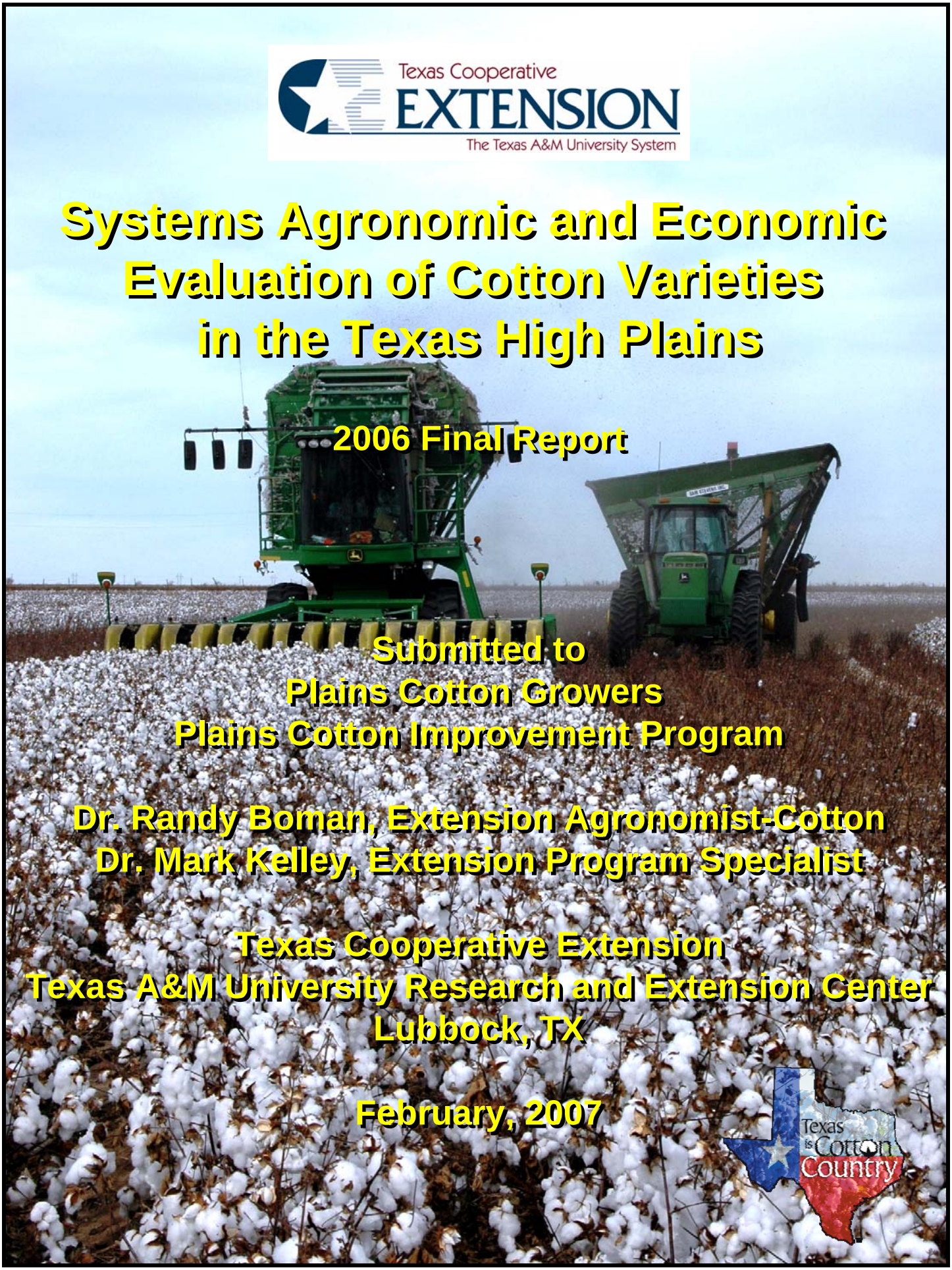

Systems Agronomic and Economic Evaluation of Cotton Varieties in the Texas High Plains

2006 Final Report

Submitted to
Plains Cotton Growers
Plains Cotton Improvement Program

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

Texas Cooperative Extension
Texas A&M University Research and Extension Center
Lubbock, TX

February, 2007

Texas is Cotton Country

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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. Expenses for each herbicide system (Roundup Ready, Roundup Ready Flex, and Liberty Link) were tracked. Three producer-cooperator locations were utilized for this project. Trials were planted in Parmer, Crosby and Yoakum counties. At the Muleshoe location, late-season rainfall and high yields resulted in immature fiber (low micronaire). Verticillium wilt was encountered at this location and adversely affected yield and fiber quality of some varieties. FiberMax 960BR produced the highest net value and was significantly greater than the remaining varieties. FiberMax 9058F was in the second statistical group. The third "statistical tier" included Paymaster 2140B2RF and FiberMax 9063B2F. Of the top four varieties at this location, one was a Bollgard/Roundup Ready type, one was a Roundup Ready Flex type and the other two were Bollgard II with Roundup Ready Flex. At the Blanco location, substantial moisture stress resulted in early cutout and lower yield potential. This was followed by heavy late-season rainfall which resulted in significant new mainstem growth. Short staple and high micronaire was noted for some varieties. Within the statistical “upper tier” of net returns, three varieties produced the same net value (FiberMax 9058F, Deltapine 143B2RF, and Deltapine 455BG/RR). Two of the top three varieties contained Roundup Ready Flex technology, one with Bollgard II technology and one without, while the other contained Bollgard and Roundup Ready transgenic traits. At Plains, considerable growth was observed following late-season rainfall which resulted in excessive plant material (stems and leaves) above the uppermost harvestable bolls for several varieties. This increased variability among varieties and replications. This, in conjunction with verticillium wilt in some areas of the field contributed to greater than normal variation as evidenced by high coefficient of variation (CV) results for measured yield parameters. Within the statistical “upper tier” of net returns, two varieties produced the same net value Paymaster 2140B2RF and FiberMax 960BR. One of the top two varieties contained Bollgard II with Roundup Ready Flex technologies and one contained Bollgard with Roundup Ready technologies. Results from the 2006 production season at varying locations in the Texas High Plains indicate that some Roundup Ready Flex and Roundup Ready Flex/Bollgard II "stacked gene" varieties were competitive with Roundup Ready and Roundup Ready/Bollgard types in terms of production costs and returns. Discounts were observed for high micronaire values at Blanco and low micronaire values at Muleshoe and Plains. These data indicate that substantial differences can be obtained 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 $396 at Muleshoe, $151 at Blanco and $316 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 2 million in 2005. 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; Beltwide Cotton Genetics; Croplan Genetics; Delta and Pine Land/Paymaster; Dyna-Gro; FiberMax/AFD; PhytoGen; Stoneville and NexGen, and others.

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 increased in 2005, with commercialization 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. Current small-plot variety testing programs are inadequate in scale and design to investigate the economic impact of new transgenic varieties with value-added traits. The objective of this project was to evaluate the profitability of cotton varieties in producers' fields in the Texas High Plains.

Materials and Methods

For scientific validity, three replications of each variety were included at each location. Plots were 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). A forced randomization was used at each location. This was a requirement due to the potential for drift of Roundup Original Max and/or Ignite 280 herbicide to adjacent herbicide resistant systems. For example, the Roundup Ready Flex varieties were planted in a contiguous block with a fill variety before the next herbicide system (unless the next system was Roundup Ready). Varieties within the next herbicide system were then planted. Varieties were randomized in each replication and herbicide system, but the forced randomization due to herbicide system was maintained. All fill varieties were treated with conventional herbicides and were not used for data acquisition.

Preplant incorporated and/or preemergence herbicide applications were made at the discretion of the producer-cooperator. Broadcast over-the-top herbicide applications were made using project equipment and personnel or by the cooperator with assistance from project personnel. Ammonium sulfate was used with broadcast and post-directed applications of Roundup Original Max and Ignite 280. Ammonium sulfate cost ($0.42/acre) was used in determining Roundup Ready, Roundup Ready Flex, and Liberty Link systems costs. Post-directed herbicide applications were made by the producer-cooperator with the guidance of project personnel. Weed species spectrum was determined by project personnel working with the cooperator. Control of weed escapes (hoeing and/or spot spraying) was performed by cooperator employees.

In-season 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 (Parmer County)
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 9 at 4.2 seed/per row-ft

Harvest aid program: October 13, 32.0 oz/acre Prep + 16.0 oz/acre Def followed by 32.0 oz/acre Gramoxone Inteon + 8.0 oz/acre Crop Oil on October 27

Harvested: November 9, 2006

Blanket Weed Control Program: $30.30/acre

Dominant weed species: pigweed, kochia, johnsongrass, morningglory, volunteer corn

The whole field was treated with 2.0 pt/acre of trifluralin preplant incorporated on March 1. An additional 1.0 pt/acre of Direx (diuron) was banded (15" band) across all varieties at planting.

Specific herbicide systems costs included:

Liberty Link variety: 32 oz/acre Ignite 280 in 20 GPA over-the-top applications on June 5, and July 29, with 17 lbs ammonium sulfate per 100 gallons of spray solution.

Roundup Ready varieties: 22 oz/acre Roundup Original Max at 10 GPA on June 5, over-the-top application with 17 lb of ammonium sulfate per 100 gallons of spray solution.

Roundup Ready Flex varieties: 22 oz/acre Roundup Original Max in 10 GPA over-the-top applications on June 5, and July 29, with 17 lbs of ammonium sulfate per 100 gallons of spray solution.

No cultivation was conducted at this site; however, a blanket hoeing took place on August 10 at a cost of $6.00/acre.

Temik was applied in-furrow at planting at 3.75 lb/acre.

Acephate was applied at 5.5 oz/acre for thrips control on June 5 with the Roundup Original Max and Ignite 280 applications. Karate was aerially applied at 3.7 oz/acre for bollworms with Trimax Pro at 0.9 oz/acre for aphids and 32 oz/acre of Crop Oil on August 22. This location was in an active boll weevil eradication zone, but no applications were made by the Texas Boll Weevil Eradication Foundation.

Mepiquat chloride applications included Pix at 5.0 oz/acre with 2.0 oz/acre Activator 90 on July 1 followed by another application on July 14 of 7.0 oz/acre Pix with 2.0 oz/acre Activator 90.

Varieties planted at this site included:

1. FiberMax 9058F
2. Deltapine 117B2RF
3. Paymaster 2140B2RF
4. FiberMax 9063B2F
5. Stoneville 4357B2RF
6. Beltwide Cotton Genetics 3255B2F
7. FiberMax 960BR
8. Stoneville NexGen 1553R
9. Americot 821R
10. FiberMax 955LLB2

Location 2 – Blanco (Crosby County)

Appling Farm, near Blanco (Crosby County)
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 8 at 3.6 seed/per row-ft

Harvest aid program: October 10, 1.5 oz/acre ET with 8 oz/acre crop oil followed by 16 oz/acre Gramoxone Inteon with 7.7 oz/acre non-ionic surfactant on October 21

Harvested: October 30 and 31, 2006

Blanket weed control program: $18.17/acre

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

The entire test was treated with 1 qt/acre trifluralin applied preplant incorporated on March 15. An additional 1 qt/acre rate of Direx (diuron) was banded (15" band) across all varieties at planting.

Specific herbicide systems costs included:

Roundup Ready Flex varieties: 22 oz/acre Roundup Original Max at 10 GPA on June 15, July 13 and August 2, over-the-top applications with 17 lb of ammonium sulfate per 100 gallons of spray solution.

Roundup Ready varieties: 22 oz/acre Roundup Original Max in 10 GPA over-the-top application on June 15 with 17 lbs of ammonium sulfate per 100 gallons of spray solution. Post-direct applications of 22 oz/acre Roundup Original Max with 17 lbs of ammonium sulfate per 100 gallons of spray solution were applied at a rate of 10 GPA on July 13 and August 2.

One cultivation to replace furrow dikes occurred but no hoeing was done at this site.

No mepiquat chloride growth regulators were used at this site.

No insecticides were applied at this site. This location was in an active boll weevil eradication zone, but no applications were made by the Texas Boll Weevil Eradication Foundation.

Varieties planted at this site included:

1. Stoneville NexGen 2448R
2. Americot 821R
3. Deltapine 455 BG/RR
4. Beltwide Cotton Genetics 9775B2F
5. Beltwide Cotton Genetics 2038B2F
6. Deltapine 117B2RF
7. Deltapine 143B2RF
8. FiberMax 9063B2F
9. All-Tex Apex B2RF
10. All-Tex Summit B2RF
11. PhytoGen 485WRF
12. Stoneville NexGen 3550RF
13. FiberMax 9058F
14. FiberMax 9068F
15. AFD 5064F

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 23 at 4 seed/per row-ft

Harvest aid program: October 14, 32 oz/acre Finish 6 Pro with 16 oz/acre Def 6

Harvested: December 5 and 6, 2006

Blanket Weed Control Program: $14.55/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 15. Trifluralin at 4.0 oz/acre plus prometryn at 6.0 oz/acre with 0.2 oz/acre Staple LX were applied on a 10-inch band over the row across all varieties at planting.

