Mark Kelley, Rhett Overman and Aaron Alexander
CEA-ANR, Hale County,
Extension Agronomist-Cotton, Extension Program Specialist I-Cotton,
Extension Assistant-Cotton, and Graduate Assistant

Hale County

Summary: Significant differences were observed for most parameters measured (Tables 1 and 2). Lint turnout ranged from a low of 26.3% to a high of 31.2% for Croplan Genetics 4020B2RF and FiberMax 9068F, respectively. Lint yields varied with a low of 684 lb/acre (Croplan Genetics 4020B2RF) and a high of 1027 lb/acre (FiberMax 9063B2F). Lint loan values ranged from a low of $0.5408/lb (All-Tex Summit B2RF) to a high of $0.5928/lb (FiberMax 9068F). When subtracting ginning, seed and technology fee costs, the net value/acre among varieties ranged from a high of $558.06 (FiberMax 9063B2F) to a low of $345.97 (Croplan Genetics 4020B2RF), a difference of $212.09. Micronaire values ranged from a low of 3.0 for All-Tex Summit B2RF to a high of 3.7 for FiberMax 9068F. Staple length averaged 37.0 across all varieties with a low of 35.3 for All-Tex Summit B2RF and a high of 39.3 for FiberMax 9068F. These data indicate that substantial differences can be obtained in terms of net value/acre due to variety and technology selection.

Objective: The objective of this project was to compare yields, gin turnout, fiber quality, and economics of transgenic varieties under furrow irrigated production systems.

Materials and Methods:

Varieties: Americot 1521B2RF, All-Tex Summit B2RF, Croplan Genetics 4020B2RF, Dyna-Gro 2242B2RF, FiberMax 9063B2F, and FiberMax 9068F

Experimental design: Randomized complete block with 3 replications

Seeding rate: 4.0 seed per row-ft in 40-inch row spacing (John Deere 1700 Max Emerge)

Plot size: 4 rows by variable length of field (1887 to 2537 ft long)

Planting date:	23-May
Weed management:	At planting, Cotoran and Dual were broadcast applied at 1.5 and 1 qt/acre, respectively. During the growing season 3 applications of Roundup Original Max were made at 22 oz/acre rates with Array surfactant.
Rainfall and Irrigation:	Approximately 12 inches of irrigation were applied (furrow irrigated) during the growing season (personal correspondence with cooperator) with 14.6 inches of rainfall (West Texas Mesonet - Plainview Station) for a total of 26.6 inches.
Insecticides:	Temik was applied in-furrow at planting at 3.5 lbs/acre. No other insecticides were applied at this site. This location is in an active boll weevil eradication zone, but no applications were made by the Texas Boll Weevil Eradication Program.
Fertilizer management:	Composted manure was applied at 1 ton/acre pre-plant.
Plant growth regulators:	Two applications of Pentia (8 oz/acre each for a total of 16 oz/acre) were made at this site during the growing season.
Harvest aids:	Harvest aids included Prep at 1 qt/acre and Def at 1 pt/acre. No sequential application was warranted at this location.
Harvest:	Plots were harvested on 29-November using a commercial John Deere 7455 stripper harvester with field cleaner. Harvested material was transferred into a weigh wagon with integral electronic scales to determine individual plot weights. Plot yields were adjusted to lb/acre.
Gin turnout:	Grab samples were taken by plot and ginned at the Texas AgriLife Research and Extension Center at Lubbock to determine gin turnouts.
Fiber analysis:	Lint samples were submitted to the International Textile Center at Texas Tech University for HVI analysis and USDA loan values were determined for each variety by plot.
Ginning costs and seed values:	Ginning costs were based on $2.45 per cwt. of bur cotton and seed value/acre was based on $150/ton. Ginning costs did not include checkoff.
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 with Monsanto Cap Cost Thresholds. Available at: http://www.plainscotton.org/Seed/seedindex.html .

Results and Discussion:

Significant differences were observed for most parameters measured (Tables 1 and 2). Lint turnout ranged from a low of 26.3% to a high of 31.2% for Croplan Genetics 4020B2RF and FiberMax 9068F, respectively. Bur cotton yields averaged 2861 lb/acre with a high of 3581 lb/acre for FiberMax 9063B2F and a low of 2590 lb/acre for All-Tex Summit B2RF. Lint yields varied with a low of 684 lb/acre (Croplan Genetics 4020B2RF) and a high of 1027 lb/acre (FiberMax 9063B2F). Lint loan values ranged from a low of $0.5408/lb (All-Tex Summit B2RF) to a high of $0.5928/lb (FiberMax 9068F). This resulted in lint values ($/acre) ranging from a low of $374.92 for Croplan Genetics 4020B2RF to a high of $577.05 for FiberMax 9063B2F. After adding lint and seed value, total value/acre for varieties ranged from a low of $470.33 Croplan Genetics 4020B2RF to a high of $705.62 for FiberMax 9063B2F. When subtracting ginning, seed and technology fee costs, the net value/acre among varieties ranged from a high of $558.06 (FiberMax 9063B2F) to a low of $345.97 (Croplan Genetics 4020B2RF), a difference of $212.09. Micronaire values ranged from a low of 3.0 for All-Tex Summit B2RF to a high of 3.7 for FiberMax 9068F. Staple length averaged 37.0 across all varieties with a low of 35.3 for All-Tex Summit B2RF and a high of 39.3 for FiberMax 9068F. Percent uniformity ranged from a low of 80.6 (Croplan Genetics 4020B2RF) to a high of 82.6 (FiberMax 9068F). A test average strength of 27.7 g/tex was observed and Dyna-Gro 2242B2RF produced the lowest value (25.8), and FiberMax 9068F produced the highest (30.7). Elongation percent ranged from a high of 9.0% (Dyna-Gro 2242B2RF) to a low of 7.7% (FiberMax 9063B2F). Leaf grades were mostly 1s and 2s, with some 3s observed for Dyna-Gro 2242B2RF and Croplan Genetics 4020B2RF. Reflectance (Rd) and yellowness (+b) values averaged 82.2 and 7.8, respectively across varieties. This resulted in color grades of mostly 21s. These data indicate that substantial differences can be obtained in terms of net value/acre due to variety and technology selection. It should be noted that no inclement weather was encountered at this location prior to harvest. Additional multi-site and multi-year applied research is needed to evaluate varieties and technology across a series of environments.

Acknowledgments:

Appreciation is expressed to Kim Norris for the use of his land, equipment and labor for this project. Further assistance with this project was provided by Dr. John Gannaway - Texas AgriLife Research and Extension Center, Lubbock, and Dr. Eric Hequet - Associate Director, International Textile Center, Texas Tech University. Furthermore, we greatly appreciate the Texas Department of Agriculture - Food and Fiber Research for funding of HVI testing at the Texas Tech University - International Textile Center.

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Table 1. Harvest results from the replicated irrigated variety demonstration, Kim Norris Farm, Hale Center, TX, 2007.

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 9063B2F	28.7	47.9	3581	1027	1714	0.5617	577.05	128.57	705.62	87.72	59.83	558.06	a
FiberMax 9068F	31.2	48.3	2956	922	1429	0.5928	546.28	107.16	653.45	72.43	52.91	528.11	ab
Dyna-Gro 2242B2RF	29.8	49.8	2815	840	1403	0.5663	475.53	105.20	580.73	68.96	59.02	452.76	bc
Americot 1521B2RF	26.9	52.5	2624	705	1377	0.5525	389.46	103.27	492.73	64.29	56.38	372.07	cd
All-Tex Summit B2RF	26.8	51.0	2590	695	1322	0.5408	375.58	99.13	474.70	63.45	55.91	355.34	cd
Croplan Genetics 4020B2RF	26.3	48.9	2599	684	1272	0.5477	374.92	95.41	470.33	63.67	60.69	345.97	d
Test average	28.3	49.7	2861	812	1419	0.5603	456.47	106.46	562.93	70.09	57.46	435.38	
CV, %	3.7	2.7	10.2	11.1	10.0	2.4	12.1	10.0	11.7	10.2	--	13.5	
OSL	0.0005	0.0105	0.0096	0.0022	0.0320	0.0074	0.0016	0.0320	0.0029	0.0096	--	0.0023	
LSD	1.9	2.4	519	160	252	0.0242	98.48	18.89	116.94	12.73	--	104.47	

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:
$2.45/cwt ginning cost.
$150/ton for seed.
Value for lint based on CCC loan value from grab samples and ITC HVI results.

Table 2. HVI fiber property results from the replicated irrigated variety demonstration, Kim Norris Farm, Hale Center, TX, 2007.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32^{nds} inches	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
Americot 1521B2RF	3.2	36.0	80.7	25.9	8.9	2.0	82.5	7.7	2.0	1.0
All-Tex Summit B2RF	3.0	35.3	81.4	27.0	8.9	2.0	81.9	8.2	2.0	1.0
Croplan Genetics 4020B2RF	3.1	36.3	80.6	26.5	8.4	2.3	81.5	8.4	1.7	1.0
Dyna-Gro 2242B2RF	3.6	36.0	81.5	25.8	9.0	3.0	81.3	8.1	2.0	1.0
FiberMax 9063B2F	3.4	39.0	81.6	30.4	7.7	1.7	82.7	7.3	2.0	1.0
FiberMax 9068F	3.7	39.3	82.6	30.7	7.9	1.0	83.0	7.4	2.0	1.0
Test average	3.3	37.0	81.4	27.7	8.5	2.0	82.2	7.8	1.9	1.0
CV, %	3.2	1.1	0.8	4.2	3.2	26.4	0.7	2.9	--	--
OSL	<0.0001	<0.0001	0.0411	0.0004	0.0002	0.0122	0.0144	0.0003	--	--
LSD	0.2	0.7	1.2	2.1	0.5	0.9	1.0	0.4	--	--

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

AgriLIFE EXTENSION
Texas A&M System

Replicated Irrigated Transgenic Narrow-Row Cotton Variety Demonstration, Plainview, TX - 2007

Cooperator: Lanny Bennett

Michael Dolle, Randy Boman, Mark Kelley, Aaron Alexander, and Rhett Overman
CEA-ANR, Hale County,
Extension Agronomist-Cotton, Extension Program Specialist I-Cotton,
Graduate Student Assistant and Extension Assistant-Cotton

Hale County

Summary: Significant differences were observed for several parameters measured (Tables 1 and 2). Lint turnout ranged from a low of 32.1% to 34.3% for FiberMax 9180B2F and FiberMax 9060F, respectively. Lint yields varied with a low of 1889 lb/acre (Stoneville 5283RF) and a high of 2135 lb/acre (FiberMax 9060F). Lint loan values ranged from a low of $0.5378/lb (Paymaster 2141B2RF) to a high of $0.5825/lb (Deltapine 121RF). When subtracting ginning, seed and technology fee costs, the net value/acre among varieties ranged from a high of $1219.33 (FiberMax 9060F) to a low of $1022.29 (Stoneville 5283RF), a difference of $197.04/acre. Micronaire values ranged from a low of 3.1 for Stoneville 5283RF to a high of 3.6 for Deltapine 121RF. Staple length averaged 37.1 across all varieties with a low of 36.0 for Stoneville 4664RF and a high of 38.6 for FiberMax 9068F. No significant differences were observed among varieties for uniformity (%) or strength (g/tex) with test averages of 80.8% and 29.0 g/tex, respectively. These data indicate that substantial differences can be obtained in terms of net value/acre due to variety and technology selection.

Objective: The objective of this project was to compare yields, gin turnout, fiber quality, and economics of transgenic varieties under narrow row center pivot spray irrigation production systems following corn.

Materials and Methods:

Varieties: Deltapine 121RF, FiberMax 9058F, FiberMax 9060F, FiberMax 9068F, FiberMax 9180B2F, Paymaster 2141B2RF, Stoneville 4664RF, and Stoneville 5283RF

Experimental design: Randomized complete block with 3 replications

Seeding rate: 3.3 seed per row-ft in 20-inch row spacing (24 row Kinze drag-type planter)

Plot size:	8 rows by variable length of field. (0.70 to 1.02 acres/plot)
Planting date:	22-May
Weed management:	Prowl H20 was applied pre-plant incorporated at 1.0 pt/acre. Dual at 1.3 pt/acre and Direx at 1 qt/acre were applied at planting. An application of Roundup Original Max was applied over-the-top at 32 oz/acre with AMS at the 8th true leaf stage and approximately 0.25 acre was spot sprayed for morningglory control during the growing season.
Rainfall and Irrigation:	According to personal correspondence with cooperator, approximately 8.0 inches of irrigation were applied throughout the growing season. A total of 14.53 inches of rainfall accumulation was observed at the West Texas Mesonet - Plainview station from 1-May to 31-October for a total of 22.53 inches of moisture.
Insecticides:	Two applications of 4.3 oz/acre Ammo were made at 1st square and 1st bloom for Lygus control. Also, 2 applications of Karate were made for control of bollworms. This location is in an active boll weevil eradication zone, but no applications were made by the Texas Boll Weevil Eradication Program.
Fertilizer management:	A total of 130 lb N/acre were applied via fertigation during the growing season using 32-0-0.
Plant growth regulators:	Three applications of Pentia were made at pin-head square (2.0 oz/acre), early bloom (15.0 oz/acre) and peak bloom (15.0 oz/acre) for plant height control.
Harvest aids:	Boll'd at 2 pt/acre and Aim at 1.0 oz/acre with 0.25% v/v LI-700 were applied aerially on 16-October at this location. A sequential application on 29-Oct consisted of 24 oz/acre Gramoxone Inteon with 0.5% v/v LI-700.
Harvest:	Plots were harvested on 6-November using a commercial 7460 John Deere stripper harvester with field cleaner and customized header to facilitate harvest of 20-inch rows. 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 AgriLife Research and Extension Center at Lubbock to determine gin turnouts.
Fiber analysis:	Lint samples were submitted to the International Textile Center at Texas Tech University for HVI analysis and USDA loan values were determined for each variety by plot.
Ginning costs and seed values:	Ginning costs were based on $2.45 per cwt. of bur cotton and seed value/acre was based on $150/ton. Ginning costs did not include checkoff.

Seed and technology fees: Seed and technology costs were calculated using the appropriate seeding rate (3.3 seed/row-ft) for the 20-inch row spacing and entries using the online Plains Cotton Growers Seed Cost Comparison Worksheet with Monsanto Cap Cost Thresholds. Available at: http://www.plainscotton.org/Seed/seedindex.html .

Results and Discussion:

Significant differences were observed for several parameters measured (Tables 1 and 2). Lint turnout ranged from a low of 32.1% to 34.3% for FiberMax 9180B2F and FiberMax 9060F, respectively. Bur cotton yields averaged 5960 lb/acre with a high of 6233 lb/acre for FiberMax 9060F, to a low of 5577 lb/acre for Stoneville 5283RF. Lint yields varied with a low of 1889 lb/acre (Stoneville 5283RF) and a high of 2135 lb/acre (FiberMax 9060F). Lint loan values ranged from a low of $0.5378/lb (Paymaster 2141B2RF) to a high of $0.5825/lb (Deltapine 121RF). After adding lint and seed value, total value/acre for varieties ranged from a low of $1226.20 for Stoneville 5283RF to a high of $1436.94 for FiberMax 9060F. When subtracting ginning, seed and technology fee costs, the net value/acre among varieties ranged from a high of $1219.33 (FiberMax 9060F) to a low of $1022.29 (Stoneville 5283RF), a difference of $197.04/acre. Micronaire values ranged from a low of 3.1 for Stoneville 5283RF to a high of 3.6 for Deltapine 121RF. Staple length averaged 37.1 across all varieties with a low of 36.0 for Stoneville 4664RF and a high of 38.6 for FiberMax 9068F. No significant differences were observed among varieties for uniformity (%) or strength (g/tex) with test averages of 80.8% and 29.0 g/tex, respectively. Elongation ranged from a high of 9.8% for Stoneville 4664RF to a low of 7.6% for FiberMax 9058F and FiberMax 9060F. Leaf grades were mostly 1s and 2s at this location. Values for reflectance (Rd) and yellowness (+b) averaged 81.2 and 7.6, respectively. This resulted in color grades of mostly 21s and 31s across varieties. These data indicate that substantial differences can be obtained in terms of net value/acre due to variety and technology selection. It should be noted no inclement weather was encountered at this location prior to harvest 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.

Acknowledgments:

Appreciation is expressed to Lanny Bennett for the use of his land, equipment and labor for this project. Further assistance with this project was provided by Dr. John Gannaway - Texas AgriLife Research and Extension Center, Lubbock, and Dr. Eric Hequet - Associate Director, International Textile Center, Texas Tech University. Furthermore, we greatly appreciate the Texas Department of Agriculture - Food and Fiber Research for funding of HVI testing at the Texas Tech University - International Textile Center.

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Table 1. Harvest results from the replicated irrigated narrow row variety demonstration, Lanny Bennett Farm, Plainview, TX, 2007.

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 9060F	34.3	49.8	6233	2135	3107	0.5638	1203.96	232.99	1436.94	152.72	64.90	1219.33	a
Stoneville 4664RF	33.7	50.3	6114	2061	3074	0.5647	1162.83	230.54	1393.37	149.80	67.28	1176.30	ab
FiberMax 9058F	33.1	48.3	6105	2021	2952	0.5618	1135.62	221.37	1356.99	149.57	64.90	1142.53	ab
FiberMax 9180B2F	32.1	51.1	6134	1966	3132	0.5713	1122.96	234.90	1357.87	150.28	73.90	1133.69	ab
Deltapine 121RF	33.8	49.6	5622	1900	2789	0.5825	1106.60	209.17	1315.77	137.73	67.95	1110.09	bc
FiberMax 9068F	32.2	50.7	6018	1936	3052	0.5652	1094.08	228.94	1323.02	147.44	68.79	1106.80	bc
Paymaster 2141B2RF	32.3	51.1	5874	1895	3004	0.5378	1020.16	225.26	1245.42	143.92	66.25	1035.24	c
Stoneville 5283RF	33.9	50.2	5577	1889	2801	0.5380	1016.15	210.05	1226.20	136.63	67.28	1022.29	c
Test average	33.2	50.1	5960	1975	2989	0.5606	1107.80	224.15	1331.95	146.01	67.66	1118.28	
CV, %	3.3	2.0	3.4	3.3	3.4	3.2	4.7	3.4	4.4	3.4	--	4.9	
OSL	0.1356	0.0684	0.0085	0.0029	0.0052	0.0937	0.0072	0.0052	0.0085	0.0084	--	0.0085	
LSD	NS	1.4†	353	114	180	0.0257†	91.65	13.50	101.91	8.64	--	95.25	

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

Assumes:
$2.45/cwt ginning cost.
$150/ton for seed.
Value for lint based on CCC loan value from grab samples and ITC HVI results.

Table 2. HVI fiber property results rom the replicated irrigated narrow row variety demonstration, Lanny Bennett Farm, Plainview, TX, 2007.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32^{nds} inches	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
Deltapine 121RF	3.6	36.2	81.2	28.5	9.2	1.3	80.7	8.1	2.7	1.0
FiberMax 9058F	3.4	37.9	80.1	28.5	7.6	1.3	82.6	7.1	2.7	1.0
FiberMax 9060F	3.4	37.6	79.7	28.5	7.6	1.0	82.6	7.1	2.3	1.0
FiberMax 9068F	3.4	38.6	80.6	30.2	8.1	1.7	82.5	7.3	2.0	1.0
FiberMax 9180B2F	3.5	37.4	81.2	29.6	8.4	2.0	82.0	7.1	2.3	1.0
Paymaster 2141B2RF	3.5	37.0	81.4	28.7	8.5	3.3	79.5	6.9	3.7	1.0
Stoneville 4664RF	3.4	36.0	80.7	28.4	9.8	2.3	80.4	8.2	2.0	1.0
Stoneville 5283RF	3.1	36.5	81.1	29.6	9.2	1.0	79.1	8.8	2.3	1.0
Test average	3.4	37.1	80.8	29.0	8.6	1.7	81.2	7.6	2.5	1.0
CV, %	3.5	1.6	0.9	3.3	3.2	46.0	1.4	2.6	--	--
OSL	0.0051	0.0009	0.1319	0.2242	<0.0001	0.0428	0.0065	<0.0001	--	--
LSD	0.2	1.0	NS	NS	0.5	1.4	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.

AgriLIFE EXTENSION
Texas A&M System

Replicated Irrigated Roundup Ready Flex Cotton Variety Demonstration, Halfway, TX - 2007

Cooperators: Texas AgriLife Research/ Texas AgriLife Extension Service

Michael Dolle, Randy Boman, Mark Kelley, Aaron Alexander, and Rhett Overman
CEA-ANR Hale County,
Extension Agronomist-Cotton, Extension Program Specialist I-Cotton,
Student Assistant and Extension Assistant-Cotton

Hale County

Summary: Significant differences were noted for most parameters measured (Tables 1 and 2). Lint turnout ranged from 31.7%, for NexGen 3550RF, to 36.3% for Stoneville 5283RF. Lint yields varied from 1294 lb/acre to 1522 lb/acre for Dyna-Gro 2383RF and FiberMax 9150F, respectively with a test average of 1402 lb/acre. Lint loan values ranged from a low of $0.5505/lb, for AFD 5064F, to a high of $0.5840/lb for Stoneville 5283F. After subtracting ginning, seed and technology fee costs, net value ranged from a high of $873.61 for FiberMax 9060F to a low of $727.74 for Dyna-Gro 2383RF, a difference of $145.87. Micronaire ranged from a low of 3.6 for Dyna-Gro 2383RF to a high of 4.3 for AFD 5064F. Staple length averaged 35.5 across all varieties with a low of 34.3 (AFD 5064F) and a high of 36.5 (FiberMax 9150F). Percent uniformity ranged from a low of 80.3 (FiberMax 9058F) to a high of 81.7 (Deltapine 121RF). A test average strength of 27.2 g/tex was observed and Stoneville 4664RF produced the lowest value (25.7), and FiberMax 9150F produced the highest (28.7). These data indicate that substantial differences can be obtained in terms of gross value/acre due to variety and technology selection.