No cultivation or hoeing was conducted at this site.

Specific herbicide systems costs included:

Roundup Ready, Roundup Ready Flex and "Stacked Gene" varieties: 22 oz/acre Roundup Original Max in 10 GPA was applied on June 17 over-the-top with 17 lb of ammonium sulfate per 100 gallons of spray solution.

Temik was applied in-furrow at planting at 4 lb/acre. No other insecticides were used at this location.

No mepiquat chloride plant growth regulators were applied at this site.

This location was in an active boll weevil eradication zone, but no applications were made by the Texas Boll Weevil Eradication Foundation.

Varieties planted at this site included:

1. FiberMax 9058F
2. PhytoGen 425RF
3. Deltapine 147RF
4. Stoneville NexGen 3550RF
5. Stoneville 4664RF
6. FiberMax 960BR
7. FiberMax 960B2R
8. FiberMax 9063B2F
9. PhytoGen 485WRF
10. Beltwide Cotton Genetics 9775B2F
11. Beltwide Cotton Genetics 2038B2F
12. Americot 1532B2RF
13. All-Tex Apex B2RF
14. All-Tex Summit B2RF
15. Deltapine 143B2RF
16. Deltapine 117B2RF
17. Paymaster 2140B2RF
18. Stoneville 4664B2RF

Results

Agronomic and economic results as well as summaries of the expenses and associated systems costs by location and variety are provided in Tables 1-15.

Location 1 - Muleshoe

The early and late-season growth characteristics are presented in Tables 1 and 2. Plant stands averaged about 54,000 plants/acre on June 7. Notably lower stands were observed for FiberMax 955LLB2 and Paymaster 2140B2RF; however, other varieties were reasonably similar. Plant mapping conducted on October 6 indicated no significant differences among varieties for node of first sympodium with a test average of 6. Small differences for plant heights and height to node ratios were noted. Significant differences were noted for total nodes, with FiberMax 955LLB2, Americot 821R and FiberMax 9063B2F having the most total nodes. Significant differences were observed for first position fruit retention, with FiberMax 960BR and Stoneville 4357B2RF exhibiting the lowest retention. Significant differences were observed among varieties for nodes above white flower (NAWF) on August 4 and 10 with FiberMax 955LLB2 having the highest number of NAWF and Stoneville NexGen 1553R having the lowest at both observation dates.

Verticillium wilt was encountered at this location and adversely affected yield and fiber quality of some varieties. Commercial turnouts of non field cleaned bur cotton ranged from 19.2% for FiberMax 955LLB2 to 26.3% for FiberMax 960BR (Table 3). Bur cotton yields ranged from 5423 lb/acre for Stoneville NexGen 1553R to 6883 lb/acre for FiberMax 960BR. This resulted in lint yields ranging from 1122 lb/acre for FiberMax 955LLB2 to 1809 lb/acre for FiberMax 960BR. Lint loan values derived from USDA-AMS classing results of the bales obtained in the project indicated that values ranged from $0.4392 for Deltapine 117B2RF to $0.4887 for FiberMax 960BR. Loan value discounts were attributed to low micronaire, lower uniformity, leaf, and bark content for some varieties (Table 4). After totaling lint and seed value per acre and subtracting out ginning costs and system-specific costs (Table 5), the net value per acre ranged from a low of $408.49/acre for FiberMax 955LLB2 to $804.94/acre for FiberMax 960BR, a difference of $396.45. FiberMax 960BR resulted in the highest net value and was significantly greater than the remaining varieties. FiberMax 9058F, with a net value of $667.11, was in the second statistical group with Paymaster 2140B2RF and FiberMax 9063B2F in the third tier ($609.16 and $580.42, respectively). Two of the top four varieties were Roundup Ready Flex/Bollgard II types (FiberMax 9063B2F and Paymaster 2140B2RF). One FiberMax Liberty Link variety (955LLB2) was evaluated at this location and had the lowest net value with $408.49. Low average micronaire (2.3 to 2.7) was encountered for all varieties at this location. This resulted in discounts as high as 1055 points. The highest average micronaire value (2.7) was produced by FiberMax 960BR and Paymaster 2140B2RF. Staple ranged from a high of 37.5 (FiberMax 9063B2F) to a low of 34.2 (Americot 821R). Leaf grades 4 were observed in bales from Deltapine 117B2RF (6 of 6), FiberMax 9063B2F (1 of 6), and Paymaster 2140B2RF (2 of 6). One bale from FiberMax 960BR, Stoneville NexGen 1553R, and Deltapine 117B2RF contained bark (220 point discount).

Location 2 – Blanco

This site encountered significant moisture stress during the growing season. Lack of subsoil moisture resulted in high stress initially and subsequently throughout the growing season. Since little rainfall was obtained early in the season, yield potential was reduced due to low irrigation capacity at this site. Plant stand counts obtained on June 6 averaged 33,617 with a high of 38,071 for Beltwide Cotton Genetics 9775B2F and a low of 27,007 for FiberMax 9068F (Table 6). **Late-season rainfall occurred in late August/early September and resulted in initiation of post-cutout mainstem growth and high plant-to-plant variability in the field. Considerable growth was observed following late-**

season rainfall which resulted in excessive plant material (stems and leaves) above the uppermost harvestable bolls for several varieties. No significant differences were observed among varieties for any of the plant map parameters measured on September 26 (Table 7).

Commercial turnouts of non field cleaned bur cotton ranged from 18.8% for Stoneville NexGen 2448R to 30.0% for Deltapine 117B2RF (Table 8). Bur cotton yields ranged from 1752 lb/acre for Stoneville NexGen 3550RF to a high of 2166 lb/acre for All-Tex Apex B2RF. This resulted in lint yields ranging from 338 lb/acre for Stoneville NexGen 2448R to 570 lb/acre for Deltapine 117B2RF. Lint loan values derived from USDA-AMS classing results of the bales obtained in the project show that values ranged from $0.4540 for Deltapine 117B2RF to $0.5744 for Deltapine 455BG/RR. Loan value discounts were attributed to high micronaire values for most varieties (Table 9) and short staple and/or high leaf grades for some others. After totaling lint and seed value per acre and subtracting out ginning costs and system-specific costs (Table 10), the net value per acre ranged from a low of $102.05/acre for Stoneville NexGen 2448R to $252.80/acre for FiberMax 9058F, a difference of $150.75. Within the statistical "upper tier" of net returns, three varieties produced the same net value (FiberMax 9058F, Deltapine 143B2RF, and Deltapine 455BG/RR). Two of the top three varieties contained Roundup Ready Flex technology, one with Bollgard II technology and one without, while the other contained Bollgard and Roundup Ready transgenic traits. Significant weed densities requiring three Roundup Original Max applications resulted in overall lower net returns at this location.

Location 3 – Plains

The early and late-season growth characteristics are presented in tables 11 and 12. Plant stands averaged about 43,000 plants/acre on June 27. Stands ranged from a low of 37,462 for FiberMax 960B2R to a high of 48,787 for PhytoGen 425RF. Plant mapping conducted on August 16-18 indicated no significant differences among varieties for node of first sympodium. Plant heights ranged from a low of 24.0 inches for the stripper variety Paymaster 2140B2RF to a high of 33.4 inches for PhytoGen 425RF. Height to node ratios ranged from a low of 1.35 for Paymaster 2140B2RF to a high of 1.78 for PhytoGen 425RF and Stoneville 4664RF. Differences in total nodes were observed and ranged from a low of 17.1 for All-Tex Summit B2RF to a high of 20.8 for Stoneville NexGen 3550RF. Significant differences were noted for late-season first and second position fruit retention. Beltwide Cotton Genetics 9775B2F had the highest first position retention with 62.1% while Stoneville NexGen 3550RF had the lowest with 37.2%. For second position fruit retention, PhytoGen 485WRF had the highest with 35.3% and FiberMax 960BR with 16.0% was the lowest. On August 14, NAWF ranged from a low of 4.3 for FiberMax 960B2R to a high of 5.5 for PhytoGen 485WRF, both picker types.

At this location, considerable growth was observed following late season rainfall which resulted in excessive plant material (stems and leaves) above the uppermost harvestable bolls for several varieties. This increased variability among varieties and replications. This, in conjunction with verticillium wilt in some areas in the field contributed to greater than normal variation as evidenced by high coefficient of variation (CV) results for measured yield parameters. Relatively low commercial turnouts of field-cleaned bur cotton were observed. Values ranged from a low of 20.5% for PhytoGen 485WRF to 27.4% for Paymaster 2140B2RF (Table 13). Bur cotton yields ranged from 3660 lb/acre for Stoneville 4664RF to a high of 4933 lb/acre for FiberMax 960BR. Lint yields ranged from 801 lb/acre for Stoneville 4664RF to 1345 lb/acre for Paymaster 2140B2RF with a test average of 1036 lb/acre. Lint loan values derived from USDA-AMS classing results of the bales obtained in the project indicated that values ranged from $0.4153 for PhytoGen 485WRF to $0.5083 for FiberMax 9063B2F. Loan value discounts were attributed to low micronaire, strength and uniformity values, high leaf grades for some entries, as well as high incidence of bark contamination for most varieties (Table 14). After totaling lint and seed value per acre and subtracting out ginning costs and system-specific costs (Table 15), the net value per acre ranged from a low of $282.75 for Deltapine 147RF to $598.75 for Paymaster 2140B2RF, a difference of $316.00. Within the

statistical “upper tier” of net returns, two varieties produced the same net value Paymaster 2140B2RF and FiberMax 960BR. One of the top two varieties contained Bollgard II with Roundup Ready Flex technologies and one contained Bollgard with Roundup Ready technologies. Relatively low weed pressure required only one Roundup Original Max application and resulted in overall lower system-specific costs at this location.

Summary and Conclusions

In 2006 (a year characterized by limited rainfall, ample heat units for most of the growing season, but a cooler than normal September) some important variety differences were noted.

At the Muleshoe location, late-season rainfall and high yields resulted in immature fiber (low micronaire). Verticillium wilt was encountered at this location and adversely affected yield and fiber quality of some varieties. FiberMax 960BR produced the highest net value and was significantly greater than the remaining varieties. FiberMax 9058F was in the second statistical group. The third "statistical tier" included Paymaster 2140B2RF and FiberMax 9063B2F. Of the top four varieties at this location, one was a Bollgard/Roundup Ready type, one was a Roundup Ready Flex type and the other two were Bollgard II with Roundup Ready Flex.

At the Blanco location, substantial moisture stress resulted in early cutout and lower yield potential. This was followed by heavy late-season rainfall which resulted in significant new mainstem growth. Short staple and high micronaire was noted for some varieties. Within the statistical “upper tier” of net returns, three varieties produced the same net value (FiberMax 9058F, Deltapine 143B2RF, and Deltapine 455BG/RR). Two of the top three varieties contained Roundup Ready Flex technology, one with Bollgard II technology and one without, while the other contained Bollgard and Roundup Ready transgenic traits.

At Plains, considerable growth was observed following late-season rainfall which resulted in excessive plant material (stems and leaves) above the uppermost harvestable bolls for several varieties. This increased variability among varieties and replications. This, in conjunction with verticillium wilt in some areas of the field contributed to greater than normal variation as evidenced by high coefficient of variation (CV) results for measured yield parameters. Within the statistical “upper tier” of net returns, two varieties produced the same net value Paymaster 2140B2RF and FiberMax 960BR. One of the top two varieties contained Bollgard II with Roundup Ready Flex technologies and one contained Bollgard with Roundup Ready technologies.

Results from the 2006 production season at varying locations in the Texas High Plains indicate that some Roundup Ready Flex and Roundup Ready Flex/Bollgard II "stacked gene" varieties were competitive with Roundup Ready and Roundup Ready/Bollgard types in terms of production costs and returns. Discounts were observed for high micronaire values at Blanco and low micronaire values at Muleshoe and Plains. Loan discounts were also observed at Plains for bark contamination. These data indicate that substantial differences can be obtained 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 $396 at Muleshoe, $151 at Blanco and $316 at Plains. Additional multi-site and multi-year applied research is needed to evaluate varieties across a series of environments.

Table 1. Stand count, vigor and nodes above white flower (NAWF) results from the irrigated large plot replicated systems trial, Brown Farm, Muleshoe, TX, 2006.

Entry	7-Jun		7-Jun			4-Aug	10-Aug
	Plants/row ft	Plants/acre	height inches	mainstem nodes	vigor index	NAWF	NAWF
FiberMax 960BR	3.2	54,479	2.5	3.1	0.79	3.9	3.1
FiberMax 9058F	3.2	55,292	2.4	3.0	0.80	4.1	3.3
Paymaster 2140B2RF	2.8	48,903	2.5	2.5	0.97	3.3	2.8
FiberMax 9063B2F	3.2	55,873	2.4	2.5	0.97	4.2	4.1
Stoneville NexGen 1553R	3.0	51,691	2.7	3.2	0.84	2.8	2.4
Beltwide Cotton Genetics 3255B2F	3.3	57,615	2.5	2.2	1.09	4.0	3.8
Americot 821R	3.0	53,550	2.3	2.2	1.04	4.1	3.6
Deltapine 117B2RF	3.5	61,797	2.4	3.0	0.78	4.1	3.4
Stoneville 4357B2RF	3.2	56,221	2.4	2.4	0.99	4.3	3.3
FiberMax 955LLB2	2.8	48,439	2.4	2.3	1.04	4.6	4.5
Test average	3.1	54,386	2.4	2.6	0.93	3.9	3.4
CV, %	6.4	6.4	6.7	11.0	13.1	10.4	12.2
OSL	0.0047	0.0058	0.5113	0.0011	0.0318	0.0025	0.0004
LSD	0.3	5,953	NS	0.5	0.21	0.7	0.7

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, Brown Farm, Muleshoe, TX, 2006

Entry	Plant height	Node of first fruiting branch	Fruiting nodes	Mainstem nodes	Height to node	Fruit retention	
						First position	Second position
	inches	node number	total/plant	total/plant	ratio	percent	percent
FiberMax 960BR	21.8	5.8	8.2	13.0	1.69	44.0	41.9
FiberMax 9058F	23.0	6.5	8.2	13.7	1.68	49.0	39.3
Paymaster 2140B2RF	19.9	5.8	7.7	12.5	1.62	67.8	40.1
FiberMax 9063B2F	24.4	6.7	9.0	14.7	1.67	48.6	40.6
Stoneville NexGen 1553R	22.7	5.6	7.9	12.4	1.84	73.9	46.9
Beltwide Cotton Genetics 3255B2F	22.3	5.9	8.3	13.2	1.69	60.9	32.8
Americot 821R	26.7	5.8	9.7	14.5	1.88	59.6	42.0
Deltapine 117B2RF	22.2	6.1	7.4	12.5	1.81	61.7	35.5
Stoneville 4357B2RF	23.4	5.7	7.2	11.9	1.99	44.2	40.3
FiberMax 955LLB2	22.7	6.3	9.7	15.1	1.53	64.9	44.4
Test average	22.9	6.0	8.3	13.4	1.7	57.5	40.4
CV, %	7.4	8.2	8.9	5.0	6.8	21.6	20.9
OSL	0.0150	0.1210	0.0037	<0.0001	0.0061	0.0849†	0.7147
LSD	2.9	NS	1.3	1.1	0.20	17.6	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, Brown Farm, Muleshoe, TX, 2006.

Entry	Commercial turnout	Bur cotton yield	Lint yield	Seed yield	Seed	Lint loan value	Lint value	Seed value	Total value	Ginning cost	Systems cost	Net value	
	%	lb/acre	lb/acre	lb/acre	lb/bale	$/lb	$/acre	$/acre	$/acre	$/acre	$/acre	$/acre	
FiberMax 960BR	26.3	6883	1809	2483	659	0.4887	884.04	155.18	1039.22	168.63	65.65	804.94	a
FiberMax 9058F	24.7	6434	1589	2301	695	0.4738	752.99	143.77	896.76	157.63	72.02	667.11	b
Paymaster 2140B2RF	24.6	5997	1473	2189	713	0.4763	701.54	136.83	838.36	146.91	82.29	609.16	c
FiberMax 9063B2F	23.2	6120	1419	2241	758	0.4742	673.00	140.08	813.08	149.93	82.73	580.42	c
Stoneville NexGen 1553R	24.4	5423	1324	1925	698	0.4593	608.39	120.32	728.72	132.86	52.43	543.43	d
Beltwide Cotton Genetics 3255B2F	22.4	6215	1391	2276	785	0.4493	625.06	142.25	767.31	152.27	87.06	527.98	de
Americot 821R	21.6	5720	1238	1952	757	0.4536	561.29	122.00	683.29	140.13	38.63	504.53	e
Deltapine 117B2RF	23.0	5718	1315	2008	733	0.4392	577.40	125.50	702.90	140.09	90.19	472.62	f
Stoneville 4357B2RF	20.3	5985	1213	2035	805	0.4563	553.42	127.16	680.58	146.63	88.16	445.79	f
FiberMax 955LLB2	19.2	5855	1122	1981	847	0.4626	519.32	123.77	643.09	143.45	91.16	408.49	g
Test mean	23.0	6035	1389	2139	745	0.4633	645.64	133.69	779.33	147.85	75.03	556.45	
CV, %	--	2.8	2.9	2.8	--	--	2.9	2.8	2.9	2.8	--	3.3	
OSL	--	<0.0001	<0.0001	<0.0001	--	--	<0.0001	<0.0001	<0.0001	<0.0001	--	<0.0001	
LSD	--	289	68	103	--	--	31.88	6.43	38.28	7.07	--	31.26	

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.
$125/ton for seed.
Value for lint based on CCC loan value from USDA-AMS HVI results.

Table 4. USDA-AMS classing results of commercially ginned bales from the irrigated large plot replicated systems trial, Brown Farm, Muleshoe, TX 2006

Entry		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
FiberMax 960BR	Mean	1.0	1.0	35.4	2.1	2.7	1/8	84.0	8.1	109.9	29.0	79.8	0.4887
	Std Dev	0.0	0.0	0.9	0.4	0.1		0.0	0.2	2.2	1.0	0.6	0.0270
FiberMax 9058F	Mean	1.6	1.0	37.1	2.9	2.5	0/9	83.0	7.7	116.1	27.5	77.5	0.4738
	Std Dev	0.5	0.0	0.3	0.3	0.1		0.0	0.1	1.7	0.9	0.9	0.0067
Paymaster 2140B2RF	Mean	2.0	1.0	35.2	3.3	2.7	0/6	80.8	7.8	109.5	26.6	79.4	0.4763
	Std Dev	0.0	0.0	1.2	0.5	0.1		0.4	0.1	3.3	1.0	1.4	0.0090
FiberMax 9063B2F	Mean	1.2	1.0	37.5	2.8	2.5	0/6	83.5	8.1	116.8	28.1	78.5	0.4742
	Std Dev	0.4	0.0	0.8	0.8	0.1		0.8	0.1	2.6	0.9	1.1	0.0124
Stoneville NexGen 1553R	Mean	1.7	1.0	35.7	3.0	2.4	1/6	81.2	8.5	110.8	28.2	78.7	0.4593
	Std Dev	0.5	0.0	1.0	0.0	0.1		0.4	0.2	2.3	1.0	1.7	0.0184
Beltwide Cotton Genetics 3255B2F	Mean	1.0	1.0	35.2	2.7	2.4	0/6	83.0	8.4	109.2	24.0	77.8	0.4493
	Std Dev	0.0	0.0	0.8	0.5	0.1		0.6	0.1	1.6	0.5	0.9	0.0108
Americot 821R	Mean	1.5	1.0	34.2	2.5	2.5	0/6	80.7	8.6	107.3	26.4	78.3	0.4536
	Std Dev	0.8	0.0	0.8	0.5	0.6		1.0	0.4	2.3	1.9	1.7	0.0583
Deltapine 117B2RF	Mean	2.2	1.0	36.0	4.0	2.4	1/6	79.0	8.4	113.0	28.0	77.3	0.4392
	Std Dev	0.4	0.0	0.0	0.0	0.1		0.0	0.1	0.0	0.8	0.7	0.0040
Stoneville 4357B2RF	Mean	1.0	1.0	36.4	2.4	2.3	0/5	82.4	8.4	113.0	24.0	76.3	0.4563
	Std Dev	0.0	0.0	0.5	0.5	0.0		0.5	0.2	1.0	1.0	1.0	0.0056
FiberMax 955LLB2	Mean	1.0	1.0	37.0	2.6	2.3	0/5	83.0	7.9	116.0	25.7	77.3	0.4626
	Std Dev	0.0	0.0	0.0	0.5	0.1		0.0	0.2	1.4	1.1	0.5	0.0104

Table 5. Expenses incurred for the irrigated large plot replicated systems trial, Brown Farm, Muleshoe, TX, 2006.

Entry	Seed cost/bag	Tech fees/bag	Total cost/bag	Seed & tech fee/ac	Herb apps	Herb app cost/ac	Roundup Original MAX[1] cost/ac	Ignite 280 cost/ac	Systems cost/ac
FiberMax 9058F	80.45	109.10	189.55	51.06	2	9.50	11.46	--	72.02
Deltapine 117B2RF	116.95	156.30	273.25	69.23	2	9.50	11.46	--	90.19
Paymaster 2140B2RF	89.95	156.30	246.25	61.33	2	9.50	11.46	--	82.29
FiberMax 9063B2F	80.45	137.50	217.95	61.77	2	9.50	11.46	--	82.73
Stoneville 4357B2RF	101.20	143.80	245.00	67.20	2	9.50	11.46	--	88.16
Beltwide Cotton Genetics 3255B2F	97.75	143.80	241.55	66.10	2	9.50	11.46	--	87.06
FiberMax 960BR	80.45	116.50	196.95	55.17	1	4.75	5.73	--	65.65
Stoneville NexGen 1553R	69.00	69.80	138.80	41.95	1	4.75	5.73	--	52.43
Americot 821R	29.50	94.60	124.10	28.15	1	4.75	5.73	--	38.63
FiberMax 955LLB2	140.00	36.70	176.70	64.82	2	9.50	--	16.84	91.16

30 inch rows
4.2 seed/row-ft
73,000 seed/ac

4.75

[1]June 5 over-the-top to all Roundup and Roundup Flex varieties and on July 29 the Roundup Flex varieties were sprayed over the top with 22 oz/acre Roundup Original MAX

30.89/gal
includes AMS at $0.42/ac

June 5 and July 29 over-the-top 32 oz/a Ignite 280 to Liberty Link varieties.

$32.00/gal
includes AMS at $0.42/ac

Base weed control program		chem cost	app cost	total cost
1-Mar	2 pts/acre trifluralin PPI	3.56	4.75	8.31
9-May	1 pt/acre Direx 4L	1.93		1.93
18-Jul	32 oz/acre MSMA	5.10	4.50	9.60
	32 oz/acre Direx 4L	3.86		3.86
	13 oz/acre Crop Oil	0.60		0.60
10-Aug	blanket hoeing		6.00	6.00
Total blanket weed control program				30.30

PGR program		chem cost	app cost	total cost
1-Jul	5.0 oz/acre Pix	1.05	4.55	5.60
	2.0 oz/acre Activator 90	0.18		0.18
	by airplane			
14-Jul	7.0 oz/acre Pix	1.47	4.55	6.02
	2.0 oz/ acre Activator 90	0.18		0.18
	by airplane			
Insecticide program				
9-May	3.75 lb/acre Temik	4.91		4.91
6-May	5.5 oz/acre acephate	2.96		2.96
22-Aug	3.7 oz/acre Karate for bollworms	5.80	4.25	10.05
	0.9 oz/acre Trimax Pro for aphids	3.60		3.60
	32 oz/acre Crop Oil	1.48		1.48
	by airplane			
Harvest aid program				
13-Oct	2 pt/acre Prep	7.54	4.50	12.04
	1 pt/acre Def 6	6.38		6.38
27-Oct	32.0 oz/acre Gramoxone Inteon	7.10	4.50	11.60
	8.0 oz/acre crop oil	0.37		0.37
	by airplane			
Total blanket input cost ($/acre)				95.68

Table 6. Stand count, vigor (height to node) and nodes above white flower (NAWF) results from the irrigated large plot replicated systems trial, Appling Farm, Blanco Canyon, TX, 2006.

Entry	6-Jun		6-Jun			28-Jul	3-Aug	14-Aug
	plants/row ft	plants/acre	height inches	mainstem nodes	vigor index	NAWF	NAWF	NAWF
FiberMax 9058F	2.6	33,715	2.1	3.2	0.66	4.6	2.5	2.0
Deltapine 143B2RF	2.4	31,712	2.1	3.2	0.63	4.3	2.6	2.1
Deltapine 455BG/RR	2.5	33,193	2.4	3.5	0.67	5.1	2.9	2.3
Beltwide Cotton Genetics 9775B2F	2.9	38,071	1.9	2.8	0.69	4.3	2.5	2.2
Beltwide Cotton Genetics 2038B2F	2.9	37,723	2.2	3.2	0.68	4.2	2.5	2.0
All-Tex Apex B2RF	2.4	31,276	2.3	3.2	0.70	4.6	3.1	2.4
Americot 821R	2.3	30,579	2.1	3.3	0.64	4.8	3.3	2.0
Deltapine 117B2RF	2.6	34,151	2.5	3.9	0.63	4.0	2.3	1.9
FiberMax 9063B2F	2.6	34,674	2.1	3.6	0.59	4.7	2.8	2.0
FiberMax 9068F	2.1	27,007	2.1	3.3	0.64	4.8	2.4	2.1
All-Tex Summit B2RF	2.6	34,238	2.1	3.1	0.68	4.7	2.6	2.1
AFD 5064F	2.9	37,200	2.9	3.4	0.84	4.4	2.4	2.0
PhytoGen 485WRF	2.6	33,890	2.0	3.0	0.66	4.8	2.8	2.5
Stoneville NexGen 3550RF	2.6	33,367	2.2	3.5	0.64	4.8	2.6	2.4
Stoneville NexGen 2448R	2.6	33,454	1.9	2.8	0.69	4.3	3.3	2.0
Test average	2.6	33,617	2.2	3.3	0.67	4.6	2.7	2.1
CV, %	9.0	8.7	15.4	14.0	8.2	6.6	20.3	15.4
OSL	0.0126	0.0092	0.1374	0.2839	0.0056	0.0105	0.4624	0.5661
LSD 0.05	0.4	4,903	NS	NS	0.09	0.5	NS	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 7. Plant map results from the irrigated large plot replicated systems trial, Appling Farm, Blanco, TX, 2006.