Objective: The objective of this project was to compare yields, gin turnout, fiber quality, and economics of Roundup Ready Flex varieties under irrigated production systems.

Materials and Methods:

Varieties: All-Tex 65333RF, AFD 5064F, Deltapine 121RF, Dyna-Gro 2883RF, FiberMax 9058F, FiberMax 9060F, FiberMax 9150F, NexGen 1572 RF, NexGen 3550RF, Stoneville 4664RF, and Stoneville 5283RF

Experimental design: Randomized complete block design with 3 replications

Seeding rate:	4.0 seed per row-ft in 40-inch row spacing (John Deere 1700 Max Emerge)
Plot size:	4 rows by variable length due to circular pivot rows (851-1326 ft long).
Planting date:	22-May
Weed management:	64 oz/a Prowl was applied preplant incorporated on 19-April. Glystar was applied at a rate of 1.0 qt/acre on 19-June and also on 17-July. This location was cultivated once on 22-June.
Rainfall and Irrigation:	5.5 inches of irrigation were applied during the growing season with approximately 22.39 inches of rainfall, according to personal correspondence with farm manager, for a total of 27.89 inches.
Insecticides:	Temik was applied in-furrow at planting at 3.0 lbs/acre. No other insecticides were applied at this site. This location is in an active boll weevil eradication zone, but no applications were made by the Texas Boll Weevil Eradication Program.
Fertilizer management:	100 lb N/acre and 50 lb P2O5/acre (using 10-34-0 and 32-0-0) was side-dressed (2 knives in each wet furrow placed 10 inches from top of beds) using a coulter rig on 11-June.
Plant growth regulators:	Two applications of Pentia were applied at this site during the growing season. The first application, at a rate of 8.0 oz/acre, was applied on 19-July and the second application, at a rate of 10.0 oz/acre, was applied on 31-July.
Harvest aids:	Gramoxone Inteon at a rate of 24.0 oz/acre with NIS was applied on 30-October.
Harvest:	Plots were harvested on 15-November using a commercial John Deere 7445 stripper harvester with field cleaner. Harvested material was transferred into a weigh wagon with integral electronic scales to determine individual plot weights. Plot yields were adjusted to lb/acre.
Gin turnout:	Grab samples were taken by plot and ginned at the Texas AgriLife Research and Extension Center at Lubbock to determine gin turnouts.
Fiber analysis:	Lint samples were submitted to the International Textile Center 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 $2.45 per cwt. of bur cotton and seed value/acre was based on $150/ton. Ginning costs did not include checkoff.

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 with Monsanto Cap Cost Thresholds. Available at: http://www.plainscotton.org/Seed/seedindex.html .

Results and Discussion:

Significant differences were noted for most parameters measured (Tables 1 and 2). Lint turnout ranged from 31.7% for NexGen 3550RF, to 36.3% for Stoneville 5283RF. Bur cotton yields varied from a low of 3696 lb/acre (Deltapine 121RF) to a high of 4341 lb/acre (FiberMax 9060F). This resulted in lint yields from 1277 lb/acre to 1522 lb/acre for NexGen 3550RF and FiberMax 9150F, respectively. A test average 1402 lb/acre lint yield was observed at this location. Lint loan values ranged from a low of $0.5505/lb, for AFD 5064F, to a high of $0.5840/lb for Stoneville 5283RF. Lint value ranged from a high of $873.64 (FiberMax 9060F) to a low of $728.47 (Dyna-Gro 2383RF). After adding lint and seed values and subtracting ginning and seed/technology costs, net values per acre averaged $801.41/acre. A high of $873.61 for FiberMax 9060F, and a low of $727.74 for Dyna-Gro 2383RF was observed, a difference of $145.87/acre. Micronaire ranged from a low of 3.6 for Dyna-Gro 2383RF to a high of 4.3 for AFD 5064F. Staple length averaged 35.5 across all varieties with a low of 34.3 (AFD 5064F) and a high of 36.5 (FiberMax 9150F). Percent uniformity ranged from a low of 80.3 (FiberMax 9058F) to a high of 81.7 (Deltapine 121RF). A test average strength of 27.2 g/tex was observed and Stoneville 4664RF produced the lowest value (25.7), and FiberMax 9150F produced the highest (28.7). Elongation percent ranged from a high of 10.6% (Stoneville 4664RF) to a low of 7.3% (FiberMax 9150F). These data indicate that substantial differences can be obtained in terms of gross value/acre due to variety and technology selection. It should be noted that no inclement weather was encountered at this location prior to harvest. Additional multi-site and multi-year applied research is needed to evaluate varieties across a series of environments.

Acknowledgments:

Appreciation is expressed to Doug Nesmith - Farm Research Service Manager and Jim Bordovsky - Research Scientist and Agricultural Engineer, Texas AgriLife Research Center, Halfway/Helms, for their assistance with this project. Further assistance with this project was provided by Dr. John Gannaway - Texas AgriLife Research and Extension Center, Lubbock, and Dr. Eric Hequet - Associate Director, International Textile Center, Texas Tech University. Furthermore, we greatly appreciate the Texas Department of Agriculture - Food and Fiber Research for funding of HVI testing at the Texas Tech University - International Textile Center.

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Table 1. Harvest results from the replicated irrigated Roundup Ready Flex variety demonstration, Texas AgriLife Research Center, Halfway, TX, 2007.

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 9060F	34.8	47.3	4341	1511	2053	0.5778	873.64	153.98	1027.62	106.37	47.65	873.61	a
FiberMax 9150F	35.7	47.2	4261	1522	2009	0.5727	871.49	150.69	1022.19	104.40	47.65	870.14	ab
FiberMax 9058F	35.6	48.0	4243	1512	2037	0.5735	866.89	152.81	1019.70	103.95	47.65	868.10	ab
All-Tex 65333RF	36.1	48.4	3856	1392	1867	0.5792	805.66	140.06	945.72	94.47	42.81	808.44	bc
Stoneville 4664RF	35.7	48.2	4053	1448	1954	0.5560	805.55	146.53	952.08	99.30	49.11	803.67	cd
Stoneville 5283RF	36.3	48.4	3807	1381	1843	0.5840	806.69	138.19	944.88	93.27	49.11	802.50	cd
AFD 5064F	32.8	50.4	4314	1417	2175	0.5505	780.44	163.13	943.57	105.70	44.32	793.56	cd
NexGen 1572RF	34.4	50.7	3909	1346	1983	0.5655	761.12	148.73	909.86	95.76	40.27	773.83	cde
NexGen 3550RF	31.7	50.8	4026	1277	2046	0.5755	735.23	153.45	888.68	98.64	40.27	749.77	cde
Deltapine 121RF	35.8	47.4	3696	1324	1750	0.5690	752.99	131.22	884.21	90.56	49.51	744.13	de
Dyna-Gro 2383RF	32.1	48.7	4029	1294	1963	0.5628	728.47	147.22	875.69	98.71	49.24	727.74	e
Test average	34.7	48.7	4049	1402	1971	0.5697	798.92	147.82	946.75	99.19	46.14	801.41	
CV, %	3.1	2.0	3.6	3.5	3.6	1.9	4.5	3.6	4.3	3.6	--	4.7	
OSL	0.0001	0.0005	0.0001	<0.0001	<0.0001	0.0254	0.0002	<0.0001	0.0006	0.0001	--	0.0005	
LSD	1.8	1.7	248	84	122	0.0181	61.40	9.15	69.95	6.07	--	64.25	

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

Assumes:
$2.45/cwt ginning cost.
$150/ton for seed.
Value for lint based on CCC loan value from grab samples and ITC HVI results.

Table 2. HVI fiber property results from the replicated irrigated Roundup Ready Flex variety demonstration, Texas AgriLife Research Center, Halfway, TX, 2007.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32^{nds} inches	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
AFD 5064F	4.3	34.3	81.6	27.7	9.1	2.3	78.6	7.9	2.7	1.0
All-Tex 65333RF	3.8	35.3	80.5	25.8	9.6	1.0	79.9	8.7	2.0	1.0
Dyna-Gro 2383RF	3.6	35.0	81.3	27.1	8.6	2.7	77.7	8.3	3.0	1.0
Deltapine 121RF	4.2	35.6	81.7	27.4	9.1	3.0	76.6	8.5	3.0	1.0
FiberMax 9058F	4.0	36.2	80.3	27.2	7.7	1.7	78.2	8.2	3.0	1.0
FiberMax 9060F	4.1	35.7	80.8	27.3	7.9	1.3	80.8	8.1	2.3	1.0
FiberMax 9150F	4.0	36.5	80.7	28.7	7.3	2.7	78.4	7.5	3.0	1.0
NexGen 1572RF	3.7	35.4	81.3	26.6	8.9	3.0	79.7	7.8	3.0	1.0
NexGen 3550RF	3.8	36.1	81.3	27.5	9.1	2.3	78.8	7.9	3.0	1.0
Stoneville 4664RF	4.0	34.6	81.6	25.7	10.6	2.3	76.7	8.6	2.7	1.0
Stoneville 5283RF	3.9	35.5	81.4	27.8	9.0	1.7	78.1	8.6	2.3	1.0
Test average	3.9	35.5	81.1	27.2	8.8	2.2	78.5	8.2	2.7	1.0
CV, %	4.5	1.6	1.1	3.7	3.1	27.4	2.1	3.1	--	--
OSL	0.0021	0.0030	0.5389	0.0581	<0.0001	0.0054	0.1230	<0.0001	--	--
LSD	0.3	0.9	NS	1.4[†]	0.5	1.0	NS	0.4	--	--

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

AgriLIFE EXTENSION
Texas A&M System

Replicated Irrigated Transgenic Cotton Variety Demonstration, Helms Farm: Halfway, TX - 2007

Cooperator: Texas AgriLife Research Center/ Texas AgriLife Extension Service

Michael Dolle, Randy Boman, Mark Kelley, Aaron Alexander, and Rhett Overman
CEA-ANR Hale County, Extension Agronomist-Cotton, Extension Program Specialist I-Cotton, Graduate Student Assistant and Extension Assistant-Cotton

Hale County

Summary: Significant differences were observed for most parameters measured (Tables 1 and 2). Lint turnout ranged from 30.4% for All-Tex Apex B2RF to 33.1% for Paymaster 2141B2RF and Dyna-Gro 2242B2RF. Lint yields varied from a low of 1516 lb/acre (Deltapine 143B2RF) to a high of 1714 lb/acre (Dyna-Gro 2242B2RF). Lint loan values ranged from a low of $0.5580/lb to a high of $0.5917/lb for Deltapine 143B2RF and Paymaster 2141B2RF, respectively. When subtracting ginning costs and seed and technology fees from total value, the net value/acre among varieties ranged from a high of $998.61 (Paymaster 2141B2RF) to a low of $849.88 (Deltapine 143B2RF), a difference of $148.73. Significant differences were observed among varieties for micronaire, staple, uniformity, strength, elongation, reflectance (Rd) and yellowness (+b). These data indicate that substantial differences can be obtained in terms of net value/acre due to variety and technology selection.

Objective: The objective of this project was to compare yields, gin turnout, fiber quality, and economics of transgenic varieties under irrigated production systems.

Materials and Methods:

Varieties: All-Tex Apex B2RF, Americot 1504B2RF, Deltapine 104B2RF, Deltapine 143B2RF, Dyna-Gro 2242B2RF, FiberMax 9063B2F, FiberMax 9180B2F, Paymaster 2141B2RF, PhytoGen 485WRF, Stoneville 4427B2RF, Stoneville 4554B2RF, and Stoneville 5327B2RF

Experimental design: Randomized complete block with 3 replications

Seeding rate: 3.2 seed per row-ft in 30-inch row spacing (John Deere 1700 Max Emerge)

Plot size: 4 rows by variable length of field (~900 to 1300 ft long)

Planting date:	17-May
Weed management:	64 oz/acre of Prowl H2O were applied pre-plant incorporated on 4-April. Three applications of Glystar were applied on 18-June, 16-July, and 13-August, all at a rate of 32 oz/acre with.
Rainfall and Irrigation:	10.2 inches of irrigation and rainfall were accumulated preplant at this location. During the growing season, 9.52 inches of irrigation combined with 11.16 inches of rainfall combined for a total of 20.68 inches of total water during the growing season.
Insecticides:	Temik was applied in-furrow at planting at 3.0 lbs/acre. On 9-August, 0.7 oz/acre Intruder was applied for aphid control. No other insecticides were applied at this site. This location is in an active boll weevil eradication zone, but no applications were made by the Texas Boll Weevil Eradication Program.
Fertilizer management:	40 lb N/acre and 80 lb P2O5/acre was applied pre-plant incorporated on 4-April. An additional 90 lb N/acre was applied via fertigation using 32-0-0 from 17-July to 2-August.
Plant growth regulators:	Pentia was applied twice during the growing season at this location, once on 19-July and again on 31-July, both applications were at the 8.0 oz/acre rate.
Harvest aids:	Harvest aids at this location consisted of 21oz/acre Prep with 8 oz/acre of Def applied aerially on 19-October. A sequential application of Gramaoxone Inteon at 24 oz/acre with NIS was applied aerially on 26-October.
Harvest:	Plots were harvested on 02-November using a commercial John Deere 7445 stripper harvester with field cleaner. Harvested material was transferred into a weigh wagon with integral electronic scales to determine individual plot weights. Plot yields were adjusted to lb/acre.
Gin turnout:	Grab samples were taken by plot and ginned at the Texas AgriLife Research and Extension Center at Lubbock to determine gin turnouts.
Fiber analysis:	Lint samples were submitted to the International Textile Center at Texas Tech University for HVI analysis and USDA loan values were determined for each variety by plot.
Ginning costs and seed values:	Ginning costs were based on $2.45 per cwt. of bur cotton and seed value/acre was based on $150/ton. Ginning costs did not include checkoff.
Seed and technology fees:	Seed and technology cost 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 with Monsanto Cap Cost Thresholds. Available at: http://www.plainscotton.org/Seed/seedindex.html .

Results and Discussion:

Significant differences were observed for most parameters measured (Tables 1 and 2). Lint turnout ranged from a low of 30.4%, for All-Tex Apex B2RF, to a high of 33.1% for Paymaster 2141B2RF and Dyna-Gro 2242B2RF. Bur cotton yield averaged 5050 lb/acre across all varieties with a high of 5258 for FiberMax 9063B2F and a low of 4836 for Deltapine 143B2RF. This resulted in lint yields ranging from a low of 1516 lb/acre (Deltapine 143B2RF) to a high of 1714 lb/acre (Dyna-Gro 2242B2RF). Lint loan values ranged from a low of $0.5580/lb to a high of $0.5917/lb for Deltapine 143B2RF and Paymaster 2141B2RF, respectively. When determining lint loan values for this location, leaf grades were set at 2 and color grades were set at 21 across all varieties. After adding lint and seed value, total value/acre for varieties ranged from a low of $1027.37 for Deltapine 143B2RF to a high of $1178.57 for Dyna-Gro 2242B2RF. When subtracting ginning, seed and technology fee costs, the net value/acre among varieties ranged from a high of $998.61 (Paymaster 2141B2RF) to a low of $849.88 (Deltapine 143B2RF), a difference of $148.73. Micronaire values ranged from a low of 3.2 for Deltapine 143B2RF to a high of 3.9 for Paymaster 2141B2RF. Staple length averaged 37.2 across all varieties with a low of 36.3 for Americot 1504B2RF, PhytoGen 485WRF, and Stoneville 4427B2RF, and a high of 39.0 for FiberMax 9063B2F. Percent uniformity ranged from a high of 83.6 for PhytoGen 485WRF to a low of 80.1 for Deltapine 143B2RF with a test average of 82.0%. The highest strength value (g/tex) was observed for FiberMax 9180B2F (30.9) and the lowest was observed for All-Tex Apex B2RF (25.3). Significant differences were also observed among varieties for reflectance (Rd) and yellowness (+b) with test averages of 77.8 and 8.3, respectively. These data indicate that substantial differences can be obtained in terms of net value/acre due to variety and technology selection. It should be noted that no inclement weather was encountered at this location prior to harvest. Additional multi-site and multi-year applied research is needed to evaluate varieties and technology across a series of environments.

Acknowledgments:

Appreciation is expressed to Doug Nesmith - Farm Research Service Manager and Jim Bordovsky - Research Scientist and Agricultural Engineer, Texas AgriLife Research Center, Halfway/Helms, for their assistance with this project. Further assistance with this project was provided by Dr. John Gannaway - Texas AgriLife Research and Extension Center, Lubbock, and Dr. Eric Hequet - Associate Director, International Textile Center, Texas Tech University. Furthermore, we greatly appreciate the Texas Department of Agriculture - Food and Fiber Research for funding of HVI testing at the Texas Tech University - International Textile Center.

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Table 1. Harvest results from the replicated irrigated variety demonstration, Helms Farm, Halfway, TX, 2007.

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 ----------						
Paymaster 2141B2RF	33.1	49.4	5033	1668	2488	0.5917	986.99	186.60	1173.59	123.31	51.67	998.61	a
Dyna-Gro 2242B2RF	33.1	50.8	5184	1714	2632	0.5722	981.17	197.39	1178.57	127.00	56.09	995.47	ab
FiberMax 9063B2F	31.2	50.2	5258	1642	2639	0.5778	948.11	197.92	1146.03	128.82	56.87	960.34	abc
Stoneville 4554B2RF	32.6	49.8	5100	1665	2540	0.5715	950.61	190.48	1141.08	124.95	57.77	958.36	abc
FiberMax 9180B2F	31.7	49.6	5101	1617	2529	0.5858	946.62	189.65	1136.27	124.97	56.31	954.99	abc
PhytoGen 485WRF	32.7	51.0	4861	1588	2481	0.5902	936.92	186.07	1122.99	119.10	54.77	949.12	abc
Stoneville 5327B2RF	33.0	47.8	5068	1674	2421	0.5643	943.75	181.61	1125.36	124.16	57.77	943.42	bc
Deltapine 104B2RF	30.9	52.0	5151	1592	2679	0.5693	906.30	200.96	1107.25	126.20	51.67	929.38	cd
Americot 1504B2RF	32.1	50.9	4962	1592	2527	0.5743	914.16	189.56	1103.72	121.58	53.58	928.56	cd
Stoneville 4427B2RF	31.9	50.9	4999	1597	2544	0.5743	917.84	190.83	1108.68	122.48	57.77	928.42	cd
All-Tex Apex B2RF	30.4	49.3	5051	1537	2488	0.5647	867.31	186.62	1053.93	123.74	53.97	876.22	de
Deltapine 143B2RF	31.3	50.3	4836	1516	2432	0.5580	845.01	182.36	1027.37	118.47	59.02	849.88	e
Test average	32.0	50.2	5050	1617	2533	0.5745	928.73	190.00	1118.74	123.73	55.61	939.40	
CV, %	4.2	3.6	3.4	3.4	3.3	2.3	3.3	3.3	3.2	3.4	--	3.4	
OSL	0.2375	0.4007	0.1667	0.0069	0.0211	0.1010	0.0003	0.0210	0.0011	0.1677	--	0.0004	
LSD	NS	NS	NS	93	143	NS	51.39	10.75	59.95	NS	--	54.31	

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:
$2.45/cwt ginning cost.
$150/ton for seed.
†Value for lint based on CCC loan value from grab samples and ITC HVI results. Leaf values set at 2 and color grades set at 21 for all samples.

Table 2. HVI fiber property results from the replicated irrigated variety demonstration, Helm's Farm, Halfway, TX, 2007.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Rd	+b
	units	32nds inches	%	g/tex	%	reflectance	yellowness
Americot 1504B2RF	3.4	36.3	82.6	27.9	8.7	80.5	8.5
All-Tex Apex B2RF	3.4	37.7	81.7	25.3	8.7	78.6	8.7
Dyna-Gro 2242B2RF	3.5	37.0	81.6	26.5	9.3	77.7	8.5
Deltapine 104B2RF	3.4	36.7	82.1	28.5	9.1	77.4	8.3
Deltapine 143B2RF	3.2	38.0	80.1	29.2	8.4	78.6	8.0
FiberMax 9063B2F	3.4	39.0	81.9	30.7	7.8	81.2	7.8
FiberMax 9180B2F	3.5	38.7	82.6	30.9	8.1	78.8	7.8
PhytoGen 485WRF	3.7	36.3	83.6	29.4	9.7	72.9	8.9
Paymaster 2141B2RF	3.9	36.7	82.9	28.5	8.8	76.7	7.6
Stoneville 4427B2RF	3.5	36.3	81.8	27.8	8.1	77.1	8.2
Stoneville 4554B2RF	3.5	37.0	81.8	30.4	9.1	77.5	8.4
Stoneville 5327B2RF	3.3	36.7	81.3	29.0	9.0	77.4	8.6
Test average	3.5	37.2	82.0	28.7	8.7	77.8	8.3
CV, %	5.0	1.4	0.9	4.0	4.7	3.2	3.1
OSL	0.0091	<0.0001	0.0008	0.0001	0.0005	0.0656	<0.0001
LSD	0.3	0.9	1.2	1.9	0.7	4.2†	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, †denotes significance at the 0.10 level.

AgriLIFE EXTENSION
Texas A&M System

Replicated Irrigated Flex Cotton Variety Demonstration, Dumas TX - 2007

Cooperator: Keith Watson

Brent Bean, Randy Boman, Marcel Fischbacher, Mark Kelley, Jake Robinson, and Bob Villarreal
Extension Agronomist, Amarillo; Extension Agronomist - Cotton, Lubbock; CEA-ANR, Moore County; Extension Program Specialist - Cotton, Lubbock; and AgriLife Research Technicians

Moore County

Summary: There was as much as a $232/acre difference in net value between varieties in this trial, clearly demonstrating the importance of variety selection. Significant differences were observed among varieties in all measured yield and fiber quality parameters. Lint turnout ranged from a low of 28.1% (NexGen 1556RF) to 33.9% (DeltaPine 121RF). Lint yields range from 938 lb/acre (NexGen 1556RF) to 1,366 lb/acre (FiberMax 9058F). Lint loan values varied from $0.4752 (NexGen 1572RF) to $0.5780 (DeltaPine 121RF). Net value (lint plus seed value minus ginning and seed/technology costs) ranged from $501.80 for NexGen 1572RF to $734.11 for FiberMax 9058F. Fibermax 9068F and DeltaPine 121RF had net values of $652.59 and $638.69, respectively, and were not statistically significant from the top yielding variety, FiberMax 9058F ($734.11).

Objective: The objective of this test was to compare yield, gin turnout, fiber quality, and economics of transgenic varieties under irrigated conditions.

Materials and Methods:

Varieties: AFD 5064F, Deltapine 121RF, FiberMax 9058F, FiberMax 9068F, NexGen 1556RF, NexGen 1572RF, NexGen 3550RF, and PhytoGen 125RF

Experimental design: Randomized complete block with 3 replications

Seeding rate: 4.0 seed per row-ft in 30-in row spacing (70,000 seed/acre)

Plot size: 6 rows by variable length (approximately 800 ft) around a center pivot irrigation system

Planting date: 14-May

Weed management:	Roundup Original Max at 22 oz/acre was applied on 15-July. Another application of Roundup Original Max at 22 oz/acre was made on 13-August.
Rainfall and Irrigation:	10.2 inches of rainfall fell during the growing season (1-May through 31-September). In addition, 5.6 inches of water was applied by center pivot irrigation.
Insecticides:	Temik at 4 lbs/acre was applied in-furrow at planting. No other insecticides were used.
Fertilizer management:	A total of 70 lb N/acre was applied as liquid 32-0-0 through the sprinkler during the first two irrigation events.
Plant growth regulators:	A Mepichlor application was made on 31-July and again on 12-August, both applications were made at 8 oz/acre.
Harvest aids:	Prep at 24 oz/acre and Def at 16 oz/acre were applied on 14-October.
Harvest:	Plots were harvested with a John Deere 7460 stripper harvester on 8-November. Harvested material was transferred in a weigh wagon with integral electronic scales to determine plot weights. Plot yields were converted to lb/acre.
Gin turnout:	Samples were taken by plot and ginned at the Texas AgriLife Research and Extension Center at Lubbock to determine gin turnouts.
Fiber analysis:	Lint samples were submitted to the International Textile Center at Texas Tech University for HVI analysis, and Commodity Credit Corporation (CCC) loan values were determined for each variety by plot.
Ginning cost and seed values:	Ginning costs were based on $2.45 per cwt. of bur cotton and seed value per acre was based on $150/ton of seed. Ginning cost did not include checkoff.
Seed and technology cost:	Seed and technology cost were calculated using the appropriate seeding rate (4.0 seed/row-ft) for the 30-inch row spacing and entries using the online Plains Cotton Growers Seed Cost Comparison Worksheet with Monsanto Cap Cost Thresholds. Available at: http://www.plainscotton.org/Seed/seedindex.html .

Results and Discussion:

Significant differences were observed between varieties in all yield and fiber quality parameters measured (Tables 1 and 2). Lint turnout ranged from a low of 28.1% (NexGen 1556RF) to 33.9% (DeltaPine 121RF). Lint yields range from 938 lb/acre (NexGen 1556RF) to 1,366 lb/acre (FiberMax 9058F) with a test average of 1,097 lb/acre. Lint loan values averaged 54 cents and varied from 47 cents (NexGen 1572RF) to 57 cents (DeltaPine 121RF). Net value (lint plus seed value minus ginning and seed/technology costs) ranged from $501.80 for NexGen 1572RF to $734.11 for FiberMax 9058F, a difference of $242.27. Fibermax 9068F and DeltaPine 121RF had net values of $652.59 and $638.69, respectively, and were not statistically significant from the top yielding variety, FiberMax 9058F ($734.11).

Micronaire ranged from 2.6 units for NexGen 1572RF to 3.4 units for AFD 5064F, NexGen 1556RF, and DeltaPine 121RF. Average micronaire was 3.1 units. Staple length varied from 35.3 for PhytoGen 125RF to 37.7 for FiberMax 9068F, with an average of 36.4. Uniformity averaged 81.0% and ranged from 78.5% for FiberMax 9058F to 82.4% for NexGen 1556RF, DeltaPine 121RF, and PhytoGen 125RF. Strength varied from 28.0 g/tex for NexGen 1572RF to 31.7 g/tex for NexGen 1556RF, with a test average of 29.9 g/tex. Elongation averaged 8.6% and ranged from 7.7% for FiberMax 9058F to 9.2% for PhytoGen 125RF. Leaf grades varied from 2.0 for NexGen 1556RF and DeltaPine 121RF to 3.7 for PhytoGen 125RF with 2.6 as the test average. Reflectance (Rd) averaged 80.1 and ranged from 79.3 for PhytoGen 125RF to 81.5 for FiberMax 9058F. The test average for yellowness (b+) was 8.1 and varied from 7.5 for NexGen 1572RF to 8.6 for NexGen1556RF. Color grades were all 21s and 31s.

It should be noted that a hail storm on 30-May caused significant damage throughout the test and thinning of stands in some areas of the field. Total water used by the crop (soil water plus rainfall plus irrigation) was estimated to be 19.02 inches.

Acknowledgments:

Appreciation is express to Keith Watson for use of his land and equipment for this study. Further assistance with this project was provided by Dr. John Gannaway-Texas AgriLife Research and Extension Center, Lubbock, and Dr. Eric Hequet- Associate Director, International Textile Center, Texas Tech University. Furthermore, we greatly appreciate the Texas Department of Agriculture - Food and Fiber Research for funding of HVI testing at the Texas Tech University - International Textile Center.

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Table 1. Harvest results from the replicated irrigated cotton variety demonstration, Keith Watson Farm, Dumas, TX, 2007.

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	33.5	48.1	4074	1366	1958	0.5452	744.75	146.84	891.59	99.82	57.66	734.11	a
FiberMax 9068F	31.6	48.3	3866	1220	1864	0.5473	668.28	139.84	808.12	94.71	60.83	652.59	ab
DeltaPine 121RF	33.9	46.6	3359	1144	1564	0.5780	663.80	117.33	781.13	82.28	60.15	638.69	abc
AFD 5064F	29.5	49.7	3531	1041	1755	0.5518	574.61	131.62	706.23	86.49	53.15	566.59	bcd
NexGen 1556RF	28.1	53.0	3345	938	1771	0.5708	535.33	132.81	668.14	81.94	47.70	538.50	bcd
NexGen 3550RF	30.6	51.2	3338	1021	1710	0.5282	539.30	128.26	667.55	81.77	47.70	538.08	bcd
PhytoGen 125RF	28.8	51.5	3455	998	1775	0.5265	525.54	133.11	658.65	84.65	51.87	522.13	cd
NexGen 1572RF	30.1	51.2	3498	1053	1790	0.4752	500.90	134.29	635.19	85.69	47.70	501.80	d
Test average	30.8	49.9	3558	1097	1773	0.5404	594.06	133.01	727.08	87.17	53.35	586.56	
CV, %	3.6	2.3	6.6	8.7	6.5	3.5	11.2	6.5	10.2	6.6	--	11.7	
OSL	0.0001	0.0001	0.0135	0.0016	0.0410	0.0004	0.0045	0.0406	0.0084	0.0135	--	0.0120	
LSD	2.0	2.0	411	167	201	0.0332	116.66	15.09	129.69	10.07	--	120.52	

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.
NS - not significant at the 0.05 level.
Note: some columns may not add up due to rounding error.

Assumes:
$2.45/cwt ginning cost.
$150/ton for seed.
Value for lint based on CCC loan value from grab samples and ITC HVI results.

Table 2. HVI fiber property results from the replicated irrigated cotton variety demonstration, Keith Watson Farm, Dumas, TX, 2007.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32^{nds} inches	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
AFD 5064F	3.4	35.6	81.5	29.6	9.1	2.3	79.8	8.2	2.7	1.0
NexGen 1556RF	3.4	36.3	82.4	31.7	8.6	2.0	79.5	8.6	2.0	1.0
DeltaPine 121RF	3.4	36.7	82.4	29.0	9.0	2.0	79.8	8.5	2.0	1.0
FiberMax 9058F	3.1	36.7	78.5	29.0	7.7	2.3	81.5	7.9	2.0	1.0
FiberMax 9068F	3.1	37.7	80.3	31.0	8.1	2.3	80.9	8.1	2.0	1.0
NexGen 1572RF	2.6	36.5	79.8	28.0	8.4	3.0	80.3	7.5	3.0	1.0
NexGen 3550RF	3.0	36.3	80.8	29.7	8.9	3.0	79.7	8.1	2.7	1.0
PhytoGen 125RF	3.2	35.3	82.4	30.8	9.2	3.7	79.3	7.7	3.0	1.0
Test average	3.1	36.4	81.0	29.9	8.6	2.6	80.1	8.1	2.4	1.0
CV, %	5.8	1.3	1.1	3.4	3.3	20.9	0.9	2.6	--	--
OSL	0.0009	0.0011	0.0007	0.0098	0.0002	0.0217	0.0219	0.0003	--	--
LSD	0.3	0.8	1.6	1.8	0.5	0.9	1.2	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.

AgriLIFE EXTENSION
Texas A&M System

Replicated Irrigated Flex Cotton Variety Demonstration, Sunray TX - 2007

Cooperator: Kerry Cartrite

**Brent Bean, Randy Boman, Marcel Fischbacher,
Mark Kelley, Jake Robinson, and Bob Villarreal
Extension Agronomist, Amarillo; Extension Agronomist - Cotton, Lubbock;
CEA-ANR, Moore County; Extension Program Specialist - Cotton, Lubbock;
and AgriLife Research Technicians**

Sherman County

Summary: The importance of variety selection was clearly evident in this trial. Net value differed by as much as $383/acre depending on the variety planted. Average lint yield was excellent at this location at 1,964 lb/acre. Lint yield varied from 1,754 lb/acre with NexGen 3550RF to 2,282 lb/acre for FiberMax 9060F. Loan values ranged from $.4798/lb for NexGen 1572RF to $.5798/lb for NexGen 1551RF. After removing seed/technology and ginning costs the highest net value/acre varieties were FiberMax 9060F ($1,261), FiberMax 9058F ($1,235), and FiberMax 9068F ($1,159).

Objective: The objective of this test was to compare yield, gin turnout, fiber quality, and economics of transgenic varieties under irrigated conditions.

Materials and Methods:

Varieties: AFD 5064F, Deltapine 121RF, FiberMax 9058F, FiberMax 9060F, FiberMax 9068F, NexGen 1551RF, NexGen 1572RF, NexGen 3550RF, and PhytoGen 125RF

Experimental design: Randomized complete block with 3 replications

Seeding rate: 4.6 seed per row-ft in 30-in row spacing (80,000 seed/acre)

Plot size: 8 rows by approximately 800 ft in length around a pivot sprinkler irrigation system

Planting date: 7-May

Weed management:	Prowl H2O at 32 oz/acre was applied along with Roundup at 22oz/acre on 10-May. Over the top Roundup applications were made on 15-June (30 oz/acre) and 1-August (22 oz/acre).
Rainfall and Irrigation:	11 inches of rain fell during the growing season (May 1 through September 31). In addition, 10 inches of water were applied by center pivot irrigation.
Insecticides:	Temik at 3 lbs/acre was applied in-furrow at planting, and Orthene at 4 oz/acre was applied on 5-June.
Fertilizer management:	100 lbs/acre of 11-52-0 dry fertilizer was applied on 25-February, also prior to planting an application of 220 lbs/acre of liquid 32-0-0 was made on 20-April. An additional 110 lbs/acre of liquid 32-0-0 was applied through the pivot between 20-July and 20-August.
Plant growth regulators:	16 oz/acre of Pix was applied on 12-July, along with another application of 20 oz/acre on 1-August.
Harvest aids:	Bollbuster was applied on 16-October at 33 oz/acre.
Harvest:	Plots were harvested on 15-November using a commercial John Deere 7460 stripper with field cleaner. Harvested material was transferred to a weigh wagon with integral electronic scales to determine plot weights. Plot yields were converted to lb/acre.
Gin turnout:	Samples from each plot were ginned at the Texas AgriLife Research and Extension Center near Lubbock to determine gin turnouts.
Fiber analysis:	Lint samples were submitted to the International Textile Center at Texas Tech University for HVI analysis, and Commodity Credit Corporation (CCC) loan values were determined for each variety by plot.
Ginning cost and seed values:	Ginning costs were based on $2.45 per cwt. of bur cotton and seed value per acre was based on $150/ton of seed. Ginning cost did not include checkoff.
Seed and technology cost:	Seed and technology cost were calculated using the appropriate seeding rate (4.6 seed/row-ft) for the 30-inch row spacing and entries using the online Plains Cotton Growers Seed Cost Comparison Worksheet with Monsanto Cap Cost Thresholds. Available at: http://www.plainscotton.org/Seed/seedindex.html .

Results and Discussion:

Although heat units were scarce early in the season, a warm August and September resulted in excellent cotton yields at this location. All of the yield and quality parameters measured between varieties were significant at P= 0.1, and most were significant at P=0.05. (Tables 1 and 2). Average lint yield was excellent at this location at 1,964 lb/acre, and was achieved with 11 inches of rainfall and 10 inches of irrigation water. Soil moisture conditions were excellent at planting. Lint turnout averaged 28.4% with a range of 26.0% to 30.4%. Lint yield ranged from a low of 1,754 lb/acre with NexGen 3550RF to a high of 2,282 lb/acre with FiberMax 9060F. Lowest lint loan value was with NexGen 1572RF at 47.9 cents and the highest with NexGen 1551RF at 57.9 cents. Total value (lint value plus seed value) ranged from $1,087/acre to a high of $1,510/acre and was closely correlated with net value (total value minus ginning and seed/technology cost). Net value ranged from a low of $878/acre with NexGen 3550RF to a high of $1,261/acre with FiberMax 9060F. The difference in the net value for these two varieties was $383/acre. The net value of two varieties, FiberMax 9058F at $1,235/acre, and FiberMax 9068F at $1,159/acre, were not statistically different from the top net valued variety in the trial, FiberMax 9060F ($1,261).

Micronaire ranged from 2.9 with NexGen 1572RF and NexGen 3550RF to 3.8 with NexGen 1551RF. Average micronaire was 3.2. Staple averaged 37.8 with a low of 36.1 with PhytoGen 125RF and high of 39.6 with FiberMax 9068F. Uniformity ranged from 80.5% to 83.2% with an average of 81.7%. Test average for strength was 28.5 g/tex with a low of 26.4 g/tex with NexGen1572RF and a high of 30.6 g/tex with NexGen 1551RF. Percent elongation values varied from a low of 7.8% with FiberMax 9060F to a high of 9.4% with PhytoGen 125RF. The lowest leaf grade was 1.7 with FiberMax 9068F and highest at 4.3 with AFD 5064F. Test averages for reflectance (Rd) and yellowness (+b) were 79.8 and 7.8, respectively. Color grades were 21s to 31s.

Acknowledgments:

Appreciation is expressed to Kerry Cartrite for the use of his land, equipment and labor for this project. Further assistance with this project was provided by Dr. John Gannaway - Texas AgriLife Research and Extension Center, Lubbock, and Dr. Eric Hequet - Associate Director, International Textile Center, Texas Tech University. Furthermore, we greatly appreciate the Texas Department of Agriculture - Food and Fiber Research for funding of HVI testing at the Texas Tech University - International Textile Center.

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Table 1. Harvest results from the replicated irrigated cotton variety demonstration, Kerry Cartrite Farm, Sunray, TX, 2007.

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 9060F	30.0	45.5	7633	2282	3467	0.5478	1250.75	259.99	1510.74	187.02	62.18	1261.54	a
FiberMax 9058F	30.4	45.7	7487	2274	3422	0.5377	1224.42	256.66	1481.08	183.43	62.18	1235.46	a
FiberMax 9068F	28.7	46.7	7139	2052	3330	0.5610	1150.54	249.76	1400.30	174.90	65.80	1159.60	ab
Deltapine 121RF	30.4	43.9	6498	1977	2852	0.5515	1090.48	213.92	1304.41	159.21	65.02	1080.17	bc
NexGen 1551RF	28.1	52.3	6290	1767	3286	0.5798	1025.58	246.43	1272.01	154.10	50.80	1067.11	bc
AFD 5064F	26.9	48.1	7133	1913	3432	0.5273	1008.62	257.40	1266.02	174.77	57.03	1034.23	bcd
PhytoGen 125RF	26.0	48.3	7031	1827	3393	0.5335	972.55	254.43	1226.99	172.27	55.57	999.16	cde
NexGen 1572RF	27.7	48.4	6610	1829	3196	0.4798	878.15	239.71	1117.86	161.94	50.80	905.12	de
NexGen 3550RF	27.1	46.3	6472	1754	2994	0.4920	863.05	224.52	1087.57	158.57	50.80	878.20	e
Test average	28.4	47.2	6921	1964	3264	0.5345	1051.57	244.76	1296.33	169.58	57.80	1068.96	
CV, %	3.8	5.4	6.8	5.8	7.4	3.3	7.0	7.4	6.5	6.8	--	7.2	
OSL	0.0007	0.0449	0.0257	<0.0001	0.0707	<0.0001	<0.0001	0.0708	0.0001	0.0258	--	0.0001	
LSD	1.9	4.4	809	197	344†	0.0309	126.58	25.81†	145.25	19.83	--	132.64	

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.
† LSD - least significant difference at the 0.10 level.

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

Assumes:
$2.45/cwt ginning cost.
$150/ton for seed.
Value for lint based on CCC loan value from grab samples and ITC HVI results.

Table 2. HVI fiber property results from the replicated irrigated cotton variety demonstration, Kerry Cartrite Farm, Sunray, TX, 2007.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32^{nds} inches	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
AFD 5064F	3.3	37.2	82.5	28.7	9.1	4.3	78.5	7.9	3.0	1.0
NexGen 1551RF	3.8	37.0	82.4	30.6	8.5	2.7	79.3	8.7	2.3	1.0
Deltapine 121RF	3.3	37.2	82.7	27.9	9.3	3.0	79.0	8.6	2.7	1.0
FiberMax 9058F	3.2	38.7	80.5	28.1	7.9	2.3	80.7	7.5	2.7	1.0
FiberMax 9060F	3.2	38.9	80.8	28.5	7.8	2.3	82.4	7.4	2.0	1.0
FiberMax 9068F	3.2	39.6	82.1	30.1	8.3	1.7	81.7	7.8	2.0	1.0
NexGen 1572RF	2.9	37.3	80.5	26.4	9.0	4.3	79.4	7.1	3.0	1.0
NexGen 3550RF	2.9	37.9	80.5	28.0	8.9	4.0	78.4	7.9	3.0	1.0
PhytoGen 125RF	3.4	36.1	83.2	28.7	9.4	3.7	78.8	7.8	3.0	1.0
Test average	3.2	37.8	81.7	28.5	8.7	3.1	79.8	7.8	2.6	1.0
CV, %	6.8	1.4	1.2	4.5	3.8	21.4	1.3	2.9	--	--
OSL	0.0066	<0.0001	0.0096	0.0428	<0.0001	0.0009	0.0009	<0.0001	--	--
LSD	0.4	0.9	1.6	2.2	0.6	1.2	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.

AgriLIFE EXTENSION
Texas A&M System

Replicated Dryland Cotton Systems Variety Demonstration, AG-CARES, Lamesa, TX - 2007

Cooperators: Lamesa Cotton Growers/Texas AgriLife Research/Texas AgriLife Extension Service

Jeff Wyatt, Tommy Doederlein, Randy Boman, Mark Kelley, Aaron Alexander, and Rhett Overman
CEA-ANR Dawson County, EA-IPM Dawson/Lynn Counties, Extension Agronomist-Cotton, Extension Program Specialist-Cotton, Graduate Student Assistant, and Extension Assistant-Cotton

Dawson County

Summary: Significant differences were noted for most parameters measured (Tables 1 and 2). Lint turnout ranged from 32.0% for Americot 4207 to 36.5% for Deltapine 491. Lint yields varied from a low of 685 lb/acre (Americot 4207) to a high of 985 lb/acre (FiberMax 9068F). Lint loan values ranged from a low of $0.5490/lb to a high of $0.5908/lb for AFD 5064F and FiberMax 9068F, respectively. Net value/acre among varieties ranged from a high of $555.04 (FiberMax 9068F) to a low of $372.78 (Americot 4207), a difference of $182.26. Micronaire values ranged from a low of 4.3 for Deltapine 147RF to a high of 4.9 for Deltapine 565. Staple length averaged 36.0 across all varieties with a low of 34.6 (AFD 5064F) and a high of 37.1 (Deltapine 167RF). No significant differences were observed among varieties for percent uniformity or strength. It was observed at this location that varieties with Roundup Ready Flex technologies can result in similar net values/acre when compared to conventional varieties due in most part to costs associated with control of weed escapes by cultivation, hoeing and spot spraying.

Objective: The objective of this project was to compare yields, gin turnout, fiber quality, and economic returns of transgenic and conventional varieties under dryland production with system specific weed control programs.