Entry	Plant height	Node of first fruiting branch	Fruiting nodes	Mainstem post-cutout nodes	Mainstem total nodes	Height to node	Fruit retention First position	Fruit retention Second position
	inches	node number	total/plant	total/plant	total/plant	ratio	percent	percent
FiberMax 9058F	20.3	5.9	5.9	9.7	20.5	0.99	44.2	31.3
Deltapine 143B2RF	20.5	6.8	5.8	9.3	21.0	0.98	34.5	50.3
Deltapine 455BG/RR	20.6	5.8	5.6	8.3	18.8	1.10	35.0	43.0
Beltwide Cotton Genetics 9775B2F	20.2	6.7	6.2	8.2	20.1	1.01	44.3	46.2
Beltwide Cotton Genetics 2038B2F	20.2	6.0	6.1	9.6	20.7	0.98	34.8	43.2
All-Tex Apex B2RF	20.0	6.2	6.8	7.7	19.7	1.03	54.7	32.3
Americot 821R	18.5	5.8	5.9	8.0	18.7	1.00	39.1	36.9
Deltapine 117B2RF	21.1	6.0	6.0	9.3	20.3	1.03	43.0	39.0
FiberMax 9063B2F	19.6	6.2	6.4	8.9	20.5	0.96	32.7	37.9
FiberMax 9068F	20.5	6.2	6.4	8.6	20.2	1.02	37.4	48.1
All-Tex Summit B2RF	21.0	6.0	6.2	9.3	20.6	1.02	50.7	31.3
AFD 5064F	23.1	5.8	6.0	9.3	20.1	1.15	35.1	46.4
PhytoGen 485WRF	20.8	6.0	6.5	8.4	19.9	1.04	45.0	60.9
Stoneville NexGen 3550RF	22.3	5.7	6.4	11.0	22.2	1.01	35.6	47.5
Stoneville NexGen 2448R	20.3	6.0	7.8	5.8	18.5	1.10	30.1	63.6
Test average	20.6	6.1	6.3	8.8	20.1	1.03	39.7	43.9
CV, %	8.7	8.1	14.4	25.5	8.6	7.9	32.1	32.7
OSL	0.4442	0.3219	0.4502	0.6424	0.5843	0.2942	0.5660	0.2281
LSD	NS	NS	NS	NS	NS	NS	NS	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, NS - not significant.

Table 8. Harvest results from the irrigated large plot replicated systems trial, Appling Farm, Blanco, TX, 2006.

Entry	Commercial turnout	Bur cotton yield	Lint yield	Seed yield	Seed	Lint loan value	Lint value	Seed value	Total value	Ginning cost	Systems cost	Net value	
	%	lb/acre	lb/acre	lb/acre	lb/bale	$/lb	$/acre	$/acre	$/acre	$/acre	$/acre	$/acre	
FiberMax 9058F	27.6	2043	563	832	724	0.5643	317.69	52.02	369.71	50.05	66.87	252.80	a
Deltapine 143B2RF	26.1	2114	551	818	727	0.5565	306.56	51.10	357.66	51.78	79.43	226.45	ab
Deltapine 455BG/RR	27.6	1924	532	674	620	0.5744	305.53	42.10	347.63	47.14	74.37	226.12	ab
Beltwide Cotton Genetics 9775B2F	26.6	2026	540	895	812	0.5320	287.12	55.93	343.05	49.63	77.55	215.87	b
Beltwide Cotton Genetics 2038B2F	26.6	1983	527	823	765	0.5508	290.36	51.42	341.78	48.58	77.55	215.65	b
All-Tex Apex B2RF	24.6	2166	532	760	700	0.5468	290.77	47.47	338.24	53.07	78.40	206.77	bc
Americot 821R	25.1	1962	492	647	644	0.5228	257.34	40.45	297.79	48.08	52.00	197.72	bcd
Deltapine 117B2RF	30.0	1897	570	805	692	0.4540	258.73	50.31	309.04	46.47	79.43	183.13	cd
FiberMax 9063B2F	24.2	2044	494	679	674	0.5372	265.34	42.46	307.80	50.07	74.95	182.78	cd
FiberMax 9068F	23.4	1962	460	647	690	0.5415	248.89	40.44	289.32	48.06	68.66	172.60	de
All-Tex Summit B2RF	22.6	2076	468	730	763	0.5395	252.73	45.60	298.34	50.87	79.29	168.18	de
AFD 5064F	24.5	1887	462	646	684	0.4790	221.48	40.34	261.81	46.23	65.31	150.27	ef
PhytoGen 485WRF	22.0	2136	471	697	726	0.4983	234.52	43.56	278.08	52.33	80.08	145.67	ef
Stoneville NexGen 3550RF	22.9	1752	401	500	611	0.5049	202.25	31.24	233.49	42.91	65.00	125.58	fg
Stoneville NexGen 2448R	18.8	1798	338	518	752	0.5083	171.65	32.39	204.04	44.04	57.94	102.05	g
Test mean	24.8	1985	493	711	706	0.5274	260.73	44.45	305.18	48.62	71.79	184.78	
CV, %	--	7.1	7.2	7.1	--	--	7.4	7.1	7.3	7.1	--	10.3	
OSL	--	0.0411	<0.0001	<0.0001	--	--	<0.0001	<0.0001	<0.0001	0.0408	--	<0.0001	
LSD	--	236	59	84	--	--	32.20	5.24	37.43	5.79	--	31.69	

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.
$125/ton for seed.
Value for lint based on CCC loan value from USDA-AMS HVI results.

Table 9. USDA-AMS classing results of commercially ginned bales from the irrigated large plot replicated systems trial, Appling Farm, Blanco, TX 2006.

Entry		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
FiberMax 9058F	Mean	3.0	1.0	37.0	3.5	4.9	0/4	79.0	8.0	115.5	31.0	80.8	0.5643
	Std Dev	0.0	0.0	0.0	0.6	0.1		0.5	0.3	1.3	0.9	0.3	0.0136
Deltapine 143B2RF	Mean	3.0	1.0	36.8	3.8	4.7	0/4	77.7	8.2	114.5	30.2	80.6	0.5565
	Std Dev	0.0	0.0	0.5	0.5	0.1		0.6	0.3	1.3	1.3	0.6	0.0117
Deltapine 455BG/RR	Mean	2.3	1.0	35.3	2.3	4.9	0/4	79.1	8.9	110.0	31.3	80.9	0.5744
	Std Dev	0.5	0.0	0.5	0.5	0.0		0.6	0.2	2.2	1.6	1.0	0.0025
Beltwide Cotton Genetics 9775B2F	Mean	3.0	1.0	36.7	3.7	5.0	0/3	77.4	7.9	115.0	29.9	82.6	0.5320
	Std Dev	0.0	0.0	0.6	0.6	0.0		0.1	0.2	1.7	0.4	0.8	0.0156
Beltwide Cotton Genetics 2038B2F	Mean	2.7	1.0	36.0	3.0	4.9	0/3	77.9	8.4	112.3	28.8	82.0	0.5508
	Std Dev	0.6	0.0	0.0	1.0	0.3		2.0	0.7	1.2	1.5	1.2	0.0282
All-Tex Apex B2RF	Mean	3.0	1.0	36.5	3.5	5.0	0/4	78.6	8.4	113.8	28.9	81.8	0.5468
	Std Dev	0.0	0.0	0.6	0.6	0.1		0.4	0.2	2.4	0.8	1.2	0.0034
Americot 821R	Mean	3.0	1.0	34.3	3.3	5.1	0/4	78.1	8.7	107.5	30.0	81.2	0.5228
	Std Dev	0.0	0.0	0.5	0.5	0.1		0.2	0.1	1.7	1.3	0.4	0.0304
Deltapine 117B2RF	Mean	4.0	1.0	34.8	5.8	5.3	0/4	74.4	8.3	108.8	31.4	81.3	0.4540
	Std Dev	0.0	0.0	0.5	0.5	0.0		1.0	0.0	1.5	2.0	0.7	0.0142
FiberMax 9063B2F	Mean	3.0	1.0	37.3	4.0	5.0	0/3	78.9	7.8	116.0	32.8	82.7	0.5372
	Std Dev	0.0	0.0	0.6	0.0	0.1		0.1	0.3	2.0	1.2	0.7	0.0168
FiberMax 9068F	Mean	3.0	1.0	36.5	3.3	5.1	0/4	78.8	8.1	113.3	31.9	81.7	0.5415
	Std Dev	0.0	0.0	0.6	0.5	0.0		0.3	0.2	1.0	1.5	0.6	0.0105
All-Tex Summit B2RF	Mean	2.8	1.0	35.0	3.5	5.0	0/4	78.1	8.7	109.5	28.5	82.1	0.5395
	Std Dev	0.5	0.0	0.8	0.6	0.1		0.3	0.4	2.1	1.6	0.9	0.0404
AFD 5064F	Mean	3.3	1.0	33.3	3.8	5.3	0/4	75.9	8.3	103.5	29.3	80.3	0.4790
	Std Dev	0.5	0.0	0.5	0.5	0.1		0.9	0.0	1.7	0.1	0.8	0.0238
PhytoGen 485WRF	Mean	3.3	1.3	35.5	4.5	5.1	0/4	75.8	8.8	110.8	31.6	82.6	0.4983
	Std Dev	0.5	0.5	0.6	1.0	0.1		0.7	0.7	1.0	1.3	0.4	0.0075
Stoneville NexGen 3550RF	Mean	3.3	1.0	34.3	3.8	5.1	0/4	76.1	8.6	107.0	31.0	80.5	0.5049
	Std Dev	0.5	0.0	1.0	0.5	0.2		0.5	0.1	2.2	0.9	0.6	0.0223
Stoneville NexGen 2448R	Mean	3.0	1.0	34.0	3.3	5.2	0/3	76.5	9.0	106.7	31.9	81.4	0.5083
	Std Dev	0.0	0.0	1.0	0.6	0.2		0.6	0.1	3.1	0.2	0.3	0.0270

Table 10. Expenses incurred for the replicated dryland systems variety demonstration, Appling Farms, Blanco, TX, 2006.

Entry	Seed cost/bag	Tech fees/bag	Total cost/bag	Seed & tech fee/ac	Herb apps	Herb app cost/ac	Roundup Orginal MAX cost/ac	Systems cost/ac
Stoneville NexGen 2448R	69.00	69.80	138.80	26.50	3	14.25	17.19	57.94
Americot 821R	29.50	94.60	124.10	20.56	3	14.25	17.19	52.00
Deltapine 455BG/RR	114.95	129.50	244.45	42.93	3	14.25	17.19	74.37
Beltwide Cotton Genetics 9775B2F	97.75	143.80	241.55	46.11	3	14.25	17.19	77.55
Beltwide Cotton Genetics 2038B2F	97.75	143.80	241.55	46.11	3	14.25	17.19	77.55
Deltapine 117B2RF	116.95	156.30	273.25	47.99	3	14.25	17.19	79.43
Deltapine 143B2RF	116.95	156.30	273.25	47.99	3	14.25	17.19	79.43
FiberMax 9063B2F	80.45	137.50	217.95	43.51	3	14.25	17.19	74.95
All-Tex Apex B2RF	99.95	140.60	240.55	46.96	3	14.25	17.19	78.40
All-Tex Summit B2RF	99.95	134.50	234.45	47.85	3	14.25	17.19	79.29
PhytoGen 485WRF	112.00	144.80	256.80	48.64	3	14.25	17.19	80.08
Stoneville NexGen 3550RF	69.00	106.80	175.80	33.56	3	14.25	17.19	65.00
FiberMax 9058F	80.45	109.10	189.55	35.43	3	14.25	17.19	66.87
FiberMax 9068F	80.45	97.50	177.95	37.22	3	14.25	17.19	68.66
AFD 5064F	62.95	95.20	158.15	33.87	3	14.25	17.19	65.31

40 inch rows
3.4 seed/row-ft
43,900 seed/ac

4.75/ac

June 15 over-the-top at 22 oz/a Roundup Original MAX.
July 13 and Aug 2 sprayed the Flex and Bollgard II/Flex varieties over the top 22oz/a and post-directed 22 oz/a Roundup Original MAX to Roundup Ready varieties.

30.89/gal
includes AMS at 0.42/ac

Base weed control program		chem cost	app cost	total cost
15-Mar	1 qt/acre trifluralin PPI	3.56	4.75	8.31
8-May	1 qt/acre Direx 4L	3.86		3.86
	15" band at planting			
5-Jun	1 blanket cultivation		6.00	6.00
Total blanket weed control program				18.17
Harvest aid program				
10-Oct	1.5 oz/acre ET	3.54	4.75	8.29
	8 oz/acre crop oil	0.32		0.32
21-Oct	16 oz/acre Gramoxone Inteon	3.55	4.75	8.30
	7.7 oz/acre non-ionic surfactant	1.05		1.05
Total blanket input cost ($/acre)				36.13

Table 11. Stand count and nodes above white flower (NAWF) results from the irrigated large plot replicated systems trial, Bearden Farm, Plains, TX, 2006.