Materials and Methods:

Varieties: Americot 4207, AFD 5064F, Deltapine 147RF, Deltapine 167RF, Deltapine 491, Deltapine 565, FiberMax 9058F, FiberMax 9068F, FiberMax 958, and Stoneville 5283RF.

Experimental design: Randomized complete block with 3 replications

Seeding rate:	3.4 seeds/row-ft in solid planted 40-inch row spacing (John Deere MaxEmerge vacuum planter)
Plot size:	4 rows by length of field (~850 ft)
Planting date:	23-May
Weed management:	Trifluralin was applied preplant incorporated at 1.25 pt/acre across the entire test area in April. Roundup Original MAX was applied over-the-top to Roundup Ready varieties in June at 22 oz/acre with 22 oz/acre Class Act followed by a second application in August at 22 oz/acre with 22 oz/acre Class Act. All conventional varieties were cultivated one time in June and hand hoeing of conventional varieties was conducted in July followed by a spot spraying of Roundup Original Max for control of puncturevine.

Rainfall:

April:	0.60"	July:	2.40"
May:	6.90"	August:	2.30"
June:	4.74"	September:	1.50"

Total rainfall: 18.50"

Insecticides:	Temik was applied at planting at 3.5 lbs/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:	50 lb N/acre using 32-0-0 was applied preplant by coulter rig in April and an additional 30 lb N/acre was applied as a sidedress in June using 32-0-0.
Harvest aids:	Harvest aids included 1.0 pt/acre Boll'd with 1.0 pt/acre Def on 10-October followed by Gramoxone Inteon at 16 oz/acre on 20-October.
Harvest:	Plots were harvested on 13-November using a commercial John Deere 7445 with field cleaner. Harvested material was transferred into a weigh wagon with integral electronic scales to determine individual plot weights. Plot yields were adjusted to lb/acre.
Gin turnout:	Grab samples were taken by plot and ginned at the Texas AgriLife Research and Extension Center at Lubbock to determine gin turnouts.
Fiber analysis:	Lint samples were submitted to the International Textile Center 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 $2.45 per cwt. of bur cotton and seed value/acre was based on $150/ton. Ginning costs did not include checkoff.

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 with Monsanto Cap Cost Thresholds. Available at: http://www.plainscotton.org/Seed/seedindex.html .

System specific costs: System specific costs included; for conventional system, $7.50/acre for cultivation, $20.00/acre for hoeing, and $8.00/acre for spot spraying Roundup Weather Max ($35.50/acre total) and for Roundup Ready Flex system, $19.00/acre total for 2 applications of 22 oz/a Roundup Original Max with AMS (includes 2 application costs of $3.50 each). These costs are included in the Systems cost in Table 1.

Results and Discussion:

Weed pressure at this site would generally be considered light to medium and consisted mainly of silverleaf nightshade, pigweed, morningglory spp. “escapes”, and puncturevine. Significant differences were noted for most parameters measured (Tables 1 and 2). Lint turnout ranged from 32.0% for Americot 4207 to 36.5% for Deltapine 491. Lint yields varied from a low of 685 lb/acre (Americot 4207) to a high of 985 lb/acre (FiberMax 9068F). Lint loan values ranged from a low of $0.5490/lb to a high of $0.5908/lb for AFD 5064F and FiberMax 9068F, respectively. After adding lint and seed value, total value/acre ranged from a low of $465.61 for Americot 4207, to a high of $687.91 for FiberMax 9068F. When subtracting ginning costs and systems costs, the net value/acre among varieties ranged from a high of $555.04 (FiberMax 9068F) to a low of $372.78 (Americot 4207), a difference of $182.26. Micronaire values ranged from a low of 4.3 for Deltapine 147RF to a high of 4.9 for Deltapine 565. Staple length averaged 36.0 across all varieties with a low of 34.6 (AFD 5064F) and a high of 37.1 (Deltapine 167RF). No significant differences were observed among varieties for percent uniformity or strength. Percent uniformity ranged from a low of 80.8 (Americot 4207) to a high of 82.3 (Deltapine 167RF), and strength ranged from 26.5 g/tex to 30.3 g/tex for Americot 4207 and FiberMax 9068F, respectively. Significant differences were observed among varieties for percent elongation (7.9 avg), leaf grade (2.0 avg), Rd or reflectance (80.6 avg) and +b or yellowness (7.8). These data indicate that substantial differences can be obtained in terms of net value/acre due to variety and technology selection. Furthermore, as was observed at this location, varieties with Roundup Ready Flex technologies can result in similar net values/acre when compared to conventional varieties due in most part to costs associated with control of weed escapes by cultivation, hoeing and spot sprayting. It should be noted that no inclement weather was encountered at this location prior to harvest. Additional multi-site and multi-year applied research is needed to evaluate varieties across a series of environments.

Acknowledgments:

Appreciation is expressed to Danny Carmichael, Texas AgriLife Research Associate - AG-CARES, Lamesa; and John Everitt, Research Associate - Texas AgriLife Research, Lubbock, for their assistance with this project, to Dr. John Gannaway - Texas AgriLife Research, Lubbock, for his cooperation, and to the Texas Department of Agriculture - Food and Fiber Research for funding of HVI testing at the Texas Tech University - International Textile Center.

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Table 1. Harvest results from the replicated dryland cotton systems variety demonstration, AG-CARES, Lamesa, TX, 2007

Entry	Lint turnout	Seed turnout	Bur cotton yield	Lint yield	Seed yield	Lint loan value	Lint value	Seed value	Total value	Ginning cost	Systems cost	Net value	
	-------- % --------		---------- lb/acre ----------			$/lb	---------- $/acre ----------						
FiberMax 9068F	33.7	48.5	2919	985	1416	0.5908	581.66	106.25	687.91	71.52	61.35	555.04	a
FiberMax 958	35.6	47.7	2754	981	1314	0.5812	570.21	98.53	668.74	67.48	49.81	551.45	a
Deltapine 167RF	32.9	48.8	2935	966	1433	0.5858	565.72	107.51	673.22	71.92	60.91	540.40	ab
FiberMax 9058F	34.7	47.2	2809	973	1326	0.5820	566.28	99.41	665.69	68.81	59.34	537.55	ab
Stoneville 5283RF	33.9	47.3	2902	984	1372	0.5732	563.80	102.87	666.68	71.10	60.57	535.01	ab
Deltapine 147RF	34.3	47.4	2813	966	1333	0.5792	559.73	99.99	659.72	68.91	60.91	529.90	ab
Deltapine 491	36.5	46.4	2482	905	1151	0.5822	527.33	86.37	613.71	60.81	57.68	495.22	bc
Deltapine 565	34.7	47.3	2533	878	1198	0.5690	498.97	89.85	588.82	62.04	57.68	469.09	c
AFD 5064F	33.4	50.3	2304	770	1160	0.5490	423.22	86.98	510.20	56.45	56.51	397.24	d
Americot 4207	32.0	49.6	2140	685	1061	0.5650	386.01	79.61	465.61	52.43	40.40	372.78	d
Test average	34.2	48.1	2659	909	1276	0.5757	524.29	95.74	620.03	65.15	56.52	498.37	
CV, %	3.3	2.1	5.4	5.4	5.4	2.2	5.7	5.4	5.6	5.4	--	6.3	
OSL	0.0061	0.0036	<0.0001	<0.0001	<0.0001	0.0311	<0.0001	<0.0001	<0.0001	<0.0001	--	<0.0001	
LSD	1.9	1.7	245	84	118	0.0217	51.08	8.85	59.33	6.00	--	53.70	

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:
$2.45/cwt ginning cost.
$150/ton for seed.
Value for lint based on CCC loan value from grab samples and ITC HVI results.

Table 2. HVI fiber property results from the replicated dryland cotton systems variety demonstration, AG-CARES, Lamesa, TX, 2007.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32^{nds} inches	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
Americot 4207	4.4	35.2	80.8	26.5	8.3	2.7	80.5	8.1	2.0	1.0
AFD 5064F	4.7	34.6	81.6	27.6	8.3	3.3	79.7	7.3	3.0	1.0
Deltapine 147RF	4.3	36.7	81.1	26.6	7.3	2.3	80.1	7.7	2.3	1.0
Deltapine 167RF	4.6	37.1	82.3	27.5	7.9	1.3	81.3	7.8	2.3	1.0
Deltapine 491	4.6	36.3	80.9	28.0	7.8	1.3	79.7	8.2	2.3	1.0
Deltapine 565	4.9	35.7	81.0	28.1	8.1	1.3	80.7	7.8	2.3	1.0
FiberMax 9058F	4.4	36.5	81.0	27.0	7.3	2.0	80.8	7.5	2.3	1.0
FiberMax 9068F	4.5	36.8	81.9	30.3	7.5	1.3	81.7	7.7	2.0	1.0
FiberMax 958	4.7	35.6	82.2	28.2	7.2	1.7	81.7	7.6	2.0	1.0
Stoneville 5283RF	4.6	35.2	82.0	29.0	8.8	2.3	79.4	8.5	2.3	1.0
Test average	4.6	36.0	81.5	27.9	7.9	2.0	80.6	7.8	2.3	1.0
CV, %	3.0	1.8	1.1	5.4	3.8	29.2	1.0	3.0	--	--
OSL	0.0030	0.0019	0.3145	0.1534	<0.0001	0.0038	0.0137	0.0003	--	--
LSD	0.2	1.1	NS	NS	0.5	1.0	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.
NS - not significant at the 0.05 level.

AgriLIFE EXTENSION
Texas A&M System

Replicated Dryland Transgenic Variety Demonstration, Plains, TX - 2007

Cooperator: Rickey Bearden

Arlan Gentry, Scott Russell, Randy Boman, Mark Kelley, Aaron Alexander, and Rhett Overman
CEA-ANR Yoakum County, EA-IPM Terry/Yoakum Counties
Extension Agronomist-Cotton, Extension Program Specialist I-Cotton, Graduate Student Assistant and Extension Assistant-Cotton

Gaines County

Summary: Significant differences were observed for most parameters measured (Tables 1 and 2). Lint turnout ranged from a low of 32.4% to 39.9% for All-Tex Arid B2RF and All-Tex 65333RF, respectively. Lint yields ranged from 764 lb/acre (Americot 1622B2RF) to 1049 lb/acre (All-Tex 65333RF), with an average of 876 lb/acre across all varieties. Lint loan values ranged from a low of $0.5580/lb (Stoneville 4664RF) to a high of $0.5920/lb (Americot 1622B2RF). When subtracting ginning, seed and technology fee costs, the net value/acre among varieties ranged from a high of $606.79 for All-Tex 65333RF, to a low of $438.20 for All-Tex Arid B2RF, a difference of $168.59. Micronaire values ranged from a low of 4.1 for Deltapine 143B2RF to a high of 4.7 for PhytoGen 485WRF. Staple length averaged 36.2 across all varieties with a low of 34.4 for Stoneville 4664RF and a high of 38.3 for FiberMax 9058F. Percent uniformity was highest for Americot 1622B2RF (84.2%) and lowest for Deltapine 143B2RF (81.5%). These data indicate that substantial differences can be obtained in terms of net value/acre due to variety and technology selection.

Objective: The objective of this project was to compare yields, gin turnout, fiber quality, and economics of transgenic varieties under dryland production systems.

Materials and Methods:

Varieties: AFD 5064F, AFD 5065B2F, All-Tex 65333RF, All-Tex Arid B2RF, All-Tex Summit B2RF, Americot 1532B2RF, Americot 1622B2RF, Americot 1664B2RF, Deltapine 104B2RF, Deltapine 143B2RF, Dyna-Gro 2383RF, FiberMax 9058F, FiberMax 9063B2F, NexGen 3550RF, PhytoGen 425RF, PhytoGen 485WRF, Stoneville 4554B2RF, Stoneville 4664RF, Stoneville 5283RF, and Stoneville 5327B2RF

Experimental design: Randomized complete block with 3 replications

Seeding rate:	3 seed per row-ft in 40-inch row spacing (John Deere MaxEmerge planter)
Plot size:	6 rows by 1336 ft long
Planting date:	29-May
Weed management:	Trifluralin was applied pre-plant incorporated at 1 pt/acre. Also, trifluralin at 4 oz/a and 0.2 oz/a Staple were applied at planting to a band behind the press-wheel. Roundup Original Max was applied at 32 oz/acre with ammonium sulfate in July.
Rainfall:	Total rainfall as recorded by the closest West Texas Mesonet station at Plains was 14.73" from 1-May to 30-October.
Insecticides:	Temik was applied at in-furrow at planting at 3 lb/acre. Intruder was applied at 0.85 oz/acre in early August for aphid control. This location is in an active boll weevil eradication zone, but no applications were made by the Texas Boll Weevil Eradication Program.
Fertilizer management:	A preplant application of 16 lb N/acre using 32-0-0 (50 lb/acre). An additional 7 lb N/acre as well as 24.14 lb P2O5/acre was applied in late March using 70 lb/acre 10-34-0. Also, a side-dress application of 60 lb/acre 32-0-0 (19.2 lb N/acre) occurred in late July.
Plant growth regulators:	None used at this location.
Harvest aids:	Harvest aids included 1 qt/acre Prep with 4 oz/acre Ginstar applied on 3-October via ground rig.
Harvest:	Plots were harvested on 30-October using a commercial John Deere 7460 stripper harvester with field cleaner. Harvested material was transferred into a weigh wagon with integral electronic scales to determine individual plot weights. Plot yields were adjusted to lb/acre.
Gin turnout:	Grab samples were taken by plot and ginned at the Texas AgriLife Research and Extension Center at Lubbock to determine gin turnouts.
Fiber analysis:	Lint samples were submitted to the International Textile Center at Texas Tech University for HVI analysis and USDA loan values were determined for each variety by plot.
Ginning costs and seed values:	Ginning costs were based on $2.45 per cwt. of bur cotton and seed value/acre was based on $150/ton. Ginning costs did not include checkoff.
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 with Monsanto Cap Cost Thresholds. Available at: http://www.plainscotton.org/Seed/seedindex.html .

Results and Discussion:

Significant differences were observed for most parameters measured (Tables 1 and 2). Lint turnout ranged from a low of 32.4% to 39.9% for All-Tex Arid B2RF and All-Tex 65333RF, respectively. Bur cotton yields averaged 2463 lb/acre with a high of 2655 for Dyna-Gro 2383RF and a low of 2259 for Americot 1622B2RF. This resulted in lint yields ranging from 764 lb/acre (Americot 1622B2RF) to 1049 lb/acre (All-Tex 65333RF), with an average of 876 lb/acre across all varieties. Lint loan values ranged from a low of $0.5580/lb (Stoneville 4664RF) to a high of $0.5920/lb (Americot 1622B2RF). Lint value ($/acre) ranged from a low of $441.15 for All-Tex Arid B2RF to a high of $608.34 All-Tex 65333RF. After adding lint and seed values/acre, total value averaged $601.01 and ranged from $702.10/acre (All-Tex 65333RF) to $533.84/acre (All-Tex Arid B2RF). When subtracting ginning, seed and technology fee costs, the net value/acre among varieties ranged from a high of $606.79 for All-Tex 65333RF, to a low of $438.20 for All-Tex Arid B2RF, a difference of $168.59. Micronaire values ranged from a low of 4.1 for Deltapine 143B2RF to a high of 4.7 for PhytoGen 485WRF. Staple length averaged 36.2 across all varieties with a low of 34.4 for Stoneville 4664RF and a high of 38.3 for FiberMax 9058F. Percent uniformity was highest for Americot 1622B2RF (84.2%) and lowest for Deltapine 143B2RF (81.5%). Strength values ranged from a high of 30.7 g/tex for FiberMax 9063B2F, to a low fo 26.6 for All-Tex 65333RF and Americot 1532B2RF. A test high elongation of 10.8% was observed for Stoneville 4664RF with a low of 7.4% for FiberMax 9058F. Although there were a few 3s observed, leaf grades were 1s and 2s for most varieties. Reflectance (Rd) and yellowness (+b) values averaged 80.5 and 8.5, respectively. This resulted in color grades of mostly 11s and 21s. These data indicate that substantial differences can be obtained in terms of net value/acre due to variety and technology selection. These data indicate that substantial differences can be obtained in terms of net value/acre due to variety and technology selection. It should be noted no inclement weather was encountered at this location prior to harvest. Additional multi-site and multi-year applied research is needed to evaluate varieties and technology across a series of environments.

Acknowledgments:

Appreciation is expressed to Rickey Bearden for the use of his land, equipment and labor for this project. Further assistance with this project was provided by Dr. John Gannaway - Texas AgriLife Research Center, Lubbock, and Dr. Eric Hequet - Associate Director, International Textile Center, Texas Tech University. Furthermore, we greatly appreciate the Texas Department of Agriculture - Food and Fiber Research for funding of HVI testing at the Texas Tech University - International Textile Center.

Disclaimer Clause:

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Table 1. Harvest results from the replicated dryland cotton variety demonstration, Rickey Bearden Farm, Plains, TX, 2007.

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 ----------						
All-Tex 65333RF	39.9	47.6	2625	1049	1250	0.5800	608.34	93.76	702.10	64.31	31.00	606.79	a
Stoneville 5283RF	38.5	47.9	2554	984	1224	0.5858	576.04	91.77	667.81	62.57	37.02	568.21	b
Stoneville 4554B2RF	37.3	49.7	2528	941	1256	0.5878	552.93	94.22	647.15	61.93	43.33	541.88	bc
Dyna-Gro 2383RF	35.2	48.7	2655	935	1294	0.5847	546.95	97.07	644.02	65.05	37.12	541.85	bc
Stoneville 5327B2RF	37.8	48.4	2500	945	1211	0.5868	554.40	90.84	645.25	61.24	43.33	540.68	bcd
Stoneville 4664RF	38.1	47.9	2562	975	1228	0.5580	544.15	92.12	636.27	62.76	37.02	536.49	bcd
Deltapine 143B2RF	35.8	50.2	2503	896	1258	0.5870	526.15	94.32	620.47	61.32	44.26	514.88	cde
FiberMax 9058F	37.2	47.5	2367	879	1125	0.5910	519.76	84.34	604.10	57.99	35.93	510.17	cde
Americot 1532B2RF	35.9	48.3	2459	883	1188	0.5885	519.25	89.12	608.37	60.23	40.18	507.95	def
PhytoGen 425RF	33.3	49.1	2606	869	1279	0.5813	505.48	95.95	601.42	63.85	36.10	501.47	ef
NexGen 3550RF	35.4	50.6	2410	852	1220	0.5800	494.09	91.51	585.61	59.03	30.36	496.22	ef
Deltapine 104B2RF	33.8	52.4	2515	850	1318	0.5833	495.92	98.87	594.79	61.61	38.75	494.42	ef
PhytoGen 485WRF	35.0	49.3	2467	862	1214	0.5817	501.08	91.08	592.16	60.44	44.28	487.44	efg
Americot 1664B2RF	34.0	49.1	2440	829	1198	0.5855	485.33	89.84	575.17	59.78	40.18	475.21	fgh
All-Tex Summit B2RF	35.2	50.7	2417	852	1224	0.5665	482.68	91.82	574.49	59.22	40.48	474.79	fgh
FiberMax 9063B2F	35.2	50.2	2305	812	1157	0.5788	469.91	86.75	556.66	56.48	42.65	457.53	ghi
AFD 5064F	33.9	49.6	2388	810	1185	0.5673	459.09	88.86	547.95	58.50	33.41	456.05	ghi
AFD 5065B2F	32.7	52.0	2347	768	1221	0.5883	451.74	91.54	543.28	57.49	39.45	446.34	hi
Americot 1622B2RF	33.9	51.2	2259	764	1156	0.5920	452.52	86.68	539.20	55.33	40.18	443.70	hi
All-Tex Arid B2RF	32.4	52.3	2362	765	1236	0.5765	441.15	92.68	533.84	57.86	37.77	438.20	i
Test average	35.5	49.6	2463	876	1222	0.5815	509.35	91.66	601.01	60.35	38.64	502.01	
CV, %	3.2	1.7	2.6	3.6	3.0	1.9	3.8	3.0	3.5	2.6	--	4.0	
OSL	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0573	<0.0001	<0.0001	<0.0001	<0.0001	--	<0.0001	
LSD	1.9	1.4	107	52	60	NS	31.91	4.53	34.57	2.61	--	33.34	

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:
$2.45/cwt ginning cost.
$150/ton for seed.
Value for lint based on CCC loan value from grab samples and ITC HVI results.

Table 2. HVI fiber property results from the replicated dryland cotton variety demonstration, Rickey Bearden Farm, Plains, TX, 2007

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32^{nds} inches	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
AFD 5064F	4.6	35.2	81.9	28.8	8.7	2.3	80.0	7.8	2.7	1.0
AFD 5065B2F	4.4	36.9	82.4	28.4	9.3	1.3	82.9	7.8	2.0	1.0
All-Tex 65333RF	4.3	35.5	82.3	26.6	10.1	1.0	80.6	9.2	1.7	1.0
All-Tex Arid B2RF	4.3	35.4	81.7	28.3	8.9	2.0	81.2	8.2	2.0	1.0
All-Tex Summit B2RF	4.4	34.7	82.8	26.7	10.0	1.0	81.4	8.6	1.7	1.0
Americot 1532B2RF	4.4	36.6	82.6	26.6	9.1	1.0	81.0	8.8	1.3	1.0
Americot 1622B2RF	4.4	38.0	84.2	28.3	9.5	1.7	81.9	8.6	1.7	1.0
Americot 1664B2RF	4.5	36.1	83.0	26.9	9.8	2.0	80.4	8.3	2.0	1.0
Deltapine 104B2RF	4.2	35.7	83.0	29.3	9.3	2.0	80.5	8.4	2.0	1.0
Deltapine 143B2RF	4.1	37.4	81.5	28.2	8.5	2.0	81.7	8.4	1.7	1.0
Dyna-Gro 2383RF	4.2	35.7	83.3	28.9	9.1	2.3	79.4	8.6	2.3	1.0
FiberMax 9058F	4.2	38.3	83.0	29.8	7.4	1.7	82.4	8.0	1.7	1.0
FiberMax 9063B2F	4.4	38.1	82.1	30.7	7.8	1.0	80.6	7.9	2.3	1.0
NexGen 3550RF	4.4	35.6	81.8	29.2	9.0	2.3	81.0	8.1	2.3	1.0
PhytoGen 425RF	4.6	35.8	84.0	29.2	10.1	2.3	76.8	8.9	2.7	1.0
PhytoGen 485WRF	4.7	35.8	84.0	29.1	10.0	2.0	77.7	8.9	2.7	1.0
Stoneville 4554B2RF	4.4	36.2	82.9	28.3	10.0	1.7	80.3	9.0	1.7	1.0
Stoneville 4664RF	4.6	34.4	83.0	28.4	10.8	2.0	80.4	9.2	1.3	1.0
Stoneville 5283RF	4.3	35.7	83.5	29.3	9.5	2.0	80.5	8.9	1.3	1.0
Stoneville 5327B2RF	4.4	35.9	83.0	29.2	9.3	1.0	79.0	9.0	2.0	1.0
Test average	4.4	36.2	82.8	28.5	9.3	1.7	80.5	8.5	1.9	1.0
CV, %	3.4	1.4	1.0	2.9	3.8	33.0	1.8	2.3	--	--
OSL	0.0013	<0.0001	0.0074	<0.0001	<0.0001	0.0133	0.0022	<0.0001	--	--
LSD	0.2	0.8	1.4	1.4	0.6	0.9	2.4	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.

AgriLIFE EXTENSION
Texas A&M System

Replicated Dryland Transgenic Cotton Variety Demonstration, Blanco, TX - 2007

Cooperator: Mark and David Appling

Steve Davis, Kyle Kight, Randy Boman, Mark Kelley, Rhett Overman and Aaron Alexander
EA-IPM, Crosby/Floyd County, CEA-ANR, Crosby County, Extension Agronomist-Cotton, Extension Program Specialist I-Cotton, Extension Assistant-Cotton, and Graduate Assistant

Crosby County

Summary: Significant differences were observed for most parameters measured (Tables 1 and 2). Lint turnout ranged from a low of 29.0% to a high of 34.1% for Americot 1622B2RF and Stoneville 5283RF, respectively. Lint yields varied with a low of 515 lb/acre (PhytoGen 125RF) and a high of 696 lb/acre (Stoneville 4554B2RF). Lint loan values ranged from a low of $0.5383/lb (Paymaster 2140B2RF) to a high of $0.5888/lb (FiberMax 9180B2F). After adding lint and seed value, total value/acre for varieties ranged from a low of $339.60 Paymaster 2140B2RF to a high of $477.98 Stoneville 4554B2RF. When subtracting ginning, seed and technology fee costs, the net value/acre among varieties ranged from a high of $378.76 (Stoneville 4554B2RF) to a low of $254.83 (Paymaster 2140B2RF), a difference of $123.93. Micronaire values ranged from a low of 4.5 for All-Tex Apex B2RF, Dyna-Gro 2100B2RF, FiberMax 9058F, and PhytoGen 125RF to a high of 4.9 for PhytoGen 425RF. Staple length averaged 35.9 across all varieties with a low of 34.1 for PhytoGen 125RF and a high of 37.6 for Americot 1622B2RF. Significant differences were observed among varieties for micronaire, staple, strength, elongation, leaf, uniformity, reflectance (Rd) and yellowness (+b). These data indicate that substantial differences can be obtained in terms of net value/acre due to variety and technology selection.

Objective: The objective of this project was to compare yields, gin turnout, fiber quality, and economics of transgenic varieties under dryland production systems.

Materials and Methods:

Varieties: AFD 5065B2F, AFD 5064F, All-Tex Apex B2RF, All-Tex Arid B2RF, Americot 1622B2RF, Americot 1664B2RF, Deltapine 164B2RF, Dyna-Gro 2100B2RF, FiberMax 9058F, FiberMax 9180B2F, Paymaster 2140B2RF, PhytoGen 125RF, PhytoGen 425RF, Stoneville 5283RF, and Stoneville 4554B2RF

Experimental design: Randomized complete block with 3 replications

Seeding rate:	3.3 seed per row-ft in 40-inch row spacing (Case IH 1200)
Plot size:	8 rows by 1944 ft long
Planting date:	25-May
Weed management:	Trifluralin was applied preplant incorporated at a rate of 1.5 pint/acre. One application of RoundUp Original Max was applied each month in June, July and September at a rate of 32 oz/acre. In addition to herbicide applications, two cultivations took place in this field during the growing season.
Rainfall:	10 inches of rainfall, according to personal correspondence with cooperator, were accumulated at this site during the growing season.
Insecticides:	Intruder at 0.6 oz/acre was applied over the top with the June Roundup Original Max application to control aphid populations. No other insecticides were applied at this site. This site is in an active Boll Weevil Eradication zone, however no applications were made.
Fertilizer management:	No fertilizers were applied at this location.
Plant growth regulators:	No plant growth regulators were utilized at this site.
Harvest aids:	Harvest aids included FirstPick at 48 oz/acre and Blizzard at 0.5 oz/acre with 1% v/v COC.
Harvest:	Plots were harvested on 19-November using a commercial John Deere 7445 stripper harvester with field cleaner. Harvested material was transferred into a weigh wagon with integral electronic scales to determine individual plot weights. Plot yields were adjusted to lb/acre.
Gin turnout:	Grab samples were taken by plot and ginned at the Texas AgriLife Research and Extension Center at Lubbock to determine gin turnouts.
Fiber analysis:	Lint samples were submitted to the International Textile Center at Texas Tech University for HVI analysis and USDA loan values were determined for each variety by plot.
Ginning costs and seed values:	Ginning costs were based on $2.45 per cwt. of bur cotton and seed value/acre was based on $150/ton. Ginning costs did not include checkoff.
Seed and technology fees:	Seed and technology costs were calculated using the appropriate seeding rate (3.3 seed/row-ft) for the 40-inch row spacing and entries using the online Plains Cotton Growers Seed Cost Comparison Worksheet with Monsanto Cap Cost Thresholds. Available at: http://www.plainscotton.org/Seed/seedindex.html .

Results and Discussion:

Significant differences were observed for most parameters measured (Tables 1 and 2). Lint turnout ranged from a low of 29.0% to a high of 34.1% for Americot 1622B2RF and Stoneville 5283RF, respectively. Lint yields varied with a low of 515 lb/acre (PhytoGen 125RF) and a high of 696 lb/acre (Stoneville 4554B2RF). Lint loan values ranged from a low of $0.5383/lb (Paymaster 2140B2RF) to a high of $0.5888/lb (FiberMax 9180B2F). After adding lint and seed value, total value/acre for varieties ranged from a low of $339.60 Paymaster 2140B2RF to a high of $477.98 Stoneville 4554B2RF. When subtracting ginning, seed and technology fee costs, the net value/acre among varieties ranged from a high of $378.76 (Stoneville 4554B2RF) to a low of $254.83 (Paymaster 2140B2RF), a difference of $123.93. Micronaire values ranged from a low of 4.5 for All-Tex Apex B2RF, Dyna-Gro 2100B2RF, FiberMax 9058F, and PhytoGen 125RF to a high of 4.9 for PhytoGen 425RF. Staple length averaged 35.9 across all varieties with a low of 34.1 for PhytoGen 125RF and a high of 37.6 for Americot 1622B2RF. Significant differences were observed among varieties for micronaire, staple, strength, elongation, leaf, uniformity, reflectance (Rd) and yellowness (+b). These data indicate that substantial differences can be obtained in terms of net value/acre due to variety and technology selection. These data indicate that substantial differences can be obtained in terms of net value/acre due to variety and technology selection. It should be noted that no inclement weather was encountered at this location prior to harvest. Additional multi-site and multi-year applied research is needed to evaluate varieties and technology across a series of environments.

Acknowledgments:

Appreciation is expressed to Mark and David Appling for the use of their land, equipment and labor for this project. Further assistance with this project was provided by Dr. John Gannaway - Texas AgriLife Research and Extension Center, Lubbock, and Dr. Eric Hequet - Associate Director, International Textile Center, Texas Tech University. Furthermore, we greatly appreciate the Texas Department of Agriculture - Food and Fiber Research for funding of HVI testing at the Texas Tech University - International Textile Center.

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Table 1. Harvest results from the replicated dryland variety demonstration, Appling Farm, Blanco, TX, 2007.

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 4554B2RF	33.0	47.0	2110	696	990	0.5803	403.71	74.27	477.98	51.70	47.52	378.76	a
Stoneville 5283RF	34.1	46.5	1933	660	901	0.5833	385.10	67.57	452.66	47.36	40.61	364.70	a
Deltapine 164B2RF	33.0	49.6	1926	636	957	0.5810	369.21	71.76	440.97	47.20	48.55	345.22	ab
All-Tex Apex B2RF	32.0	46.9	1860	595	872	0.5867	348.87	65.40	414.26	45.57	44.39	324.30	bc
Dyna-Gro 2100B2RF	31.1	48.9	1863	579	912	0.5820	337.21	68.40	405.61	45.65	47.64	312.33	bcd
FiberMax 9058F	33.7	44.4	1719	578	764	0.5680	328.60	57.26	385.86	42.12	39.40	304.33	cde
PhytoGen 425RF	31.4	47.1	1860	583	876	0.5533	322.31	65.72	388.03	45.58	39.60	302.85	cde
AFD 5065B2F	31.4	49.9	1797	564	898	0.5677	320.06	67.32	387.38	44.03	43.16	300.19	cde
FiberMax 9180B2F	31.3	45.6	1768	554	808	0.5888	326.17	60.56	386.73	43.30	46.32	297.11	cde
All-Tex Arid B2RF	30.4	49.2	1873	568	923	0.5512	313.04	69.23	382.27	45.88	41.43	294.96	cde
AFD 5064F	32.3	47.8	1747	564	836	0.5482	309.06	62.69	371.76	42.81	36.65	292.31	cde
Americot 1664B2RF	31.6	47.1	1720	545	811	0.5735	312.45	60.81	373.26	42.15	44.08	287.03	def
PhytoGen 125RF	29.8	48.7	1725	515	844	0.5520	283.93	63.31	347.24	42.27	35.86	269.11	ef
Americot 1622B2RF	29.0	38.1	1843	535	703	0.5692	305.17	52.71	357.89	45.16	44.08	268.66	ef
Paymaster 2140B2RF	30.4	43.7	1725	526	757	0.5383	282.86	56.74	339.60	42.27	42.50	254.83	f
Test average	31.6	46.7	1831	580	857	0.5682	329.85	64.25	394.10	44.87	42.79	306.45	
CV, %	2.1	7.7	5.6	6.1	9.3	2.1	6.5	9.3	6.1	5.6	--	7.2	
OSL	<0.0001	0.0512	0.0039	<0.0001	0.0070	<0.0001	<0.0001	0.0069	<0.0001	0.0039	--	<0.0001	
LSD	1.1	6.0	173	59	133	0.0196	35.84	9.94	40.53	4.23	--	36.67	

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:
$2.45/cwt ginning cost.
$150/ton for seed.
Value for lint based on CCC loan value from grab samples and ITC HVI results.

Table 2. HVI fiber property results from the replicated dryland variety demonstration, Appling Farm, Blanco, TX, 2007.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32^{nds} inches	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
Americot 1622B2RF	4.6	37.6	82.7	28.3	8.5	3.0	78.9	8.4	2.7	1.0
Americot 1664B2RF	4.6	36.1	81.6	27.0	8.7	2.3	77.3	8.5	3.0	1.0
AFD 5064F	4.8	34.2	80.9	29.4	8.3	3.0	77.6	8.0	3.0	1.0
AFD 5065B2F	4.7	35.0	79.7	28.3	8.8	2.7	79.7	7.9	2.7	1.0
All-Tex Apex B2RF	4.5	37.1	81.6	28.2	8.1	2.3	79.4	8.6	2.0	1.0
All-Tex Arid B2RF	4.6	35.0	80.8	28.9	8.5	3.0	78.4	8.3	2.7	1.0
Dyna-Gro 2100B2RF	4.5	35.7	82.0	28.5	8.2	1.7	79.7	8.6	2.0	1.0
Deltapine 164B2RF	4.6	36.9	81.5	28.9	7.9	1.3	79.6	8.3	2.3	1.0
FiberMax 9058F	4.5	37.2	80.3	30.4	7.0	3.3	77.8	8.0	3.0	1.0
FiberMax 9180B2F	4.6	37.0	81.4	31.7	7.4	1.7	79.4	8.0	2.3	1.0
PhytoGen 125RF	4.5	34.1	82.3	31.0	8.8	3.0	78.1	7.9	3.0	1.0
PhytoGen 425RF	4.9	35.3	82.4	30.2	9.5	3.3	75.5	8.8	3.0	1.0
Paymaster 2140B2RF	4.6	35.1	80.9	27.9	8.0	4.0	76.3	8.0	3.0	1.0
Stoneville 4554B2RF	4.8	35.7	81.5	30.2	9.1	2.7	78.9	8.8	2.3	1.0
Stoneville 5283RF	4.6	35.8	82.1	30.9	8.8	2.0	78.3	9.0	2.0	1.0
Test average	4.6	35.9	81.5	29.3	8.4	2.6	78.3	8.3	2.6	1.0
CV, %	1.4	1.3	0.7	4.2	3.3	24.6	1.2	2.8	--	--
OSL	<0.0001	<0.0001	<0.0001	0.0022	<0.0001	0.0011	<0.0001	<0.0001	--	--
LSD	0.1	0.8	0.9	2.1	0.5	1.1	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.

AgriLIFE EXTENSION
Texas A&M System

Replicated Dryland Cotton Seeding Rate and Planting Pattern Demonstration AG-CARES, Lamesa, TX - 2007

Cooperators: Lamesa Cotton Growers/Texas AgriLife Research/Texas AgriLife Extension Service

Jeff Wyatt, Tommy Doederlein, Randy Boman, Mark Kelley, Aaron Alexander, and Rhett Overman
CEA-ANR Dawson County, EA-IPM Dawson/Lynn Counties, Extension Agronomist-Cotton, Extension Program Specialist-Cotton, Graduate Student Assistant, and Extension Assistant-Cotton

Dawson County

Summary: No differences were observed for any of the yield or economic parameters measured with the exception of percent lint turnout (Table 1). Lint turnouts ranged from a high of 36.2% for the 2 seed/ft solid planting to a low of 33.9 for the 2 seed/ft 2x1 planting. Lint yields varied from a low of 699 lb/land acre (6 seed/row-ft solid planting) to a high of 845 lb/ land acre (6 seed/row-ft 2x1 planting). When subtracting ginning cost and seed and technology fees, the net value/ land acre ranged from a low of $367.32 (6 seed/row-ft solid planting) to a high of $482.15 (2 seed/row-ft 2x1 planting), a difference of $114.83. No significant differences were observed for most of the fiber properties measured, with the exceptions of staple and uniformity (Table 2). These data indicate that in years where plant available moisture is abundant, the seeding rates and planting patterns included in this study have little to no effect on yield. Additional multi-site and multi-year applied research is needed to evaluate seeding rates and planting patterns across a series of environments.

Objective: The objective of this project was to compare yields, gin turnout, fiber quality, and economics of various seeding rates and planting patterns under dryland production systems.

Materials and Methods:

Variety:	FiberMax 9058F
Experimental design:	Randomized complete block design with 3 replications.
Seeding rate:	2, 4, and 6 seeds/row-ft in 40-inch row spacing (John Deere MaxEmerge vacuum planter)

Planting patterns:	Each seeding rate was planted in a solid pattern and in a plant 2 rows and skip 1 pattern. For ease of planting, all plots were seeded in a solid pattern and, after seedling emergence, cultivator sweeps were used to destroy seedling plants in the skip row.
Plot size:	16 rows by 260 ft long
Planting date:	23-May
Weed management:	Trifluralin was applied preplant incorporated at 1.25 pt/acre on 20-April. Roundup Original MAX was applied over-the-top in June at 22 oz/acre with 22 oz/acre Class Act. Roundup Weather Max was spot sprayed twice (July and late August) in 5 gallon mixes. The trial was cultivated one time in July.

Rainfall:

April:	0.60"	July:	2.40"
May:	6.90"	August:	2.30"
June:	4.74"	September:	1.50"

Total rainfall: 18.50"

Insecticides:	Temik was applied at planting at 3.5 lbs/acre. No other insecticides were applied at this site. This location is in an active boll weevil eradication zone, but no applications were made by the Texas Boll Weevil Eradication Program.
Fertilizer management:	30 lb N/acre was applied as a sidedress in June using 32-0-0.
Harvest aids:	Harvest aids included 1.0 pt/acre Boll'd with 1.0 pt/acre Def on 10-October followed by Gramoxone Inteon at 16 oz/acre on 20-October.
Harvest:	Plots were harvested on 12-November using a commercial John Deere 7445 with field cleaner. Harvested material was transferred into a weigh wagon with integral electronic scales to determine individual plot weights. Plot yields were adjusted to lb/acre.
Gin turnout:	Grab samples were taken by plot and ginned at the Texas AgriLife Research and Extension Center at Lubbock to determine gin turnouts.
Fiber analysis:	Lint samples were submitted to the International Textile Center at Texas Tech University for HVI analysis and USDA loan values were determined for each plot.
Ginning costs and seed values:	Ginning costs were based on $2.45 per cwt. of bur cotton and seed value/acre was based on $150/ton. Ginning costs did not include checkoff.

Seed and technology fees: Seed and technology costs (Table 3) were calculated using the appropriate seeding rate (2, 4, and 6 seed/row-ft) for the 40-inch row spacing using the online Plains Cotton Growers Seed Cost Comparison Worksheet with Monsanto Cap Cost Thresholds. Available at: http://www.plainscotton.org/Seed/seedindex.html .

Results and Discussion:

No differences were observed for any of the yield or economic parameters measured with the exception of percent lint turnout (Table 1). Lint turnouts ranged from a high of 36.2% for the 2 seed/ft solid planting to a low of 33.9 for the 2 seed/ft 2x1 planting. Lint yields varied from a low of 699 lb land/acre (6 seed/row-ft solid planting) to a high of 845 lb land/acre (6 seed/row-ft 2x1 planting). After adding lint and seed value, total value/land acre ranged from a low of $477.27 (6 seed/row-ft solid planting) to a high of $564.67 (4 seed/row-ft 2x1 planting). When subtracting ginning cost and seed and technology fees, the net value/land acre ranged from a low of $367.32 (6 seed/row-ft solid planting) to a high of $482.15 (2 seed/row-ft 2x1 planting), a difference of $114.83. No significant differences were observed for most of the fiber properties measured, with the exceptions of staple and uniformity (Table 2). Staple lengths ranged from a high of 37.8 for 4 seed/row-ft 2x1 planting to a low of 35.9 for 6 seed/row-ft solid planting, with an average of 37.1 across all seeding rates and planting patterns. An average percent uniformity of 81.3 was observed with a range of 80.2 to 82.2% for 6 seed/row-ft solid to 4 seed/row-ft 2x1, respectively. These data indicate that in years where plant available moisture is abundant, the seeding rates and planting patterns included in this study have little to no effect on yield. Although not significant, a trend was observed for yield parameters with the 2, 4, and 6 seed/row-ft solid planting patterns yielding numerically less than their skip-row counterparts. This is most likely a result of higher competition for plant available moisture in the solid planting pattern. Additional multi-site and multi-year applied research is needed to evaluate seeding rates and planting patterns across a series of environments.

Acknowledgments:

Appreciation is expressed to Danny Carmichael, Texas AgriLife Research Associate - AG-CARES, Lamesa; and John Everitt, Texas AgriLife Research Associate - Lubbock, for their assistance with this project, to Dr. John Gannaway - Texas AgriLife Research and Extension Center, Lubbock, for his cooperation, and to the Texas Department of Agriculture - Food and Fiber Research for funding of HVI testing at the Texas Tech University - International Textile Center.

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Table 1. Harvest results from the replicated dryland cotton seeding rate and planting pattern demonstration, AG-CARES, Lamesa, TX, 2007.

Treatment	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----------					
2 seed/ft 2x1	33.9	48.2	2421	821	1167	0.5715	469.95	87.49	557.43	59.31	15.97	482.15
2 seed/ft solid	36.2	49.7	1996	722	991	0.5832	421.01	74.33	495.35	48.90	23.95	422.50
4 seed/ft 2x1	35.1	49.2	2337	821	1149	0.5837	478.48	86.19	564.67	57.26	31.93	475.49
4 seed/ft solid	35.8	48.5	2130	763	1032	0.5698	433.85	77.42	511.27	52.18	47.90	411.19
6 seed 2x1	35.0	49.1	2408	845	1180	0.5608	472.77	88.50	561.27	59.00	47.90	454.36
6 seed solid	35.3	48.0	1979	699	950	0.5803	405.98	71.29	477.27	48.49	61.46	367.32
Test average	35.2	48.8	2212	778	1078	0.5749	447.01	80.87	527.88	54.19	38.19	435.50
CV, %	1.5	1.5	11.0	11.2	10.6	3.3	11.87	10.6	11.6	11.0	--	12.7
OSL	0.0051	0.1075	0.1492	0.3029	0.1261	0.6418	0.4632	0.1263	0.3921	0.1490	--	0.1893
LSD 0.05	0.9	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	NS

*All per acre values are based on land acres.

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:
$2.45/cwt ginning cost.
$150/ton for seed.
Value for lint based on CCC loan value from grab samples and ITC HVI results.