Entry	27-Jun		28-Jul	3-Aug	14-Aug
	plants/row ft	plants/acre	NAWF	NAWF	NAWF
Paymaster 2140B2RF	3.3	43,821	4.8	4.5	4.5
FiberMax 960BR	3.2	41,556	5.1	4.8	4.5
Beltwide Cotton Genetics 2038B2F	3.3	43,386	4.5	4.2	4.7
Beltwide Cotton Genetics 9775B2F	3.7	48,439	4.9	4.6	4.8
All-Tex Summit B2RF	3.3	43,298	5.1	4.4	5.0
Americot 1532B2RF	3.2	41,469	5.2	4.6	5.2
Stoneville NexGen 3550RF	3.4	44,780	4.7	4.5	5.3
Deltapine 117B2RF	3.4	45,041	5.0	4.7	4.9
FiberMax 960B2R	2.9	37,462	5.2	4.7	4.3
FiberMax 9063B2F	3.0	39,901	5.1	4.8	4.4
Stoneville 4554B2RF	3.2	41,382	5.3	4.7	4.8
FiberMax 9058F	3.5	45,389	5.0	4.5	4.9
All-Tex Apex B2RF	3.1	39,814	4.9	4.6	4.7
Deltapine 143B2RF	3.3	42,776	5.1	5.0	4.7
PhytoGen 425RF	3.7	48,787	4.7	4.4	5.1
PhytoGen 485WRF	3.2	41,730	5.1	5.1	5.5
Stoneville 4664RF	3.3	43,212	4.8	4.7	5.1
Deltapine 147RF	3.4	44,867	4.7	5.0	4.8
Test average	3.3	43,173	5.0	4.7	4.8
CV, %	7.1	7.0	8.7	6.4	7.9
OSL	0.0147	0.0063	0.7266	0.1344	0.0247
LSD	0.4	4,981	NS	NS	0.6

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 12. Plant map results from the irrigated large plot replicated systems trial, Bearden Farm, Plains, TX, 2006

Entry	Plant height	Node of first fruiting branch	Fruiting nodes	Mainstem nodes	Height to node	Fruit retention	
						First position	Second position
	inches	node number	total/plant	total/plant	ratio	percent	percent
Paymaster 2140B2RF	24.0	7.0	11.8	17.8	1.35	54.3	26.5
FiberMax 960BR	28.6	7.3	12.7	19.0	1.51	55.8	16.0
Beltwide Cotton Genetics 2038B2F	29.0	6.3	11.9	17.5	1.67	58.0	32.9
Beltwide Cotton Genetics 9775B2F	26.7	7.1	11.7	17.8	1.50	62.1	23.6
All-Tex Summit B2RF	26.2	6.3	11.8	17.1	1.54	52.3	23.1
Americot 1532B2RF	27.7	7.0	12.0	17.9	1.65	53.6	20.8
Stoneville NexGen 3550RF	33.3	6.6	15.2	20.8	1.60	37.2	19.7
Deltapine 117B2RF	29.2	7.1	12.0	18.1	1.61	57.9	20.8
FiberMax 960B2R	25.8	7.6	10.6	17.2	1.51	49.8	26.7
FiberMax 9063B2F	27.2	7.2	12.3	18.5	1.47	50.2	23.3
Stoneville 4554B2RF	29.2	7.2	12.2	18.4	1.59	54.7	30.5
FiberMax 9058F	25.9	7.1	12.2	18.3	1.42	48.8	19.1
All-Tex Apex B2RF	29.3	6.6	12.5	18.0	1.63	52.5	19.1
Deltapine 143B2RF	28.2	7.6	11.8	18.4	1.54	52.2	31.4
PhytoGen 425RF	33.4	7.4	12.4	18.8	1.78	46.3	28.5
PhytoGen 485WRF	30.1	7.2	11.8	18.0	1.69	52.8	35.3
Stoneville 4664RF	32.7	7.1	12.3	18.4	1.78	37.9	28.2
Deltapine 147RF	32.0	6.8	13.4	19.2	1.67	47.5	25.6
Test average	28.8	7.0	12.3	18.3	1.6	51.3	25.1
CV, %	8.5	8.2	5.4	4.7	7.2	15.3	26.4
OSL	0.0007	0.2457	<0.0001	0.0035	0.0022	0.0483	0.0446
LSD	4.1	NS	1.1	1.4	0.19	13.1	11.0

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 13. Harvest results from the irrigated large plot replicated systems trial, Rickey Bearden Farm, Plains, TX, 2006.

Entry	Commercial turnout	Bur cotton yield	Lint yield	Seed yield	Seed	Lint loan value	Lint value	Seed value	Total value	Ginning cost	Systems cost	Net value	
	%	lb/acre	lb/acre	lb/acre	lb/bale	$/lb	$/acre	$/acre	$/acre	$/acre	$/acre	$/acre	
Paymaster 2140B2F	27.4	4907	1345	2282	815	0.4748	638.35	142.58	780.93	120.21	61.97	598.75	a
FiberMax 960BR	25.8	4933	1272	2043	771	0.4969	632.10	127.69	759.79	120.87	56.24	582.69	a
Beltwide Cotton Genetics 2038B2F	23.8	4767	1135	2011	851	0.4886	554.27	125.71	679.98	116.78	65.38	497.81	b
Beltwide Cotton Genetics 9775B2F	24.4	4627	1129	2104	894	0.4806	542.52	131.48	674.00	113.35	65.38	495.27	b
All-Tex Summit B2RF	24.3	4653	1131	2005	851	0.4869	550.60	125.31	675.91	114.01	67.44	494.47	b
Americot 1532B2RF	25.7	4467	1148	2059	861	0.4510	517.72	128.69	646.40	109.43	62.90	474.07	bc
Stoneville NexGen 3550RF	22.7	4460	1010	1835	872	0.5020	507.19	114.67	621.85	109.27	50.43	462.15	bc
Deltapine 117B2F	25.9	4513	1169	1864	766	0.4464	521.85	116.52	638.37	110.58	67.61	460.19	bc
FiberMax 960B2R	23.2	4747	1102	1828	796	0.4676	515.11	114.23	629.34	116.29	56.67	456.37	bc
FiberMax 9063B2F	24.0	4120	989	1644	798	0.5083	502.64	102.75	605.39	100.94	62.28	442.17	bcd
Stoneville 4554B2RF	23.9	4187	1000	1712	822	0.4888	489.05	107.04	596.09	102.57	66.16	427.36	bcde
FiberMax 9058F	24.0	4000	960	1511	756	0.4837	464.32	94.44	558.76	98.00	52.66	408.10	cde
All-Tex Apex B2RF	20.7	4700	973	1728	853	0.4606	448.10	108.02	556.12	115.15	66.39	374.58	def
Deltapine 143B2F	22.8	4220	962	1745	871	0.4273	411.09	109.08	520.17	103.39	67.61	349.17	efg
PhytoGen 425RF	21.6	3913	843	1502	855	0.4595	387.51	93.90	481.41	95.88	57.25	328.28	fg
PhytoGen 485WRF	20.5	4273	876	1582	867	0.4153	363.82	98.87	462.69	104.70	64.57	293.43	g
Stoneville 4664RF	21.9	3660	801	1319	790	0.4472	358.35	82.44	440.79	89.67	57.75	293.38	g
Deltapine 147RF	21.7	3733	812	1475	872	0.4191	340.17	92.21	432.38	91.47	58.16	282.75	g
Test mean	23.6	4382	1036	1792	831	0.4669	485.82	111.98	597.80	107.36	61.49	428.94	
CV, %	--	9.8	9.9	10.1	--	--	9.6	10.1	9.7	9.8	--	11.1	
OSL	--	0.0122	<0.0001	<0.0001	--	--	<0.0001	<0.0001	<0.0001	0.0122	--	<0.0001	
LSD	--	712	170	300	--	--	77.56	18.77	96.18	17.45	--	79.07	

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.
$125/ton for seed.
Value for lint based on CCC loan value from USDA-AMS HVI results.

Table 14. USDA-AMS classing results of commercially ginned bales from the irrigated large plot replicated systems trial, Rickey Bearden Farm, Plains, TX 2006.

Entry		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
Paymaster 2140B2RF	Mean	2.9	1.0	35.3	4.5	3.1	5/8	78.6	7.5	109.8	26.4	80.3	0.4748
	Std Dev	0.4	0.0	0.7	0.8	0.1		1.4	0.3	1.7	1.2	0.5	0.0141
FiberMax 960BR	Mean	2.0	1.0	34.9	3.0	2.9	3/8	80.5	8.2	109.0	27.7	80.0	0.4969
	Std Dev	0.0	0.0	0.8	0.0	0.1		0.9	0.3	1.9	0.7	1.1	0.0262
Beltwide Cotton Genetics 2038B2F	Mean	2.0	1.0	36.0	3.3	3.0	3/7	80.4	8.0	112.3	24.0	78.8	0.4886
	Std Dev	0.0	0.0	0.6	0.5	0.1		0.5	0.2	1.8	0.6	0.8	0.0219
Beltwide Cotton Genetics 9775B2F	Mean	2.1	1.0	37.0	3.0	2.8	5/7	81.6	7.5	115.1	24.4	78.8	0.4806
	Std Dev	0.4	0.0	0.6	0.0	0.1		1.1	0.3	1.8	0.5	0.8	0.0102
All-Tex Summit B2RF	Mean	2.0	1.0	35.4	3.0	2.9	5/7	81.0	7.9	109.9	23.5	80.3	0.4869
	Std Dev	0.0	0.0	0.5	0.0	0.1		0.8	0.5	1.5	0.3	0.7	0.0140
Americot 1532B2RF	Mean	2.3	1.1	35.9	3.4	2.7	6/7	77.7	8.8	111.6	24.0	78.2	0.4510
	Std Dev	0.5	0.4	0.7	0.5	0.1		1.6	0.6	1.7	0.7	1.2	0.0205
Stoneville NexGen 3550RF	Mean	2.8	1.0	36.3	3.8	3.2	4/6	78.3	8.0	113.5	26.4	79.1	0.5020
	Std Dev	0.4	0.0	0.5	0.4	0.1		1.0	0.3	2.2	0.8	1.2	0.0198
Deltapine 117B2RF	Mean	3.0	1.6	36.4	5.1	3.0	3/7	74.3	9.2	113.6	28.4	79.9	0.4464
	Std Dev	0.0	0.5	0.5	0.7	0.1		1.4	0.3	1.5	0.8	0.4	0.0330
FiberMax 960B2R	Mean	2.0	1.0	35.6	3.0	2.7	7/7	81.3	7.9	110.9	26.0	78.6	0.4676
	Std Dev	0.0	0.0	0.5	0.0	0.1		0.8	0.3	0.9	0.6	0.9	0.0189
FiberMax 9063B2F	Mean	2.0	1.0	36.8	3.0	2.9	2/6	82.2	7.7	115.2	27.7	79.6	0.5083
	Std Dev	0.0	0.0	0.4	0.0	0.1		1.0	0.4	1.9	1.2	0.8	0.0087
Stoneville 4554B2RF	Mean	1.7	1.0	35.3	3.3	2.8	0/0	81.2	8.3	110.8	25.8	79.3	0.4888
	Std Dev	0.5	0.0	0.8	0.5	0.1		0.4	0.1	2.6	0.7	0.7	0.0195
FiberMax 9058F	Mean	2.5	1.0	37.2	3.2	2.9	5/6	80.7	7.7	115.5	26.8	79.1	0.4837
	Std Dev	0.5	0.0	0.8	0.4	0.0		0.5	0.4	3.1	0.6	1.5	0.0164
All-Tex Apex B2RF	Mean	2.2	1.0	35.7	3.2	2.7	6/6	80.2	8.0	111.2	23.6	77.8	0.4606
	Std Dev	0.4	0.0	0.5	0.4	0.0		1.2	0.4	1.6	0.5	0.9	0.0146
Deltapine 143B2RF	Mean	2.7	1.3	36.3	3.7	2.6	6/6	76.5	9.0	113.3	24.8	77.5	0.4273
	Std Dev	0.5	0.5	0.5	0.5	0.1		2.8	0.7	2.0	0.7	0.5	0.0321
PhytoGen 425RF	Mean	2.8	1.6	35.4	4.0	3.2	5/5	74.2	9.9	110.6	24.6	79.8	0.4595
	Std Dev	0.4	0.5	0.5	0.7	0.1		2.5	0.5	0.9	0.9	0.9	0.0285
PhytoGen 485WRF	Mean	3.4	2.4	35.6	4.8	3.0	5/5	71.6	10.0	111.4	27.2	80.7	0.4153
	Std Dev	0.5	0.9	0.5	0.4	0.1		3.5	1.0	1.3	1.7	0.7	0.0235
Stoneville 4664RF	Mean	2.0	1.0	34.4	3.8	2.8	4/5	78.8	8.7	107.8	25.3	79.0	0.4472
	Std Dev	0.0	0.0	0.5	0.4	0.0		0.4	0.1	1.6	0.9	1.4	0.0187
Deltapine 147RF	Mean	2.6	1.4	36.4	3.8	2.6	4/5	76.6	9.1	114.0	24.5	77.8	0.4191
	Std Dev	0.5	0.5	0.9	0.4	0.1		2.1	0.9	2.7	0.9	1.0	0.0284

Table 15. Expenses incurred for the irrigated large plot replicated systems trial, Bearden Farm, Plains, TX, 2006.

Entry	Seed cost/bag	Tech fees/bag	Total cost/bag	Seed & tech fee/ac	Herb apps	Herb cost/ac	Roundup Orginal MAX cost/ac	Systems cost/ac
FiberMax 9058F	80.45	109.10	189.55	42.18	1	4.75	5.73	52.66
PhytoGen 425RF	99.00	106.80	205.80	46.77	1	4.75	5.73	57.25
Deltapine 147RF	111.95	116.10	228.05	47.68	1	4.75	5.73	58.16
Stoneville NexGen 3550RF	69.00	106.80	175.80	39.95	1	4.75	5.73	50.43
Stoneville 4664RF	101.20	106.80	208.00	47.27	1	4.75	5.73	57.75
FiberMax 960BR	80.45	116.50	196.95	45.76	1	4.75	5.73	56.24
FiberMax 960B2R	80.45	113.90	194.35	46.19	1	4.75	5.73	56.67
FiberMax 9063B2F	80.45	137.50	217.95	51.80	1	4.75	5.73	62.28
PhytoGen 485WRF	112.00	144.80	256.80	54.09	1	4.75	5.73	64.57
Beltwide Cotton Genetics 9775B2F	97.75	143.80	241.55	54.90	1	4.75	5.73	65.38
Beltwide Cotton Genetics 2038B2F	97.75	143.80	241.55	54.90	1	4.75	5.73	65.38
Americot 1532B2RF	92.50	153.10	245.60	52.42	1	4.75	5.73	62.90
All-Tex Apex B2RF	99.95	140.60	240.55	55.91	1	4.75	5.73	66.39
All-Tex Summit B2RF	99.95	134.50	234.45	56.96	1	4.75	5.73	67.44
Deltapine 143B2RF	116.95	156.30	273.25	57.13	1	4.75	5.73	67.61
Deltapine 117B2RF	116.95	156.30	273.25	57.13	1	4.75	5.73	67.61
Paymaster 2140B2RF	89.95	156.30	246.25	51.49	1	4.75	5.73	61.97
Stoneville 4554B2RF	101.20	143.80	245.00	55.68	1	4.75	5.73	66.16

			40 inch rows 4.0 seed/row-ft 52,000 seed/ac	4.75/ac
				June 17 over-the-top 22oz/a Roundup Original MAX to Roundup Ready varieties. 30.89/gal includes AMS at 0.42/ac

Base Weed Control Program		Chem Cost	App Cost	Total Cost
15-Mar	1 pt/acre trifluralin PPI	1.78	4.50	6.28
23-May	4.0 oz/acre trifluralin at planting	0.45	4.50	4.95
	6.0 oz/acre prometryn at planting	1.94		1.94
	0.2 oz/acre Staple LX at planting	1.38		1.38
Total blanket weed control program				14.55

Insecticide Program		Chem Cost	App Cost	Total Cost
23-May	4 lb/acre temik at planting	5.25		5.25

Harvest Aid Program		Chem Cost	App Cost	Total Cost
14-Oct	32 oz/acre Finish 6 Pro	17.50	4.50	22.00
	16 oz/acre Def 6	6.38		6.38
Total Blanket input cost ($/acre)				41.80

Additional Replicated Sites

Replicated Transgenic Cotton Variety Demonstration
Under LEPA Irrigation, AG-CARES, Lamesa, TX - 2006

Cooperators: Lamesa Cotton Growers/Texas Agricultural Experiment Station/Texas Cooperative Extension

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

Dawson County

Summary: Significant differences were noted for most parameters measured (Tables 1 and 2). Lint turnout ranged from 32.8% for PhytoGen 485WRF, to 35.9% for FiberMax 9058F. Lint yields varied from a low of 1048 lb/acre (Beltwide Cotton Genetics 4630B2F) to a high of 1249 lb/acre (Stoneville 4554B2RF). Lint loan values ranged from a low of $0.5058/lb to a high of $0.5703/lb for PhytoGen 485WRF and FiberMax 9068F, respectively. Net value ranged from a high of $648.24 (FiberMax 9058F) to a low of $500.92 (Deltapine 117B2RF), a difference of $147.32. Micronaire ranged from a low of 4.3 for Deltapine 147RF to a high of 5.1 for Stoneville 4554B2RF. Staple length averaged 34.9 across all varieties with a low of 33.5, for Stoneville 4554B2RF and All-Tex Summit B2RF, and a high of 36.3 for FiberMax 9063B2F. Percent uniformity ranged from a low of 80.3 (Deltapine 143B2RF) to a high of 82.8 (PhytoGen 485WRF). A test average strength of 28.0 g/tex was observed with All-Tex Summit B2RF producing the lowest value (25.7), and FiberMax 9063B2F producing the highest (30.5). 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 yield, gin turnout, and fiber quality of transgenic Roundup Ready Flex, and Widestrike or Bollgard II/Roundup Ready Flex “stacked” gene varieties under LEPA irrigation.

Materials and Methods:

Varieties: All-Tex Summit B2RF, All-Tex Apex B2RF, Deltapine 117B2RF, Deltapine 143B2RF, Stoneville 4554B2RF, FiberMax 9058F, FiberMax 9068F, Beltwide Cotton Genetics 3255B2RF, FiberMax 9063B2F, Deltapine 147RF, Stoneville 4700B2RF, Beltwide Cotton Genetics 4630B2F, and PhytoGen 485WRF

Experimental design: Randomized complete block with 3 replications

Seeding rate:	4.0 seeds/row-ft in 40-inch row spacing (John Deere Max Emerge vacuum planter)
Plot size:	4 rows by variable length due to circular pivot rows (357-872 ft long)
Planting date:	3-May
Weed management:	Trifluralin was applied preplant incorporated at 1.25 pt/acre across all varieties on 7-April. A preemergence application of glyphosate was made on 11-May at 48 oz/acre to control volunteer peanuts. Two over-the-top applications of Roundup Original Max at 32 oz/acre with ammonium sulfate (17lb/100 gallons of spray mix) were applied on 3-June and 12-July.
Irrigation:	LEPA irrigation

April:	2.25"	May:	1.10"	June:	4.50"
July:	4.50"	Aug:	3.60"	Sept:	0.00"

Total irrigation: 15.95"

Rainfall:

April:	0.60"	May:	0.50"	June:	0.50"
July:	0.30"	Aug:	3.50"	Sept:	3.75"

Total rainfall: 9.15"

Total moisture: 25.10"

Insecticides:	Temik was applied 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:	Preplant fertilizer consisting of 10-34-0 was applied at a rate of 100 lb/acre on 12-April. An additional 120 lb N/acre using 32-0-0 was fertigated in four 30 lb N/acre increments during the growing season.
Harvest aids:	An application of 1.5 pt/a Boll'd (6-lb ethephon/gal) plus 6.0 oz/a Ginstar EC was applied via ground rig at 70 percent open bolls on 29-September. A follow-up application of Gramoxone Max at 16 oz/acre plus 1.5 oz/acre ET with 1% crop oil was aerially applied on 13-October.
Harvest:	Plots were stripper 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 A&M University Agricultural Research and Extension Center at Lubbock to determine gin turnouts.

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

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

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

Results and Discussion:

Significant differences were noted for most parameters measured at this location (Tables 1 and 2). Lint turnout ranged from a low of 32.8% for PhytoGen 485WRF to a high of 35.9% for FiberMax 9058F. Lint yields varied from a low of 1048 lb/acre for Beltwide Cotton Genetics (BCG) 4630B2F to a high of 1249 lb/acre for Stoneville 4554B2RF. Lint loan values ranged from a low of $0.5058/lb to a high of $0.5703/lb for PhytoGen 485WRF and FiberMax 9068F, respectively. FiberMax 9058F had the highest lint value of $672.40/acre and the lowest value of $538.88 was observed for PhytoGen 485WRF. When adding lint and seed values, total values ranged from a high of $771.63/acre for FiberMax 9058F to a low of $633.83/acre for Deltapine 117B2RF. After subtracting ginning cost (based on $2.45/cwt bur cotton) and seed/technology cost, net value per acre ranged from a high of $648.24 (FiberMax 9058F) to a low of $500.92 (Deltapine 117B2RF), a difference of $147.32. Two Roundup Ready Flex varieties and two Bollgard II/Roundup Ready Flex "stacked" gene varieties were in the statistical upper-tier. Micronaire values ranged from a low of 4.3 for Deltapine 147RF to a high of 5.1 for Stoneville 4554B2RF. Staple length averaged 34.9 across all varieties with a low of 33.5, for Stoneville 4554B2RF and All-Tex Summit B2RF, and a high of 36.3 for FiberMax 9063B2F. Percent uniformity ranged from a low of 80.3 (Deltapine 143B2RF) to a high of 82.8 (PhytoGen 485WRF). A test average strength of 28.0 g/tex was observed with All-Tex Summit B2RF producing the lowest value (25.7), and FiberMax 9063B2F producing the highest (30.5). Elongation averaged 6.8% with a high of 8.3% (Stoneville 4554B2RF) and a low of 5.5% (FiberMax 9058F). Leaf grades were lowest for FiberMax 9058F and 9068F, All-Tex Apex B2RF, and BCG 3255B2F (3.0) and highest for PhytoGen 485WRF (5.0). 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, Research Associate - AG-CARES, Lamesa; and John Everitt, Research Associate - Texas Agricultural Experiment Station (TAES), Lubbock, for their assistance with this project. Further assistance with this project was provided by Dr. John Gannaway - TAES, Lubbock, and Dr. Eric Hequet - Associate Director, International Textile Center, Texas Tech University.

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Table 1. Harvest results from the irrigated replicated transgenic cotton variety demonstration, AG-CARES, Lamesa, TX, 2006.

Entry	Lint turnout	Seed turnout	Bur cotton yield	Lint yield	Seed yield	Lint loan value	Lint value	Seed value	Total value	Ginning cost	Seed/technology cost	Net value	
	%	%	lb/acre	lb/acre	lb/acre	$/lb	$/acre	$/acre	$/acre	$/acre	$/acre	$/acre	
FiberMax 9058F	35.9	47.9	3315	1190	1588	0.5648	672.40	99.23	771.63	81.21	42.18	648.24	a
Deltapine 143B2RF	34.8	49.5	3484	1213	1726	0.5450	661.03	107.86	768.89	85.37	57.13	626.39	ab
FiberMax 9068F	35.1	49.0	3174	1115	1555	0.5703	635.96	97.19	733.15	77.76	44.31	611.08	abc
Stoneville 4554B2RF	35.3	47.6	3541	1249	1687	0.5072	633.65	105.44	739.09	86.76	55.68	596.65	abcd
Beltwide Cotton Genetics 3255B2F	33.1	48.6	3436	1136	1671	0.5365	609.54	104.45	713.99	84.17	54.90	574.91	bcde
All-Tex Apex B2RF	33.8	47.2	3234	1093	1527	0.5595	610.92	95.43	706.36	79.24	55.91	571.20	bcdef
FiberMax 9063B2F	34.0	48.9	3207	1091	1566	0.5500	599.88	97.88	697.76	78.56	51.80	567.40	bcdef
Deltapine 147RF	35.0	48.6	3065	1071	1489	0.5457	584.84	93.07	677.90	75.10	47.68	555.12	bcdef
Stoneville 4700B2RF	32.9	48.5	3273	1076	1589	0.5427	584.07	99.27	683.34	80.17	55.68	547.49	cdef
Beltwide Cotton Genetics 4630B2F	34.0	48.7	3084	1048	1499	0.5492	575.27	93.72	668.99	75.56	54.90	538.54	cdef
All-Tex Summit B2RF	34.1	49.9	3236	1103	1612	0.5170	571.01	100.76	671.77	79.28	56.96	535.52	def
PhytoGen 485WRF	32.8	49.0	3249	1066	1593	0.5058	538.88	99.55	638.42	79.59	54.09	504.74	ef
Deltapine 117B2RF	34.3	46.5	3093	1061	1439	0.5122	543.89	89.94	633.83	75.78	57.13	500.92	f
Test average	34.2	48.5	3261	1116	1580	0.5389	601.64	98.75	700.39	79.89	52.95	567.55	
CV, %	1.9	1.5	6.1	6.3	6.3	1.6	6.9	6.3	6.8	6.1	--	7.6	
OSL	<0.0001	0.0005	0.1216	0.0325	0.0680	<0.0001	0.0123	0.0680	0.0238	0.1213	--	0.0079	
LSD	1.1	1.2	NS	119	139†	0.0147	70.43	8.71†	80.51	NS	--	72.81	

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 LSD at the 0.10 level, NS - nonsignificant.
Note: some columns may not add up due to rounding error.