Table 2. HVI fiber property results from the replicated dryland cotton seeding rate and planting pattern demonstration, AG-CARES, Lamesa, TX, 2007.

Treatment	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32nds inches	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
2 seed/ft 2x1	4.0	37.5	81.3	28.7	7.0	2.0	78.7	7.6	3.0	1.0
2 seed/ft solid	4.2	36.9	81.6	28.6	6.9	1.7	81.6	7.4	2.3	1.0
4 seed/ft 2x1	4.1	37.8	82.2	27.6	7.0	1.3	81.7	7.5	2.3	1.0
4 seed/ft solid	4.2	36.7	80.7	27.1	6.9	2.3	80.0	7.4	3.0	1.0
6 seed 2x1	4.0	37.7	81.8	28.5	6.9	1.7	78.5	7.2	3.3	1.0
6 seed solid	4.2	35.9	80.2	26.6	7.3	2.3	82.0	7.5	2.3	1.0
Test average	4.1	37.1	81.3	27.8	7.0	1.9	80.4	7.4	2.7	1.0
CV, %	4.6	1.7	0.6	4.8	30.6	33.0	3.2	3.6	--	--
OSL	0.6803	0.0347	0.0086	0.3161	0.2962	0.3534	0.4025	0.5091	--	--
LSD 0.05	NS	1.1	1.0	NS	NS	NS	NS	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.

Table 3. Seed and technology expenses* for the replicated dryland cotton seeding rate and planting pattern demonstration, AG-CARES, Lamesa, TX, 2007.

Treatment	Seeding rate seed/land acre	Seed fee $/acre	Tech fee $/acre	Total seed and tech fee $/land acre
2 seed/ft 2x1	17,425	5.66	9.02	14.68
2 seed/ft solid	26,136	11.82	12.13	23.95
4 seed/ft 2x1	34,850	15.76	16.17	31.93
4 seed/ft solid	52,272	23.64	24.26	47.90
6 seed 2x1	52,272	23.64	24.26	47.90
6 seed solid	78,408	35.46	26.00	61.46

FiberMax 9058F
Used 2007 PCG Seed Cost Calculator based on land acre seeding rates.

seed drop on 2x1 skip uses a 0.6666 factor to calculate $/land acre

Additional Small Plot Replicated Sites

AgriLIFE EXTENSION
Texas A&M System

Replicated Irrigated Small Plot Roundup Ready Flex Cotton Variety Demonstration, Panhandle, TX - 2007

Cooperator: Geneo Abbe

Brent Bean, Randy Boman, Jody Bradford, Mark Kelley, Jake Robinson*, and Bob Villereal*

Extension Agronomist, Amarillo, Extension Agronomist - Cotton, Lubbock, CEA-ANR Carson County, Extension Program Specialist - Cotton, *Research Technician

Carson County

Summary: The difference in the highest and lowest net value among varieties at this location was $418.16/acre, indicating the importance of variety selection. Average lint yield was excellent at 1,811 lbs/acre. Lint yield ranged from a low of 1,455 lb/acre for NexGen 1551RF to a high of 2,184 lb/acre for FiberMax 9058F. Lint loan values ranged from $0.4730/lb for NexGen 1572RF to $0.5789/lb for NexGen 1551RF. After subtracting out ginning and seed/technology costs, the highest net value varieties were FiberMax 9058F,($1,225.34/acre), NexGen 3410RF ($1,106.81/acre), and FiberMax 9060F ($1,082.85).

Objective: The objective of this project was to compare yields, gin turnout, fiber quality, and economics of transgenic varieties under irrigated production systems.

Materials and Methods:

Varieties: AFD 5064F, Deltapine 110RF, Deltapine 121RF, FiberMax 9058F, FiberMax 9060F, FiberMax 9068F, FiberMax 9150F, NexGen 1551RF, NexGen 1556RF, NexGen 1572RF, NexGen 3410RF, NexGen 3550RF, and PhytoGen 125RF

Experimental design: Randomized complete block with 4 replications

Seeding rate: 3.75 seed per row-ft in 30-inch row spacing (65,000 seed/acre)

Plot size: One 30 inch row by 100 ft long

Planting date: May 15

Weed management: Direx plus Dual herbicides were applied pre-emergence broadcast.

Rainfall and irrigation:	A total of 9.31 inches of rainfall accumulated at this location during the growing season May 15 - Oct 31. In addition, 4.28 inches of water was applied by center pivot irrigation. Estimated soil water use was 4.24 inches. Total water used during the growing season (soil water/rainfall/irrigation) was 18.22 inches.
Insecticides:	Temik was applied in-furrow at planting. No other insecticides were used at this site during the growing season.
Fertilizer management:	45 lb N/acre, 35 lb P2O5/acre, 10 lb K2O/acre, and 22 lb S/acre were applied prior to planting.
Harvest:	Plots were harvested on October 30th by hand harvesting 20 ft of row. Samples were weighed and adjusted to lb/acre.
Gin turnout:	Sub-samples were collected and ginned at the Texas AgriLife Research and Extension Center near Lubbock to determine gin turnouts.
Fiber analysis	Lint samples were submitted to the International Textile Center at Texas Tech University for HVI analysis, and Commodity Credit Corporation (CCC) loan values were determined for each variety by plot.
Ginning cost and seed values:	Ginning costs were based on $2.45 per cwt. of bur cotton and seed value/acre was based on $150/ton of seed. Ginning costs did not include checkoff.
Seed and technology cost:	Seed and technology costs were calculated using the appropriate seeding rate (seed/row-ft) for the row spacing and entries using the online Plains Cotton Growers Seed Cost Comparison Worksheet with Monsanto Cap Cost Thresholds. Available at: http://www.plainscotton.org/Seed/seedindex.html .

Results and Discussion:

Although heat units were scarce early in the season, a warm August and September resulted in excellent cotton yields at this location. Of all the yield and quality factors measured, only seed turnout was not significantly different among varieties (Tables 1 and 2). Average lint yield was 1,811 lbs/acre and was achieved with 9.3 inches of rainfall and 4.3 inches of irrigation water. Soil moisture conditions were excellent at planting. Lint turnout averaged 26.8% with a range of 23.3% to 29.1%. Lint yield ranged from a low of 1,455 lb/acre for NexGen 1551RF to a high of 2,184 lb/acre for FiberMax 9058F. Although NexGen 1551RF had the lowest lint yield, it also had the highest lint loan value at $0.5789/lb and the second highest micronaire at 3.8. Lowest lint loan value was observed for NexGen 1572RF at $0.4730/lb. Total value (lint value plus seed value) ranged from $1,005.66/acre to a high of $1,464.60/acre and was closely correlated with net value (total value minus ginning and seed/technology cost). Net value ranged from a low of $807.19/acre for NexGen 1572RF to a high of $1,225.34/acre for FiberMax 9058F. The difference in the net value for these two varieties was $418.16/acre. The net value of two varieties, NexGen 3410RF at $1,106.81/acre, and FiberMax 9060F at $1,082.85/acre, were not statistically different from FiberMax 9058F ($1,225.34/acre).

In this trial, micronaire ranged from a low of 3.0 for NexGen 1572RF to a high of 4.0 for NexGen 1556RF. The test average for micronaire was 3.4. Staple averaged 37.9 with a low of 36.3 for AFD 5064F and a high of 39.8 for FiberMax 9060F. Uniformity ranged from 80.8% to 83.4% with an average of 81.9%. Test average for strength was 29.3 g/tex with a low of 27.7 g/tex for Deltapine 121RF and a high of 32.7 g/tex for NexGen 1551RF. Percent elongation values ranged from a low of 7.7% for FiberMax 9058F to a high of 9.3% for PhytoGen 125RF. The lowest average leaf grade (2.3) was observed for FiberMax 9058F and FiberMax 9060F and the highest (5.0) for Deltapine 110RF and NexGen 1572RF. Test averages for reflectance (Rd) and yellowness (+b) were 78.5 and 8.4, respectively. Color grades were mostly 21s or 31s in this trial.

Acknowledgments:

Appreciation is expressed to Geneo Abbe for the use of his land, equipment and labor for this project. Further assistance with this project was provided by Dr. John Gannaway - Texas AgriLife Research and Extension Center, Lubbock, and Dr. Eric Hequet - Associate Director, International Textile Center, Texas Tech University.

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Table 1. Harvest results from the small-plot replicated Roundup Ready Flex demonstration, Geneo Abbe Farm, Panhandle, TX, 2007.

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	29.1	44.6	7504	2184	3345	0.5555	1213.75	250.85	1464.60	183.86	55.40	1225.34	a
NexGen 3410RF	27.8	44.9	7361	2040	3303	0.5320	1085.60	247.70	1333.30	180.34	46.15	1106.81	ab
FiberMax 9060F	27.7	43.5	7249	2009	3146	0.5373	1079.93	235.91	1315.85	177.60	55.40	1082.85	ab
FiberMax 9068F	28.4	45.9	6630	1889	3048	0.5475	1039.16	228.56	1267.72	162.44	58.34	1046.95	bc
NexGen 3550RF	26.2	44.4	7251	1902	3214	0.5309	1009.62	241.06	1250.68	177.65	46.15	1026.88	bc
Deltapine 110RF	28.2	45.8	7146	2014	3272	0.4821	970.14	245.39	1215.54	175.06	57.71	982.77	bcd
Deltapine 121RF	28.0	42.4	6250	1752	2654	0.5628	986.41	199.02	1185.42	153.13	61.89	970.40	bcd
NexGen 1556RF	23.3	46.0	7022	1634	3228	0.5651	923.96	242.05	1166.01	172.05	46.15	947.81	bcde
FiberMax 9150F	28.4	43.9	6216	1768	2728	0.5063	896.52	204.59	1101.10	152.28	55.40	893.42	cde
PhytoGen 125RF	25.0	45.8	6608	1649	3020	0.5309	873.07	226.50	1099.58	161.90	50.02	887.66	cde
NexGen 1551RF	24.7	45.9	5888	1455	2702	0.5789	840.92	202.63	1043.55	144.26	46.15	853.13	de
AFD 5064F	25.0	44.5	6294	1573	2792	0.5268	827.77	209.43	1037.20	154.20	51.21	831.79	de
NexGen 1572RF	27.0	45.6	6217	1677	2833	0.4730	793.21	212.45	1005.66	152.32	46.15	807.19	e
Test average	26.8	44.8	6741	1811	3022	0.5330	964.62	226.62	1191.24	165.16	52.01	974.07	
CV, %	4.8	5.0	7.9	9.4	8.9	5.4	11.2	8.9	10.3	7.9	--	11.6	
OSL	<0.0001	0.4837	0.0005	<0.0001	0.0018	0.0002	<0.0001	0.0018	0.0001	0.0005	--	0.0002	
LSD	1.9	NS	764	244	385	0.0415	154.29	28.90	176.05	18.71	--	162.73	

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:
$2.45/cwt ginning cost.
$150/ton for seed.
Value for lint based on CCC loan value from grab samples and ITC HVI results.

Table 2. HVI fiber property results from the small-plot replicated Roundup Ready Flex demonstration, Geneo Abbe Farm, Panhandle, TX, 2007.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32^{nds} inches	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
AFD 5064F	3.5	36.3	81.5	30.1	8.8	4.3	77.5	8.1	2.8	1.0
Deltapine 110RF	3.3	38.3	82.8	31.4	8.8	5.0	74.8	8.7	3.5	1.3
Deltapine 121RF	3.6	36.9	82.3	27.7	9.1	2.8	78.8	9.2	2.0	1.0
FiberMax 9058F	3.3	39.0	80.8	29.0	7.7	2.3	80.5	8.2	2.3	1.0
FiberMax 9060F	3.1	39.8	81.4	28.9	7.8	2.3	80.4	8.1	2.0	1.0
FiberMax 9068F	3.3	38.7	81.6	29.7	7.9	2.5	81.2	8.0	2.0	1.0
FiberMax 9150F	3.1	38.8	81.4	28.6	7.9	4.0	77.7	7.9	3.0	1.0
NexGen 1551RF	3.8	37.6	83.4	32.7	8.2	2.8	77.7	9.2	2.3	1.0
NexGen 1556RF	4.0	37.1	83.1	29.5	8.9	3.5	76.6	9.1	2.8	1.0
NexGen 1572RF	3.0	37.9	81.3	28.1	8.6	5.0	80.0	7.5	2.8	1.0
NexGen 3410RF	3.2	38.6	81.4	28.4	8.1	3.3	78.2	8.7	2.5	1.0
NexGen 3550RF	3.2	37.3	81.1	28.1	9.2	3.3	78.9	8.7	2.5	1.0
PhytoGen 125RF	3.5	36.5	82.8	29.2	9.3	4.3	78.3	8.0	2.8	1.0
Test average	3.4	37.9	81.9	29.3	8.5	3.5	78.5	8.4	2.5	1.0
CV, %	7.2	2.2	1.2	4.2	4.5	26.9	1.5	3.1	--	--
OSL	<0.0001	<0.0001	0.0083	<0.0001	<0.0001	0.0003	<0.0001	<0.0001	--	--
LSD	0.3	1.2	1.5	1.8	0.5	1.3	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.

AgriLIFE EXTENSION
Texas A&M System

Replicated Irrigated Transgenic Cotton Variety Demonstration, Etter TX - 2007

Cooperators: Moore County Gin and Texas AgriLife Research Field Lab at Etter

Brent Bean, Randy Boman, Thomas Marek, Mark Kelley, Tommy Moore, Jacob Robinson*, Bob Villarreal*, Curtis Schwertner*, Erica Cox*, and Marcel Fischbacher

Extension Agronomist, Amarillo, Extension Agronomist - Cotton, Lubbock, Agriculture Engineer, Extension Program Specialist - Cotton, Senior Research Associate, Research Technician*, CEA - ANR, Moore County

Moore County

Summary: The importance of variety selection is evident by the highest and lowest net values, a deference of $298.12/acre. Significant differences were found among all varieties in most measured categories. Lint turnout ranged from a low of 22.7% for PhytoGen 125RF to a high of 28.7% for Deltapine121RF. Lint yields ranged from 721 lb/acre for PhytoGen 125RF to 1247 lb/acre for NexGen 1572RF. Lint loan values varied from $0.5267/lb for AFD 5064RF to $0.5788/lb for FiberMax 9068F. Total value/acre (lint plus seed value) ranged from $482.38 for PhytoGen 125RF to $813.21 for NexGen 1572RF. After subtracting seed, technology and ginning costs, the highest net values/acre among varieties were $651.54 for NexGen 1572RF, $511.95 for FiberMax 9058F, $502.42 for NexGen 3410RF, $501.29 for FiberMax 9068F, $500.81 for FiberMax 9150F and $487.68 for DeltaPine 121RF.

Objective: The objective of this test was to compare yield, gin turnout, fiber quality, and economics of transgenic varieties under irrigated conditions.

Materials and Methods:

Varieties: Deltapine 121RF, NexGen 3550RF, NexGen 1572RF, NexGen 3550RF, PhytoGen 125RF, FiberMax 9058F, FiberMax 9060F, FiberMax 9068F, AFD 5064F, Deltapine 110RF, FiberMax 9150F, NexGen 3410RF, and NexGen 1551RF

Experimental design: Randomized complete block with 3 replications

Seeding rate: 4.0 seed per row-ft in 30-in row spacing (70,000 seed/acre)

Plot Size:	2 rows by 20 ft. planted straight on flat beds
Planting date:	May 22, 2007
Weed management:	Treflan at 1.5 pints/acre was applied preplant on May-09. On July-03 and August-15 applications of Roundup at 1 quart/acre were made.
Rainfall and Irrigation:	Two irrigations (drip) of 1.5 inches were applied, one in late July and one in early August. Total rainfall for the growing season was 8.15 inches, for a total of 11.15 inches of water for the growing season.
Harvest:	Plots were hand harvested on November-30. Harvested material was weighed on a weigh scale to determine plot weights. Plot yields were converted to lb/acre.
Gin turnout:	Samples were collected by plot and ginned at the Texas AgriLife Research and Extension Center at Lubbock to determine gin turnouts.
Fiber analysis:	Lint samples were submitted to the International Textile Center at Texas Tech University for HVI analysis, and Commodity Credit Corporation (CCC) loan values were determined for each variety by plot.
Ginning cost and seed values:	Ginning costs were based on $2.45 per cwt. of bur cotton and seed value per acre was based on $150/ton of seed. Ginning cost did not include checkoff.
Seed and technology cost:	Seed and technology cost were calculated using the appropriate seeding rate (seed/row-ft) for the 30-inch row spacing and entries using the online Plains Cotton Growers Seed Cost Comparison Worksheet with Monsanto Cap Cost Thresholds. Available at: http://www.plainscotton.org/Seed/seedindex.html .

Results and Discussion:

Of all the yield and quality factors measured only fiber uniformity and strength were not significantly different among varieties at P=0.05 (Tables 1 and 2). Lint turnout averaged 26.6% and ranged from 22.7% to 28.7%. Seed turnout varied from 35.3% to 40.7% and averaged 38.4%. Lint yield averaged 929 lb/acre and ranged from 1247 lb/acre for NexGen 1572RF to 721 lb/acre for PhytoGen 125RF. NexGen 1572RF also had the highest seed yield with 1907 lb/acre and Deltapine 110RF was the lowest with 1225 lbs/acre, with a test average of 1352 lb/acre. Lint loan value averaged $0.5530/lb and ranged from $0.5788/lb for FiberMax 9068F to $0.5267/lb for AFD 5064F. Total value (lint value plus seed value) ranged from $813.21/acre for NexGen 1572RF to $482.38/acre for PhytoGen 125RF and averaged $615.95/acre. Net value (total value minus ginning and seed/technology costs) averaged $475.70 and varied from $651.54 for NexGen 1572RF to $353.42/acre for PhytoGen 125RF. The difference in net value for these two varieties was $298.12/acre. The net values of five varieties, FiberMax 9058F at $511.95/acre, NexGen 3410RF at $502.42/acre, FiberMax 9068F at $501.29/acre, FiberMax 9150F at $500.81/acre and DeltaPine 121RF at $487.68 were not statistically different from NexGen 1572RF.

Micronaire ranged from 4.0 for NexGen 1572RF to 4.9 with NexGen 1551RF with an average of 4.4. Staple length averaged 35.6 ranging from 34.1 to 36.8. Percent elongation varied from 6.9% for FiberMax 9150F to 9.7% for Deltapine 110RF. Uniformity ranged from 79.8% to 82.5% with an average of 80.8%. The lowest average leaf grade was 1.3 for FiberMax 9068F and the highest was 4.0 for NexGen 1572RF and Deltapine 110RF. Test averages for reflectance (Rd) and yellowness (+b) were 77.6 and 7.8 respectively. Color grades were mostly 31s to 32s.

Acknowledgments:

Appreciation is express to Moore County Gin for use of land for this study. Further assistance with this project was provided by Dr. John Gannaway-Texas AgriLife Research and Extension Center, Lubbock, and Dr. Eric Hequet- Associate Director, International Textile Center, Texas Tech University.

Disclaimer Clause:

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

Table 1. Harvest results from the replicated irrigated cotton variety demonstration, Etter Farm, Etter, TX, 2007.

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 1572RF	27.0	40.7	4656	1247	1907	0.5333	670.16	143.05	813.21	114.07	47.61	651.54	a
FiberMax 9058F	26.7	35.3	3817	1005	1324	0.5635	563.69	99.30	662.98	93.52	57.52	511.95	ab
NexGen 3410RF	27.7	40.7	3328	922	1354	0.5748	529.99	101.57	631.56	81.54	47.61	502.42	ab
FiberMax 9068F	28.0	39.3	3331	941	1317	0.5788	544.79	98.77	643.56	81.60	60.67	501.29	ab
FiberMax 9150F	27.3	38.0	3479	947	1318	0.5752	544.73	98.84	643.57	85.24	57.52	500.81	ab
Deltapine 121RF	28.7	38.3	3345	956	1367	0.5587	533.47	102.51	635.98	81.94	66.36	487.68	ab
FiberMax 9060F	26.7	35.3	3567	945	1265	0.5475	517.83	94.91	612.74	87.40	57.52	467.82	b
NexGen 1551RF	25.3	37.7	3535	890	1338	0.5568	495.89	100.34	596.23	86.61	47.61	462.00	b
Deltapine 110RF	27.0	36.3	3363	905	1225	0.5323	481.91	91.88	573.79	82.38	60.00	431.41	b
NexGen 3550RF	25.7	40.0	3197	827	1284	0.5543	458.44	96.27	554.72	78.33	47.61	428.77	b
AFD 5064F	26.3	40.0	3199	845	1277	0.5267	444.87	95.76	540.63	78.36	53.03	409.24	b
PhytoGen 125RF	22.7	39.7	3151	721	1252	0.5345	388.48	93.90	482.38	77.20	51.76	353.42	b
Test average	26.6	38.4	3497	929	1352	0.5530	514.52	101.42	615.95	85.68	54.57	475.70	
CV, %	11.7	4.1	11.7	11.6	13.5	3.2	12.4	13.5	12.4	11.7	--	14.2	
OSL	0.0028	0.0012	0.0128	0.0028	0.0157	0.0102	0.0049	0.0157	0.0073	0.0128	--	0.0063	
LSD	1.6	2.7	690	183	309	0.0301	108.34	23.18	129.78	16.90	--	114.58	

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:
$2.45/cwt ginning cost.
$150/ton for seed.
Value for lint based on CCC loan value from grab samples and ITC HVI results.