Assumes:
$2.45/cwt ginning cost.
$125/ton for seed.
Value for lint based on CCC loan value from grab samples and ITC HVI results. Color grades set at 31.

Table 2. HVI fiber property results from the irrigated replicated transgenic cotton variety demonstration, AG-CARES, Lamesa, TX, 2006.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf
	units	32^{nds} inches	%	g/tex	%	grade
FiberMax 9058F	4.6	35.4	80.8	28.0	5.5	3.0
Deltapine 143B2RF	4.5	35.7	80.3	27.9	6.7	4.0
FiberMax 9068F	4.6	36.1	81.8	29.9	6.0	3.0
Stoneville 4554B2RF	5.1	33.5	81.9	29.1	8.3	3.7
Beltwide Cotton Genetics 3255B2F	4.6	34.0	82.4	25.8	7.3	3.0
All-Tex Apex B2RF	4.7	35.1	82.2	26.9	6.8	3.0
FiberMax 9063B2F	4.6	36.3	81.6	30.5	6.1	4.0
Deltapine 147RF	4.3	35.5	80.9	27.6	5.8	4.0
Stoneville 4700B2RF	4.6	35.1	82.7	26.7	7.2	4.0
Beltwide Cotton Genetics 4630B2F	4.7	35.5	82.1	26.3	7.0	3.7
All-Tex Summit B2RF	4.8	33.5	82.3	25.7	7.1	3.3
PhytoGen 485WRF	4.9	34.1	82.8	29.2	8.2	5.0
Deltapine 117B2RF	4.6	33.9	81.3	29.9	6.5	4.7
Test average	4.6	34.9	81.8	28.0	6.8	3.7
CV, %	1.7	1.5	0.8	3.2	3.7	8.6
OSL	<0.0001	<0.0001	0.0029	<0.0001	<0.0001	<0.0001
LSD	0.1	0.9	1.2	1.5	0.4	0.5

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

Replicated Irrigated Cotton Variety Demonstration,
Dimmitt, TX - 2006

Cooperators: Bryan and Rex Reinart

Steve Young, Emilio Nino, Randy Boman, Mark Kelley, and Aaron Alexander
CEA-AG/NR Cochran County, EA-IPM Cochran/Hockley Counties,
Extension Agronomist-Cotton, Extension Program Specialist-Cotton,
and Graduate Student Assistant

Castro County

Summary: Significant differences were observed for some yield and economic parameters measured (Table 1). Lint turnout ranged from a low of 28.8% to a high of 33.7% for FiberMax 960B2R and Deltapine 113B2RF, respectively. Lint yields varied from a low of 790 lb/acre for Stoneville NexGen 1553R and a high of 988 lb/acre for Beltwide Cotton Genetics (BCG) 3255B2F. Lint loan values ranged from a low of $0.5542/lb (Deltapine 113B2RF) to a high of $0.5795/lb (All-Tex Patriot RR). When subtracting ginning and seed/technology costs from the total value (lint value + seed value), the net value/acre among varieties ranged from a high of $537.94 (BCG 3255B2F) to a low of $406.99 (Stoneville NexGen 3273B2RF), a difference of $130.96. Significant differences were observed among varieties for all lint quality parameters measured (Table 2). 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 cotton varieties under furrow-irrigated production systems.

Materials and Methods:

Varieties:	All-Tex Patriot RR, Beltwide Cotton Genetics 3255B2F, Beltwide Cotton Genetics 4021B2F, Beltwide Cotton Genetics 50R, Deltapine 113B2RF, FiberMax 960B2R, Stoneville NexGen 1553R, Stoneville NexGen 2448R, Stoneville NexGen 3273B2RF, and Stoneville NexGen 3969R
Experimental design:	Randomized complete block with 3 replications
Seeding rate:	4.4 seed per row-ft in 40-inch row spacing (John Deere 1700 Max Emerge)
Plot size:	4 rows by variable length of field (2652 ft long)
Planting date:	11-May

Weed management:	Trifluralin was applied with liquid fertilize at a rate of 1.0 pt/acre with 1.25 pt/acre Prowl on 15-March. Roundup Weather Max with ammonium sulfate (17 lbs/100 gallons of spray mix) was applied over-the-top prior to 4th true leaf. Two post-direct applications of Direx were conducted during the growing season. This location was cultivated once.
Rainfall and Irrigation:	In addition to rainfall, this location was pre-watered twice and row watered (every-other-row) three times during the growing season.
Insecticides:	Temik was applied in-furrow at planting at 3.0 lbs/acre. No other insecticides were applied at this site.
Fertilizer management:	250 lbs/acre of 28-0-0-5 liquid fertilizer were applied pre-plant on 15-March. Also, 10 tons/acre manure was applied at this location.
Plant growth regulators:	No plant growth regulators were utilized at this location.
Harvest aids:	Boll'd (ethephon) at 2.8 pt/acre plus ET at 2.3 oz/acre with COC at 1.0 qt/100 gallons spray solution was applied on 11-October.
Harvest:	Plots were harvested on 28-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 A&M University Agricultural Research and Extension Center at Lubbock to determine gin turnouts.
Fiber analysis:	Lint samples were submitted to the International Textile Center at Texas Tech University for HVI analysis, and Commodity Credit Corporation (CCC) loan values were determined for each variety by plot.
Ginning cost and seed values:	Ginning costs were based on $2.45 per cwt. of bur cotton and seed value/acre was based on $125/ton of seed. Ginning costs did not include checkoff.
Seed and technology cost:	Seed and technology costs were calculated using the appropriate seeding rate (seed/row-ft) for the row spacing and entries using the online Plains Cotton Growers Seed Cost Comparison Worksheet with Monsanto Cap Cost Thresholds. available at: http://www.plainscotton.org/Seed/seedindex.html

Results and Discussion:

Significant differences were observed for most parameters measured (Tables 1 and 2). Lint turnout ranged from a low of 28.8% to a high of 33.7% for FiberMax 960B2R and Deltapine 113B2RF, respectively. Lint yields varied from a low of 790 lb/acre for Stoneville NexGen 1553R and a high of 988 lb/acre for BCG 3255B2F. Lint loan values ranged from a low of $0.5542/lb (Deltapine 113B2RF) to a high of $0.5795/lb (All-Tex Patriot RR). No significant differences were observed among varieties for total value ($/acre); however, after subtracting ginning and seed/technology costs, the net value/acre among varieties ranged from a high of $537.94 (BCG 3255B2F) to a low of $406.99 (Stoneville NexGen 3273B2RF), a difference of $130.96. Six varieties were within the statistical upper tier for net value ($/acre). Among those, two were Bollgard II with Roundup Ready Flex technology types and four were Roundup Ready only. Micronaire values ranged from a low of 3.7 for Stoneville NexGen 3969R to a high of 4.6 for Stoneville NexGen 2448R. Staple length averaged 36.6 across all varieties with a low of 35.4 for BCG 50R and Stoneville NexGen 2448R and a high of 38.0 for FiberMax 960B2R. Uniformity was highest for Stoneville NexGen 2448R (84.0%) and lowest for Stoneville NexGen 3273B2RF (82.1%). A test average strength of 28.5 g/tex was observed with a high of 31.8 g/tex (Deltapine 113B2RF) and a low of 25.0 g/tex (BCG 4021B2F). Average percent elongation values ranged from a high of 7.3 to a low of 5.0 for Stoneville NexGen 1553R and FiberMax 960BR, respectively. The highest average leaf grade (4.0) was observed for Deltapine 113B2RF and the lowest (2.3) for BCG 50R. Test averages for reflectance (Rd) and yellowness (+b) were 78.7 and 8.3, respectively. Color grades were mostly 21's and 31's at this location. These data indicate that substantial differences can be obtained in terms of net value/acre due to variety and technology selection. It should be noted 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 Bryan and Rex Reinart for the use of their land, equipment and labor for this project. Further assistance with this project was provided by Dr. John Gannaway - TAES, Lubbock, and Dr. Eric Hequet - Associate Director, International Textile Center, Texas Tech University.

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Table 1. Harvest results from the irrigated replicated transgenic cotton variety demonstration, Bryan and Rex Reinart, Dimmitt, TX, 2006.

Entry	Lint turnout	Seed turnout	Bur cotton yield	Lint yield	Seed yield	Lint loan value	Lint value	Seed value	Total value	Ginning cost	Seed/technology cost	Net value	
	%	%	lb/acre	lb/acre	lb/acre	$/lb	$/acre	$/acre	$/acre	$/acre	$/acre	$/acre	
Beltwide Cotton Genetics 3255B2F	31.5	52.4	3133	988	1643	0.5785	571.67	102.68	674.35	76.75	59.65	537.94	a
Beltwide Cotton Genetics 50R	30.8	53.4	2877	887	1536	0.5777	513.21	95.98	609.19	70.49	30.21	508.49	ab
Stoneville NexGen 3969R	30.5	53.3	2914	890	1553	0.5728	509.77	97.09	606.86	71.40	35.00	500.46	ab
Deltapine 113B2RF	33.7	50.6	2886	971	1460	0.5542	538.18	91.26	629.44	70.69	62.13	496.61	ab
Stoneville NexGen 2448R	32.0	52.1	2832	907	1476	0.5600	507.31	92.25	599.57	69.38	35.00	495.18	ab
All-Tex Patriot RR	29.8	54.1	2892	863	1564	0.5795	500.20	97.74	597.93	70.84	33.23	493.86	ab
FiberMax 960B2R	28.8	49.7	2993	862	1488	0.5743	493.66	93.02	586.67	73.32	50.21	463.15	bc
Beltwide Cotton Genetics 4021B2F	29.7	54.2	2908	865	1576	0.5695	492.05	98.47	590.52	71.25	59.65	459.62	bc
Stoneville NexGen 1553R	30.7	53.9	2574	790	1389	0.5788	456.92	86.78	543.70	63.06	35.00	445.64	bc
Stoneville NexGen 3273B2RF	29.9	54.0	2654	793	1433	0.5565	441.22	89.58	530.80	65.03	58.78	406.99	c
Test average	30.7	52.8	2866	881	1512	0.5702	502.42	94.48	596.90	70.22	45.89	480.79	
CV, %	2.9	2.2	8.3	8.2	8.2	2.0	8.5	8.2	8.4	8.3	---	9.3	
OSL	0.0002	0.0014	0.2883	0.0585	0.3863	0.0720	0.0696	0.3863	0.1119	0.2878	---	0.0876	
LSD	1.5	2.0	NS	102.85†	NS	0.0161†	60.53†	NS	NS	NS	---	63.21†	

For net value/acre, means within a column with the same letter are not significantly different at the 0.10 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 LSD at the 0.10 level, NS - nonsignificant.
Note: some columns may not add up due to rounding error.

Assumes:
$2.45/cwt ginning cost.
$125/ton for seed.
Value for lint based on CCC loan value from grab samples and ITC HVI results.

Table 2. HVI fiber property results from the irrigated replicated transgenic cotton variety demonstration, Bryan and Rex Reinart, Dimmitt, TX, 2006.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32^{nds} inches	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
Beltwide Cotton Genetics 3255B2F	4.4	36.4	83.4	26.4	7.0	2.7	78.8	8.2	2.7	1.0
Beltwide Cotton Genetics 50R	4.4	35.4	82.3	28.7	6.9	2.3	79.2	8.4	2.3	1.0
Stoneville NexGen 3969R	3.7	36.6	83.3	29.0	6.9	3.0	80.3	8.3	2.3	1.0
Deltapine 113B2RF	4.5	36.6	82.9	31.8	6.2	4.0	76.5	8.0	3.0	1.0
Stoneville NexGen 2448R	4.6	35.4	84.0	31.2	7.0	3.3	77.9	8.6	3.0	1.0
All-Tex Patriot RR	3.8	37.0	82.2	27.7	6.6	3.0	79.8	8.1	2.3	1.0
FiberMax 960B2R	3.9	38.0	83.6	30.7	5.0	3.3	76.8	8.9	2.7	1.0
Beltwide Cotton Genetics 4021B2F	3.9	36.2	82.4	25.0	7.0	3.0	79.8	8.1	2.3	1.0
Stoneville NexGen 1553R	4.0	37.7	83.0	29.8	7.3	3.0	79.0	8.1	3.0	1.0
Stoneville NexGen 3273B2RF	4.1	36.4	82.1	25.2	7.2	3.3	78.7	7.9	2.7	1.0
Test average	4.1	36.6	82.9	28.5	6.7	3.1	78.7	8.3	2.6	1.0
CV, %	5.0	1.4	0.7	3.5	5.1	13.9	1.6	2.6	--	--
OSL	<0.0001	0.0002	0.0046	<0.0001	<0.0001	0.0166	0.0190	0.0009	--	--
LSD	0.4	0.9	0.9	1.7	0.6	0.7	2.1	0.4	--	--

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

Replicated Drip Irrigated Transgenic Cotton Variety Demonstration, Morton, TX - 2006

Cooperator: Kevin Silhan

Justin Scott, Kerry Siders, Randy Boman, Mark Kelley, and Aaron Alexander
CEA-AG/NR Cochran County, EA-IPM Cochran/Hockley Counties, Extension Agronomist-Cotton, Extension Program Specialist-Cotton, and Graduate Student Assistant

Cochran County

Summary: Significant differences were observed for most parameters measured (Tables 1 and 2). Lint turnout ranged from a low of 31.2% to a high of 35.7% for Stoneville NexGen 3273B2RF and FiberMax 9058F, respectively. Lint yields varied with a low of 1255 lb/acre (Stoneville NexGen 3273B2RF) and a high of 1589 lb/acre (FiberMax 989B2R). Lint loan values ranged from a low of $0.4782/lb (Deltapine 143B2RF) to a high of $0.5735/lb (FiberMax 9063B2F). After adding lint and seed value, total value/acre for varieties ranged from a low of $798.15 for Stoneville NexGen 3273B2RF to a high of $1064.61 for FiberMax 989B2R. When subtracting ginning, seed and technology fee costs, the net value/acre among varieties ranged from a high of $897.34 (FiberMax 989B2R) to a low of $637.84 (Stoneville NexGen 3273B2RF), a difference of $259.50. Significant differences were observed among varieties for all lint quality parameters measured. 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 drip-irrigation production systems.