Table 2. HVI fiber property results from the replicated irrigated cotton variety demonstration, Etter Farm, Etter, TX, 2007.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32^{nds} inches	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
NexGen 1572RF	4.0	35.2	81.1	27.2	8.6	4.0	77.9	7.3	3.7	1.0
FiberMax 9058F	4.3	36.8	79.8	28.9	7.1	2.3	77.6	7.6	3.3	1.3
NexGen 3410RF	4.1	36.2	81.0	27.1	8.0	2.3	77.2	8.4	3.0	1.7
FiberMax 9068F	4.5	36.8	81.3	30.3	7.8	1.3	80.0	7.7	3.0	1.0
FiberMax 9150F	4.2	36.4	80.0	29.4	6.9	2.3	79.5	7.5	3.0	1.3
FiberMax 9060F	4.4	36.6	80.0	28.4	7.3	3.0	78.1	7.5	3.7	1.0
NexGen 1551RF	4.9	34.6	81.3	31.7	8.1	1.7	77.0	8.7	3.0	2.0
Deltapine 121RF	4.7	34.6	80.8	26.7	8.9	1.7	77.5	8.4	3.0	1.3
Deltapine 110RF	4.5	36.2	80.7	30.3	9.7	4.0	74.2	8.2	3.7	2.3
NexGen 3550RF	4.3	35.5	80.3	30.1	8.3	3.0	77.1	7.7	3.3	1.7
AFD 5064F	4.8	34.1	81.1	29.2	8.6	3.7	77.3	7.6	3.7	1.3
PhytoGen 125RF	4.3	34.6	82.5	31.7	8.7	3.7	77.8	7.3	3.7	1.3
Test average	4.4	35.6	80.8	29.3	8.2	2.8	77.6	7.8	3.3	1.4
CV, %	4.6	3.0	1.8	7.2	2.7	22.2	1.7	3.0	--	--
OSL	0.0004	0.0266	0.6427	0.0912	0.0001	0.0001	0.0075	0.0001	--	--
LSD	0.3	1.8	NS	NS	0.4	1.0	2.3	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. NS - not significant.

Two-Year Site Means of Common Varieties

Common varieties included in the 2006 and 2007 Muleshoe Irrigated Variety Demonstrations

	2006			2007			Average		
Variety	Lint yield lb/acre	Lint loan value $/lb	Lint value $/acre	Lint yield lb/acre	Lint loan value $/lb	Lint value $/acre	Lint yield lb/acre	Lint loan value $/lb	Lint value $/acre
FiberMax 9058F	1589	0.4738	752.99	1392	0.5878	818.23	1491	0.5308	791.25
FiberMax 9063B2F	1419	0.4742	673.00	1259	0.5914	744.50	1339	0.5328	713.33
Test Average	1504	0.4740	712.99	1325	0.5896	781.37	1415	0.5318	752.29
Maximum	1589	0.4742	752.99	1392	0.5914	818.23	1491	0.5328	791.25
Minimum	1419	0.4738	673.00	1259	0.5878	744.50	1339	0.5308	713.33
Maximum difference	170	0.0004	79.99	133	0.0036	73.73	152	0.0020	77.92

Common varieties included in the 2006 and 2007 Blanco Irrigated Variety Demonstrations

	2006			2007			Average		
Variety	Lint yield lb/acre	Lint loan value $/lb	Lint value $/acre	Lint yield lb/acre	Lint loan value $/lb	Lint value $/acre	Lint yield lb/acre	Lint loan value $/lb	Lint value $/acre
All-Tex Apex B2RF	532	0.5468	290.77	1162	0.5661	657.87	847	0.5565	471.31
FiberMax 9058F	563	0.5643	317.69	1073	0.5829	625.39	818	0.5736	469.20
AFD 5064F	462	0.4790	221.48	1073	0.5520	592.44	768	0.5155	395.82
PhytoGen 485WRF	471	0.4983	234.52	1039	0.5435	564.64	755	0.5209	393.28
Test Average	507	0.5221	266.11	1087	0.5611	610.08	797	0.5416	432.40
Maximum	563	0.5643	317.69	1162	0.5829	657.87	847	0.5736	471.31
Minimum	462	0.4790	221.48	1039	0.5435	564.64	755	0.5155	393.28
Maximum difference	101	0.0853	96.21	123	0.0394	93.22	92	0.0581	78.03

Common varieties included in the 2006 and 2007 Plains Irrigated Variety Demonstrations

	2006			2007			Average		
Variety	Lint yield lb/acre	Lint loan value $/lb	Lint value $/acre	Lint yield lb/acre	Lint loan value $/lb	Lint value $/acre	Lint yield lb/acre	Lint loan value $/lb	Lint value $/acre
Stoneville 4554B2RF	1000	0.4888	489.05	1620	0.5492	889.55	1310	0.5190	679.89
FiberMax 9063B2F	989	0.5083	502.64	1372	0.5914	811.46	1180	0.5499	649.01
All-Tex Apex B2RF	973	0.4606	448.10	1497	0.5879	880.11	1235	0.5243	647.36
FiberMax 9058F	960	0.4837	464.32	1322	0.5879	777.61	1141	0.5358	611.44
Deltapine 143B2RF	962	0.4273	411.09	1442	0.5611	808.89	1202	0.4942	594.03
PhytoGen 485WRF	876	0.4153	363.82	1466	0.5480	803.43	1171	0.4817	564.09
Test Average	960	0.4640	446.50	1453	0.5709	828.51	1207	0.5175	624.30
Maximum	1000	0.5083	502.64	1620	0.5914	889.55	1310	0.5499	679.89
Minimum	876	0.4153	363.82	1322	0.5480	777.61	1141	0.4817	564.09
Maximum difference	124	0.0930	138.82	297	0.0434	111.95	169	0.0682	115.80

Common varieties included in the 2006 and 2007 AG-CARES Irrigated Variety Demonstrations

	2006			2007			Average		
Variety	Lint yield lb/acre	Lint loan value $/lb	Lint value $/acre	Lint yield lb/acre	Lint loan value $/lb	Lint value $/acre	Lint yield lb/acre	Lint loan value $/lb	Lint value $/acre
Stoneville 4554B2RF	1249	0.5072	633.65	1585	0.5757	912.39	1417	0.5414	767.00
Deltapine 143B2RF	1213	0.5450	661.03	1434	0.5847	838.71	1323	0.5648	747.56
FiberMax 9058F	1190	0.5648	672.40	1412	0.5802	818.85	1301	0.5725	744.82
FiberMax 9068F	1115	0.5703	635.96	1380	0.5918	816.72	1248	0.5811	725.00
All-Tex Apex B2RF	1093	0.5595	610.92	1381	0.5835	806.22	1237	0.5715	706.95
FiberMax 9063B2F	1091	0.5500	599.88	1290	0.5912	762.84	1191	0.5706	679.28
PhytoGen 485WRF	1066	0.5058	538.88	1405	0.5627	790.64	1235	0.5342	660.06
Test Average	1145	0.5432	621.82	1413	0.5814	820.91	1279	0.5623	718.67
Maximum	1249	0.5703	672.40	1585	0.5918	912.39	1417	0.5811	767.00
Minimum	1066	0.5058	538.88	1290	0.5627	762.84	1191	0.5342	660.06
Maximum difference	183	0.0645	133.52	295	0.0292	149.55	226	0.0468	106.94

Common varieties included in the 2006 and 2007 Halfway Irrigated Variety Demonstrations

	2006			2007			Average		
Variety	Lint yield lb/acre	Lint loan value $/lb	Lint value $/acre	Lint yield lb/acre	Lint loan value $/lb	Lint value $/acre	Lint yield lb/acre	Lint loan value $/lb	Lint value $/acre
FiberMax 9060F	938	0.5600	524.93	1511	0.5778	873.64	1224	0.5689	696.64
FiberMax 9058F	912	0.5670	517.16	1512	0.5735	866.89	1212	0.5703	691.05
Stoneville 4664RF	900	0.5453	492.39	1448	0.5560	805.55	1174	0.5507	646.48
AFD 5064F	857	0.5287	453.37	1417	0.5505	780.44	1137	0.5396	613.51
NexGen 3550RF	842	0.5385	453.68	1277	0.5755	735.23	1059	0.5570	590.14
Test Average	890	0.5479	488.31	1433	0.5667	812.35	1161	0.5573	647.56
Maximum	938	0.5670	524.93	1512	0.5778	873.64	1224	0.5703	696.64
Minimum	842	0.5287	453.37	1277	0.5505	735.23	1059	0.5396	590.14
Maximum difference	96	0.0383	71.56	234	0.0273	138.42	165	0.0307	106.50

Common varieties included in the 2006 and 2007 Helms Irrigated Variety Demonstrations

	2006			2007			Average		
Variety	Lint yield lb/acre	Lint loan value $/lb	Lint value $/acre	Lint yield lb/acre	Lint loan value $/lb	Lint value $/acre	Lint yield lb/acre	Lint loan value $/lb	Lint value $/acre
Stoneville 4554B2RF	1682	0.5157	867.70	1665	0.5715	950.61	1673	0.5436	909.60
FiberMax 9063B2F	1597	0.5282	846.33	1642	0.5778	948.11	1619	0.5530	895.49
PhytoGen 485WRF	1445	0.5158	745.66	1588	0.5902	936.92	1517	0.5530	838.62
All-Tex Apex B2RF	1553	0.5048	783.64	1537	0.5647	867.31	1545	0.5348	826.19
Test Average	1569	0.5161	810.83	1608	0.5760	925.74	1589	0.5461	867.48
Maximum	1682	0.5282	867.70	1665	0.5902	950.61	1673	0.5530	909.60
Minimum	1445	0.5048	745.66	1537	0.5647	867.31	1517	0.5348	826.19
Maximum difference	236	0.0233	122.04	128	0.0255	83.30	157	0.0182	83.41

Common varieties included in the 2006 and 2007 Moore County Variety Demonstrations

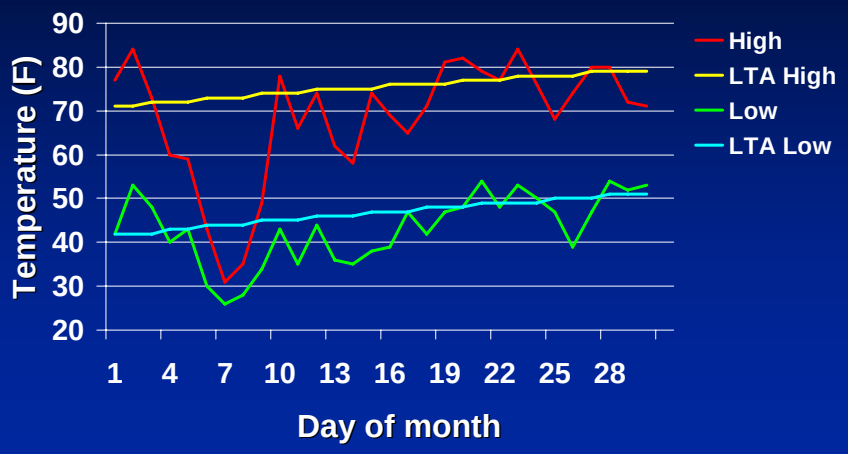
	2006			2007			Average		
Variety	Lint yield lb/acre	Lint loan value $/lb	Lint value $/acre	Lint yield lb/acre	Lint loan value $/lb	Lint value $/acre	Lint yield lb/acre	Lint loan value $/lb	Lint value $/acre
FiberMax 9058F	1412	0.4787	675.00	1366	0.5452	744.75	1389	0.5119	711.05
AFD 5064F	1390	0.5148	714.29	1041	0.5518	574.61	1215	0.5333	648.09
NexGen 3550RF	1354	0.5000	680.58	998	0.5265	525.54	1176	0.5133	603.41
PhytoGen 125RF	1316	0.4958	651.91	1021	0.5282	539.30	1168	0.5120	598.19
Test Average	1368	0.4973	680.45	1106	0.5379	596.05	1237	0.5176	640.18
Maximum	1412	0.5148	714.29	1366	0.5518	744.75	1389	0.5333	711.05
Minimum	1316	0.4787	651.91	998	0.5265	525.54	1168	0.5119	598.19
Maximum difference	96	0.0362	62.38	368	0.0253	219.20	221	0.0214	112.87

Sites Planted but Lost Due to Weather

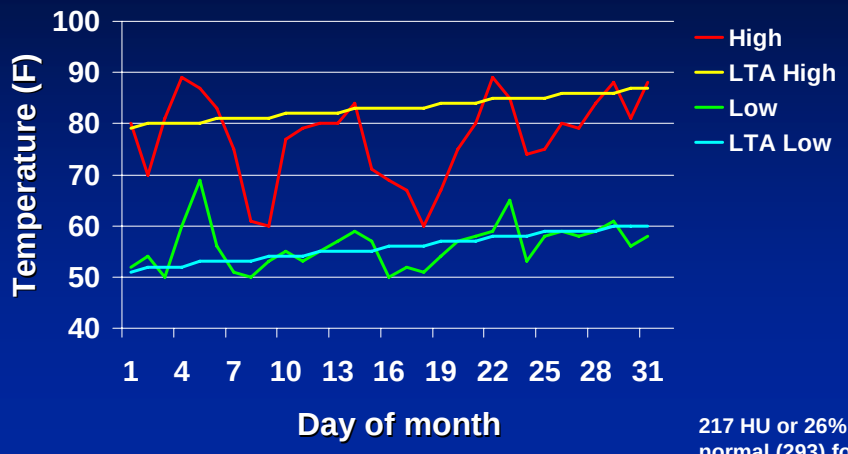
Plot #	Variety	
101	AmeriCot 1532B2RF	
102	AT Summit B2RF	Cooperator: Geoff Cooper
103	FM 989 B2RF	Planted 22 May, 07
104	PHY 485 B2RF	
105	FM 9060 F	
106	DP 147 RF	
107	ST 4554 B2RF	**At Plant Herbicide:**
FILL		0.3 oz Staple
108	FM 9063 B2RF	3.2 oz Caparol
FILL		6.4 oz Triflurin
202	AT Summit B2RF	
204	PHY 485 B2RF	
203	FM 989 B2RF	Curved rows start on North-
205	FM 9060 F	South turnrow and run east to
FILL		
206	DP 147 RF	
208	FM 9063 B2RF	
201	AmeriCot 1532B2RF	
207	ST 4554 B2RF	
308	FM 9063 B2RF	
FILL		
FILL		
304	PHY 485 B2RF	
303	FM 989 B2RF	
301	AmeriCot 1532B2RF	
307	ST 4554 B2RF	
302	AT Summit B2RF	
FILL		
306	DP 147 RF	
305	FM 9060 F	

2007 Lubbock Weather and Crop Information

Lubbock Air Temperatures
April, 2007

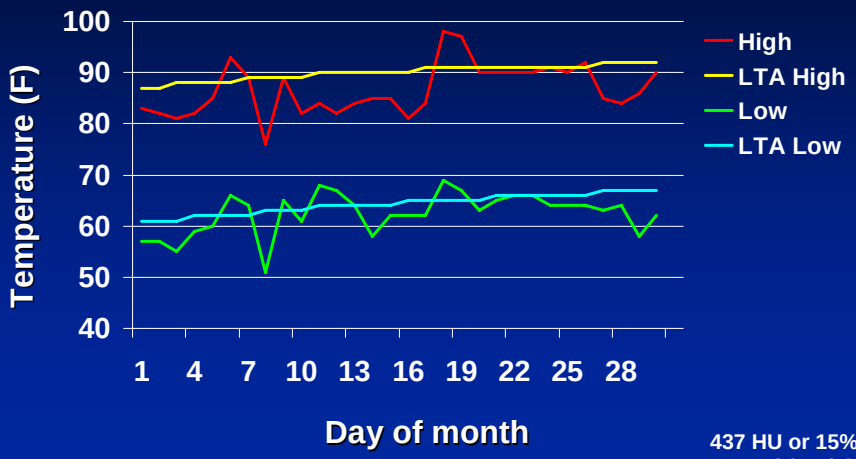


Lubbock Air Temperatures
May, 2007



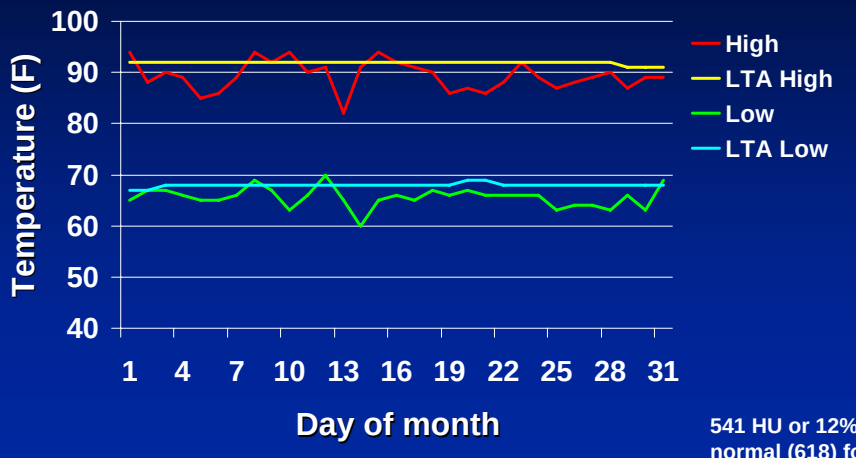
217 HU or 26% below normal (293) for May

Lubbock Air Temperatures
June, 2007



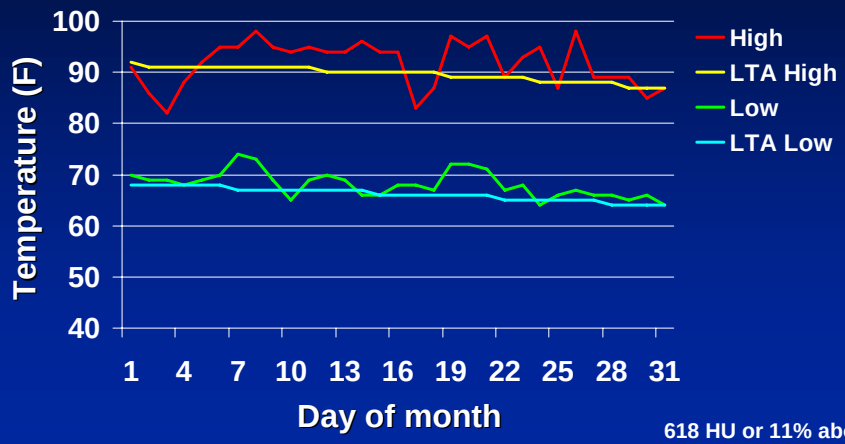
437 HU or 15% below normal (514) for June

Lubbock Air Temperatures
July, 2007



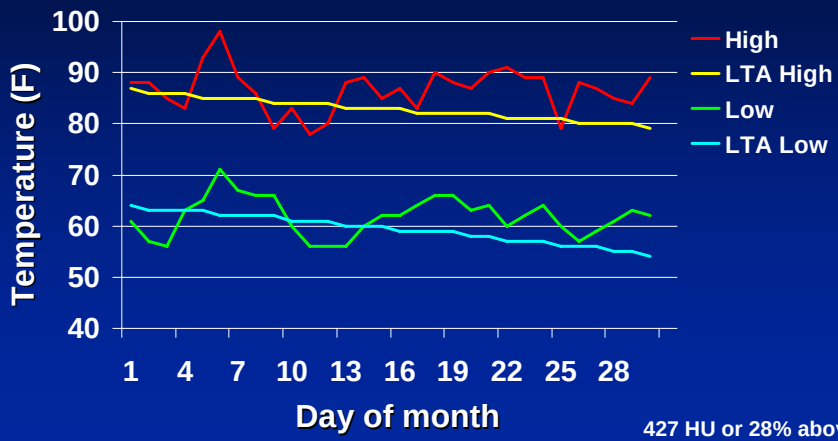
541 HU or 12% below normal (618) for July

Lubbock Air Temperatures
August, 2007



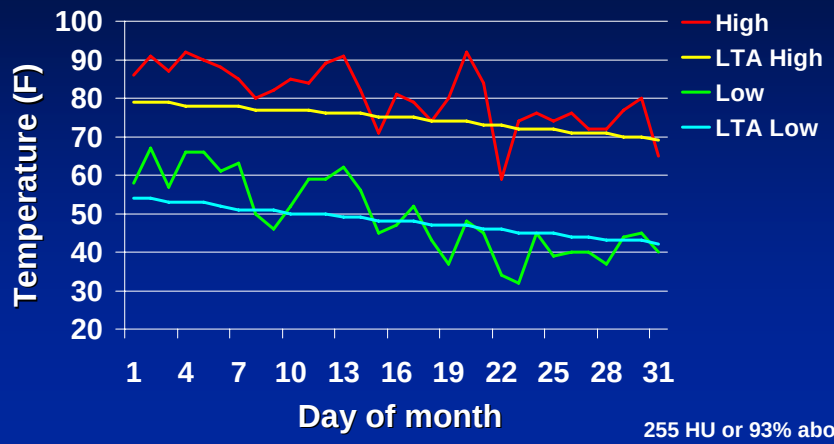
618 HU or 11% above normal (555) for August

Lubbock Air Temperatures
September, 2007



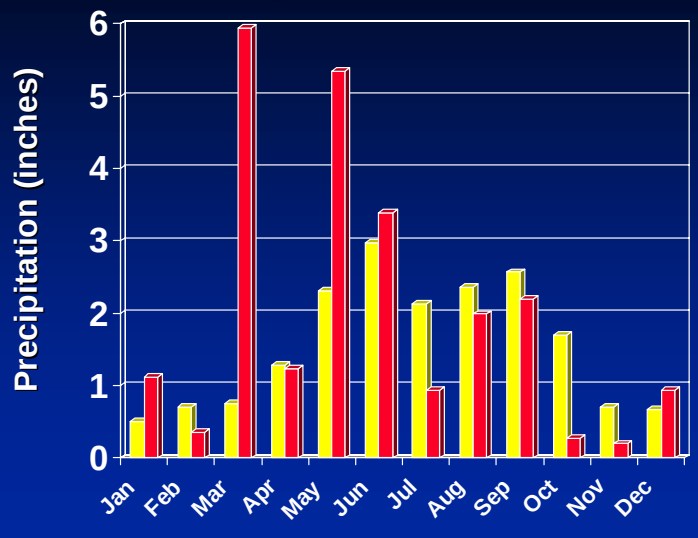
427 HU or 28% above normal (334) for September

Lubbock Air Temperatures
October, 2007



255 HU or 93% above normal (132) for October

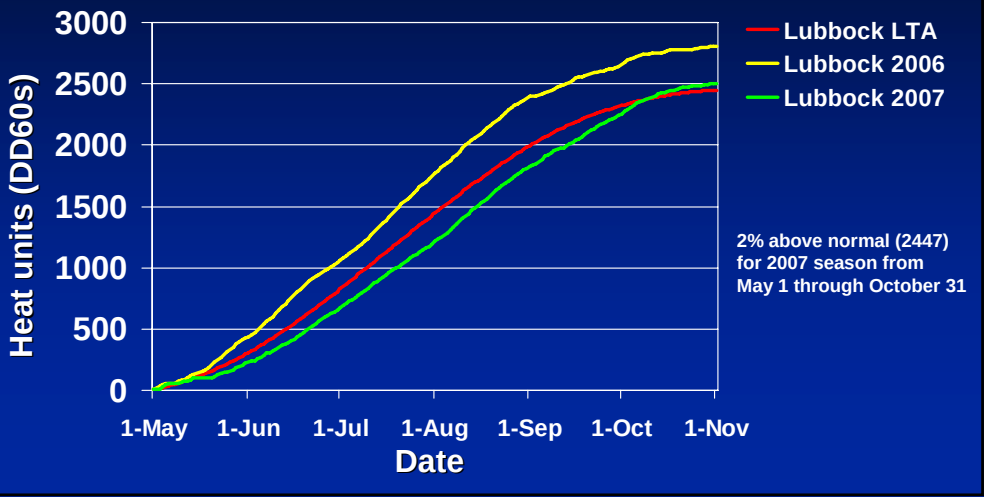
Lubbock LTA (1971-2000) vs. 2007 Rainfall



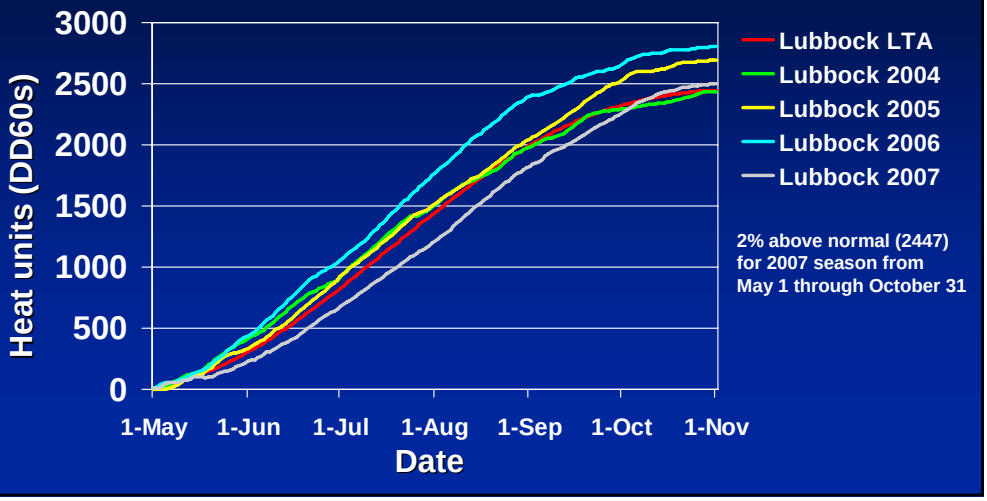
Source: http://www.weather.gov/climate/index.php?wfo=lub

Jan-Jul 2007= 18.33
Jan-Jul LTA = 10.68

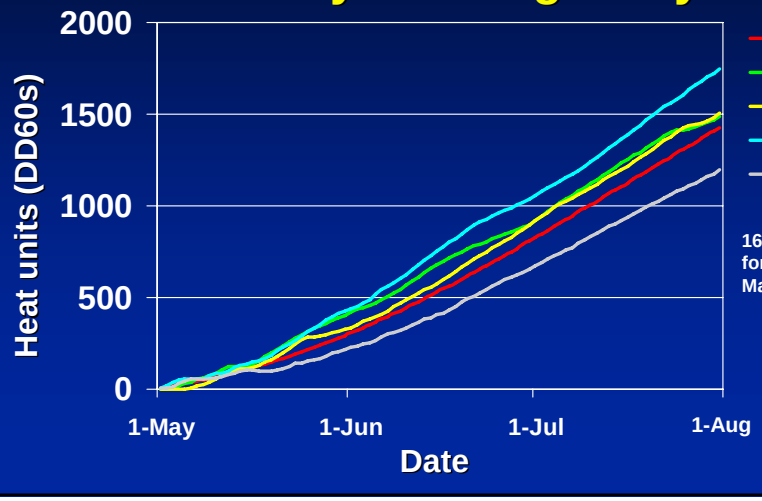
Lubbock 30-Yr Long Term Average (1971-2000) vs. 2006 and 2007 Cotton Heat Unit Accumulation



Lubbock 30-Yr Long Term Average (1971-2000) vs. 2004, 2005, 2006, and 2007 Cotton Heat Unit Accumulation

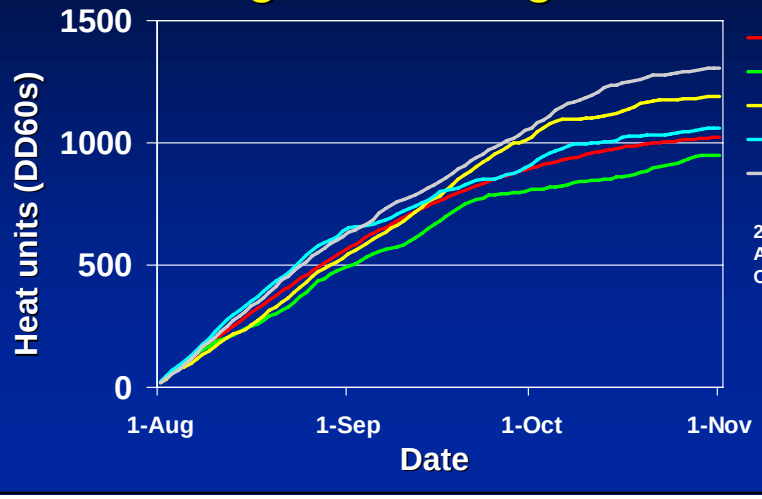


Lubbock 30-Yr Long Term Average (1971-2000) vs. 2004, 2005, 2006, and 2007 Cotton Heat Unit Accumulation From May 1 through July 31



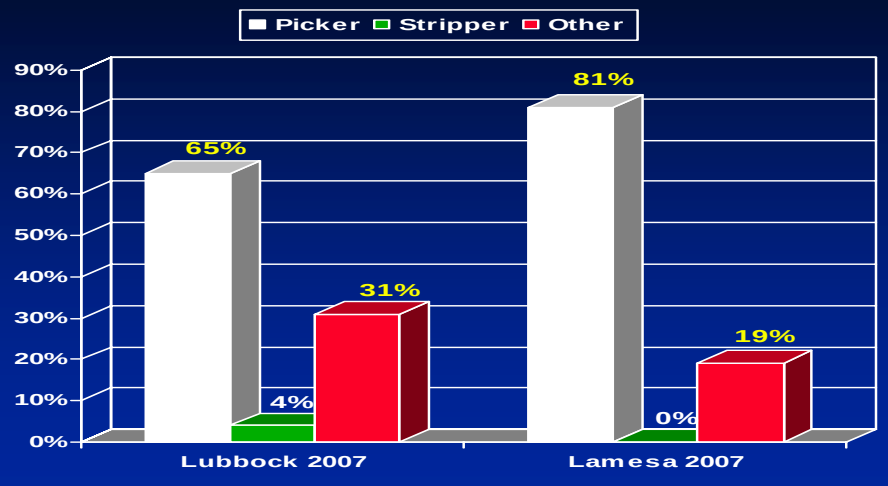
16% below normal (1426) for 2007 season from May 1 through July 31

Lubbock 30-Yr Long Term Average (1971-2000) vs. 2004, 2005, 2006, and 2007 Cotton Heat Unit Accumulation From August 1 through October 31



28% above normal from August 1 through October 31

Varieties Planted in 2007



Source: USDA-AMS Planted Varieties Survey; about 60% identified as transgenic

2007 - 1N and 1S District Estimates

Upland	Planted acres (x 1K)		Harvested acres (x 1K)		Yield (lb/acre)		Production (bales x 1K)	
Cotton	2006	2007	2006	2007	2006	2007	2006	2007
1N	995	590	850	540	889	978	1,575	1,100
1S	2,883	2,600	1,880	2,480	637	838	2,497	4,330
Total	3,878	3,190	2,730	3,020	--	--	4,072	5,430

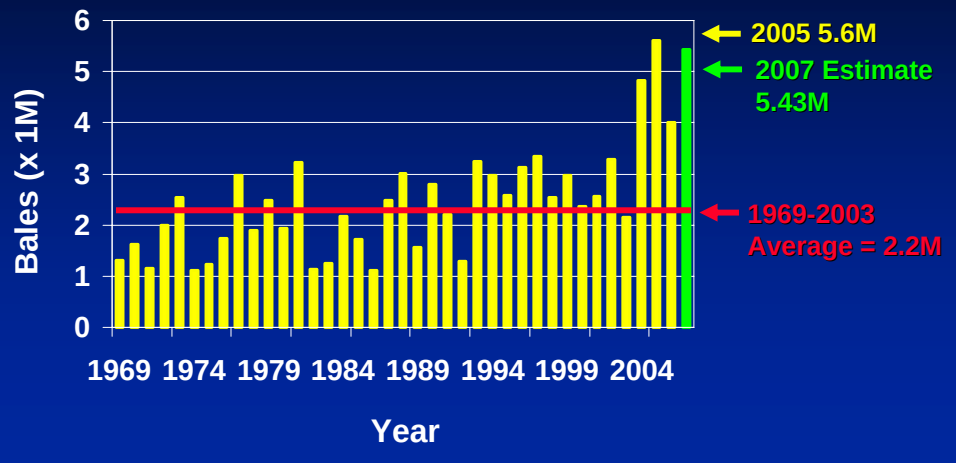
Through Feb 21, 2008

Lubbock Classing Office:	3.669M
Lamesa Classing Office:	1.392M
Total:	5.062M

2007 Crop? Another Record!

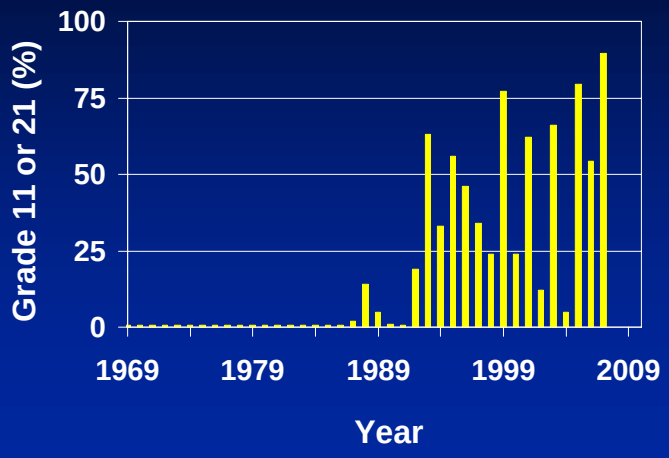
- If TASS estimates hold up, we will harvest 5.43 million bales in 1N and 1S – the 2nd largest crop ever.
- It appears we are on track to have ***overall record quality*** with all fiber properties excellent.
  - A record high for strength at 29.68
  - We will have record loan value

High Plains (TASS 1N and 1S) Total Bale Production 1969-2007



Source: USDA-AMS

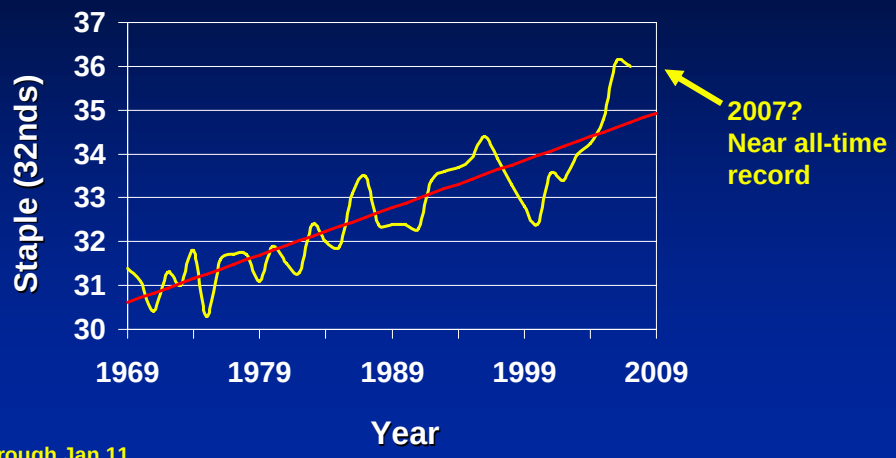
High Plains Color Grades 11 or 21 1969-2007



Source: USDA-AMS

2007 Through Jan 11

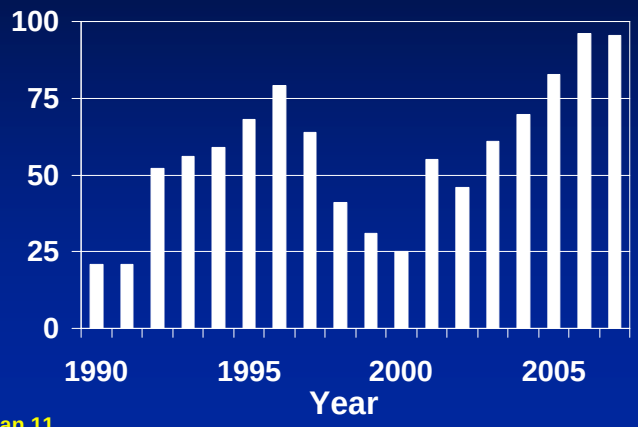
High Plains Average Staple 1969-2007



2007 Through Jan 11

Source: USDA-AMS

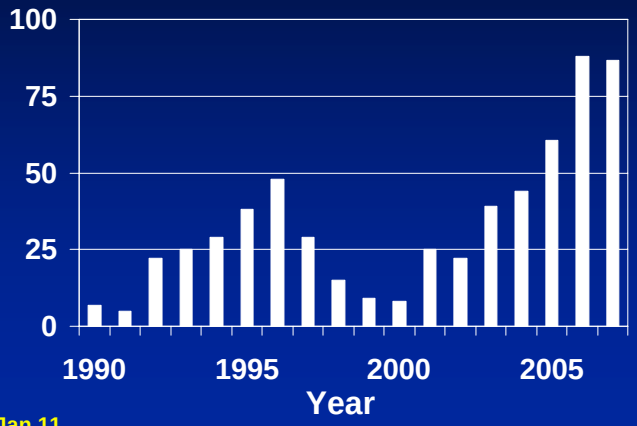
Percent of High Plains Bales with ≥34 Staple 1990-2007



2007 Through Jan 11

Source: USDA-AMS

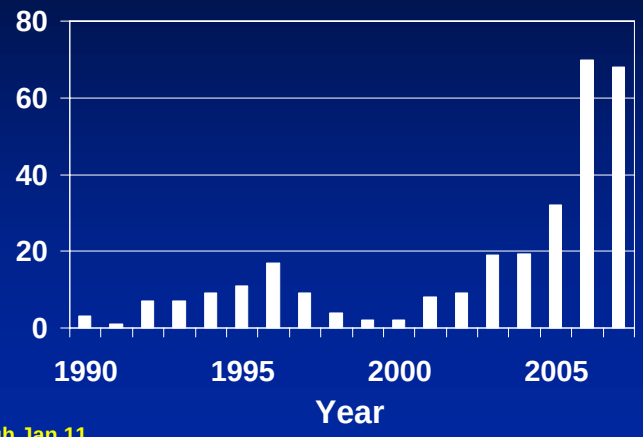
Percent of High Plains Bales with ≥35 Staple 1990-2007



2007 Through Jan 11

Source: USDA-AMS

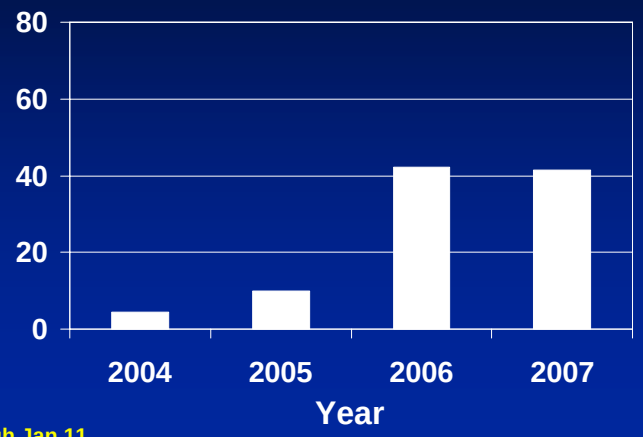
Percent of High Plains Bales with ≥36 Staple 1990-2007



2007 Through Jan 11

Source: USDA-AMS

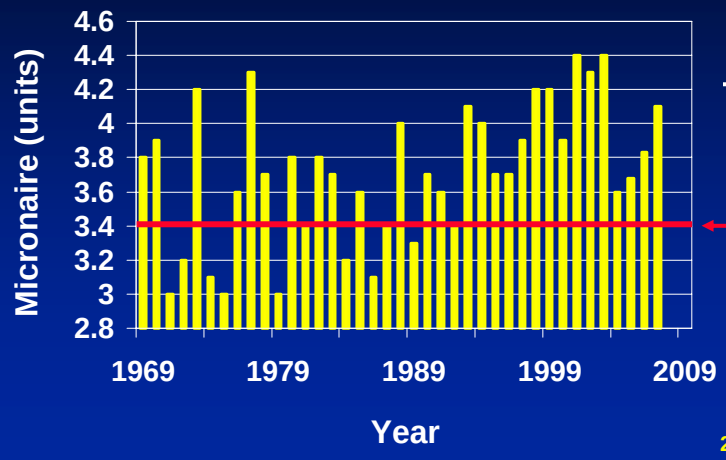
Percent of High Plains Bales with ≥37 Staple 2005-2007



2007 Through Jan 11

Source: USDA-AMS

High Plains Micronaire 1969-2007 (39 Years)



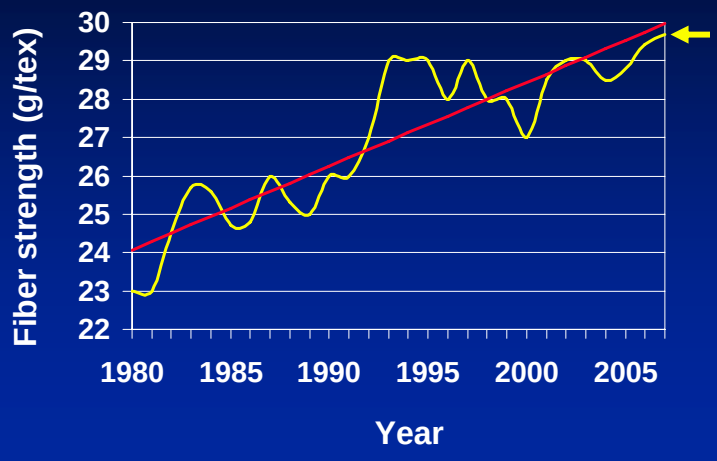
Number of Years	
≤ 3.4	11
≥ 4.0	11

Low mic discount

2007 Through Jan 11

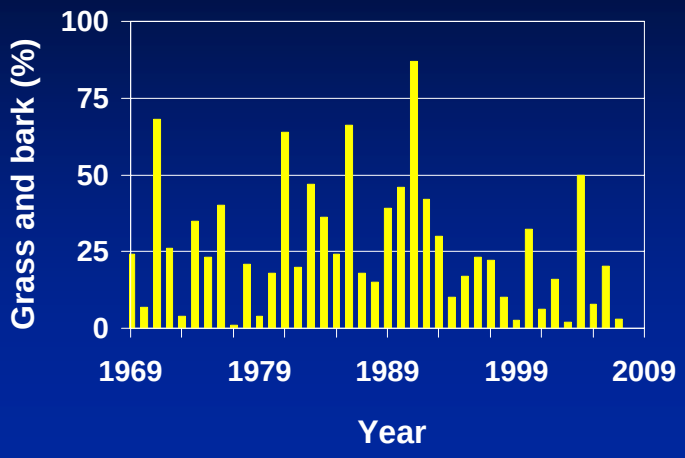
Source: USDA-AMS

High Plains Average Fiber Strength 1980-2007



Source: USDA-AMS

High Plains Grass and Bark 1969-2007



Source: USDA-AMS

High Plains Goal is to Find a Complete "Package" to Reduce Production Risk

- Agronomy
  - Yield stability under all water regimes, quality, storm resistance, plant type (user friendly for stripper harvesting)
  - Maintain diverse herbicide programs and cultivation to minimize potential for weed resistance
- Plant Pathology
  - RKN, fusarium, verticillium and bacterial blight tolerance/resistance/immunity
- Entomology
  - Insect resistance for lepidopteran pests
    - Bollgard, Bollgard II, WideStrike
  - Monsanto/Dow Agro Science pricing makes this attractive

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.