Materials and Methods:

Varieties:	Deltapine 113B2RF, Deltapine 143B2RF, Stoneville NexGen 3273B2RF, Stoneville 4554B2RF, PhytoGen 485WRF, Beltwide Cotton Genetics 9775B2F, Americot 1532B2RF, FiberMax 9063B2F, FiberMax 9058F, and FiberMax 989B2R
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:	10 rows by length of field (~1000 ft long)

Planting date:	12-May
Weed management:	Trifluralin was impregnated on dry fertilizer and applied at a rate of 1.0 pt/acre on 15-March. At planting, Staple at a rate of 0.30 oz/acre and diuron at a rate of 8 oz/acre were applied on a 10 inch band. Roundup Original Max herbicide was applied over-the-top on 20-June at a rate of 32 oz/acre with ammonium sulfate (17 lbs/100 gallons of spray mix).
Rainfall and Irrigation:	16 inches of irrigation were applied during the growing season with approximately 5 inches of rainfall, according to personal communication with cooperator, for a total of 21 inches.
Insecticides:	Temik was applied in-furrow at planting at 3.5 lbs/acre. No other insecticides were applied at this site.
Fertilizer management:	120 lbs/acre N and 80 lbs/acre P_2O_5 were applied throughout the growing season through the drip irrigation system.
Plant growth regulators:	Pix was applied at a rate of 10 oz/acre on 01-July and an application of Stance at 3 oz/acre was made on 15-August.
Harvest aids:	Prep at 1.0 qt/acre plus Def at 1.0 pt/acre were applied on 25-September. No sequential harvest aid application was necessary.
Harvest:	Plots were harvested on 01-November 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 A&M University Agricultural Research and Extension Center at Lubbock to determine gin turnouts.
Fiber analysis:	Lint samples were submitted to the International Textile Center at Texas Tech University for HVI analysis, and Commodity Credit Corporation (CCC) loan values were determined for each variety by plot.
Ginning cost and seed values:	Ginning costs were based on $2.45 per cwt. of bur cotton and seed value/acre was based on $125/ton of seed. Ginning costs did not include checkoff.
Seed and technology cost:	Seed and technology costs were calculated using the appropriate seeding rate (seed/row-ft) for the row spacing and entries using the online Plains Cotton Growers Seed Cost Comparison Worksheet with Monsanto Cap Cost Thresholds. available at: http://www.plainscotton.org/Seed/seedindex.html

Results and Discussion:

Significant differences were observed for most parameters measured (Tables 1 and 2). Lint turnout ranged from a low of 31.2% to a high of 35.7% for Stoneville NexGen 3273B2RF and FiberMax 9058F, respectively. Lint yields varied with a low of 1255 lb/acre (Stoneville NexGen 3273B2RF) and a high of 1589 lb/acre (FiberMax 989B2R). Lint loan values ranged from a low of $0.4782/lb (Deltapine 143B2RF) to a high of $0.5735/lb (FiebrMax 9063B2F). After adding lint and seed value, total value/acre for varieties ranged from a low of $798.15 for Stoneville NexGen 3273B2RF to a high of $1064.61 for FiberMax 989B2R. When subtracting ginning, seed and technology fee costs, the net value/acre among varieties ranged from a high of $897.34 (FiberMax 989B2R) to a low of $637.84 (Stoneville NexGen 3273B2RF), a difference of $259.50. Micronaire values ranged from a low of 2.7 for Deltapine 143B2RF to a high of 3.7 for Beltwide Cotton Genetics 9775B2RF. Staple length averaged 37.7 across all varieties with a low of 36.7 for Deltapine 113B2RF and a high of 39.1 for FiberMax 9063B2F. Uniformity was highest for PhytoGen 485WRF (83.3%) and lowest for Deltapine 143B2RF (80.1%). A test average strength of 28.0 g/tex was observed with a high of 31.8 g/tex (Deltapine 113B2RF) and a low of 25.8 g/tex (Deltapine 143B2RF). Percent elongation ranged from a high of 8.0 to a low of 6.0 for Stoneville 4554B2RF and FiberMax 9058F, respectively. The highest average leaf grade (4.7) was observed for Deltapine 113B2RF and the lowest (3.0) was observed for five varieties. Test averages for reflectance (Rd) and yellowness (+b) were 81.7 and 7.8, respectively. Color grades were mostly 21's and 31's at this location with some 11's. 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 Kevin Silhan for the use of his land, equipment and labor for this project. Further assistance with this project was provided by Dr. John Gannaway - TAES, 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. 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 subsurface drip irrigated replicated transgenic cotton variety demonstration, Kevin Silhan Farm, Morton, TX, 2006.

Entry	Lint turnout	Seed turnout	Bur cotton yield	Lint yield	Seed yield	Lint loan value	Lint value	Seed value	Total value	Ginning cost	Seed/technology cost	Net value	
	%	%	lb/acre	lb/acre	lb/acre	$/lb	$/acre	$/acre	$/acre	$/acre	$/acre	$/acre	
FiberMax 989B2R	33.9	53.5	4690	1589	2512	0.5705	907.64	156.97	1064.61	114.91	52.36	897.34	a
FiberMax 9058F	35.7	52.4	4391	1566	2302	0.5592	876.32	143.87	1020.19	107.59	48.38	864.22	ab
Stoneville 4554B2RF	35.1	53.4	4285	1505	2290	0.5673	854.69	143.12	997.81	105.00	63.75	829.06	abc
FiberMax 9063B2F	34.1	52.7	4048	1379	2133	0.5735	793.04	133.35	926.38	99.18	58.90	768.30	abcd
Americot 1532B2RF	33.2	53.6	4224	1402	2264	0.5533	775.57	141.52	917.09	103.49	59.68	753.92	bcd
Beltwide Cotton Genetics 9775B2F	31.3	56.0	4233	1325	2370	0.5805	769.12	148.15	917.28	103.70	62.77	750.80	bcd
PhytoGen 485WRF	32.9	52.4	4101	1349	2148	0.5528	745.80	134.26	880.06	100.47	62.61	716.98	cd
Deltapine 113B2RF	34.6	52.1	4092	1416	2132	0.5277	746.90	133.23	880.12	100.26	65.57	714.30	cd
Deltapine 143B2RF	31.5	54.4	4691	1480	2549	0.4782	709.38	159.33	868.71	114.91	65.57	688.22	d
Stoneville NexGen 3273B2RF	31.2	54.6	4021	1255	2195	0.5293	660.98	137.18	798.15	98.53	61.79	637.84	d
Test average	33.3	53.5	4278	1427	2289	0.5492	783.94	143.10	927.04	104.80	60.14	762.10	
CV, %	2.6	1.5	9.1	9.0	9.0	3.5	9.5	9.0	9.4	9.1	--	10.2	
OSL	<0.0001	0.0004	0.3513	0.0879	0.1976	0.0001	0.0187	0.1982	0.0451	0.3523	--	0.0168	
LSD	1.5	1.4	NS	182†	NS	0.0328	128.40	NS	149.08	NS	--	133.82	

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 LSD at the 0.10 level, NS - nonsignificant.
Note: some columns may not add up due to rounding error.

Assumes:
$2.45/cwt ginning cost.
$125/ton for seed.
Value for lint based on CCC loan value from grab samples and ITC HVI results.

Table 2. HVI fiber property results from the subsurface drip irrigated replicated transgenic cotton variety demonstration, Kevin Silhan Farm, Morton, TX, 2006.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32^{nds} inches	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
FiberMax 989B2R	3.6	37.1	82.9	29.4	6.4	3.0	82.4	8.0	2	1
FiberMax 9058F	3.5	38.4	81.7	27.6	6.0	3.0	82.5	7.4	2	1
Stoneville 4554B2RF	3.6	36.9	82.6	27.6	8.0	3.3	80.7	8.6	2	1
FiberMax 9063B2F	3.5	39.1	82.9	30.7	6.1	3.0	83.6	7.4	2	1
Americot 1532B2RF	3.4	37.6	82.4	26.6	7.1	3.3	81.2	8.1	2	1
Beltwide Cotton Genetics 9775B2F	3.7	38.6	82.2	26.5	6.9	3.0	82.6	7.6	2	1
PhytoGen 485WRF	3.6	36.9	83.3	28.2	7.8	4.0	79.1	8.3	3	1
Deltapine 113B2RF	3.6	36.7	82.2	31.8	6.4	4.7	78.4	7.7	3	1
Deltapine 143B2RF	2.7	38.2	80.1	25.8	6.2	4.0	82.4	7.6	2	1
Stoneville NexGen 3273B2RF	3.1	37.5	81.6	25.9	7.2	3.0	83.8	7.7	1	1
Test average	3.4	37.7	82.2	28.0	6.8	3.4	81.7	7.8	2.1	1.0
CV, %	7.6	1.1	0.9	4.1	4.7	8.5	1.0	2.7	--	--
OSL	0.0037	<0.0001	0.0025	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	--	--
LSD	0.4	0.7	1.3	2.0	0.5	0.5	1.4	0.4	--	--

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

Replicated Irrigated Cotton Variety Demonstration, Seminole, TX - 2006

Cooperator: Shelby Elam

Terry Millican, Clyde Crumley, Randy Boman, Mark Kelley, and Aaron Alexander
CEA-AG/NR Gaines County, EA-IPM Gaines County,
Extension Agronomist-Cotton, Extension Program Specialist-Cotton,
and Graduate Student Assistant

Gaines County

Summary: Significant differences were observed for most parameters measured (Tables 1 and 2). Lint turnout ranged from 22.9% to 26.7% for Americot 1622B2RF and Deltapine 147RF, respectively. Lint yields varied with a low of 562 lb/acre (Americot 1622B2RF) and a high of 778 lb/acre (Stoneville 4554B2RF). Lint loan values ranged from a low of $0.5448/lb (Deltapine 143B2RF) to a high of $0.5852/lb (Fibermax 9063B2F). After adding lint and seed value, total value/acre ranged from a low of $384.79 for Americot 1622B2RF to a high of $516.58 for Stoneville 4554B2RF. When subtracting ginning and seed/technology costs, the net value/acre among varieties ranged from a high of $391.41 (Stoneville 4554B2RF) to a low of $275.41 (Americot 1622B2RF), a difference of $116.00. Significant differences were observed among varieties for all lint quality parameters measured. 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:	Deltapine 147RF, Stoneville 4554B2RF, FiberMax 9063B2F, Beltwide Cotton Genetics 4630B2F, Americot 1532B2RF, Americot 1622B2RF, FiberMax 9058F, Deltapine 143 B2RF
Experimental design:	Randomized complete block with 3 replications
Seeding rate:	3.75 seed per row-ft in 40-inch row spacing
Plot size:	4 rows by length of field (2640 ft long)
Planting date:	23-May
Weed management:	Treflan was applied preplant incorporated at 1.0 pt/acre. Glyphosate

herbicide was applied over-the-top at 30 oz/acre with 1.25 pts/acre Treflan on 1-June . The test was later post-directed with glyphosate on 18-June at a rate of 30 oz/acre with ammonium sulfate (17 lbs/100 gallons of spray mix). Aim at a rate of 1.0 oz/acre was applied with the glyphosate application on 18-June.

Rainfall and Irrigation: According to personal communication with cooperator, 5.0 inches of rainfall accumulated during the summer and 10.0 inches of irrigation were applied during the growing season, for a total of 15.0 inches.

Insecticides: Temik was applied at in-furrow at planting at 4.5 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: 300 lb/acre of 4-11-10 (12 lb N, 33 lb P_2O_5, and 30 lb K_2O) and 60 lb/acre of 28-0-0-5 (16.8 lb N) were applied pre-plant on 3-April.

Plant growth regulators: No plant growth regulators were used at this testing site during the growing season.

Harvest aids: Prep at 1.0 qt/acre with Aim at 1.0 pz/acre were applied on 10-October.

Harvest: Plots were harvested on 08-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 A&M University Agricultural Research and Extension Center at Lubbock to determine gin turnouts.

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

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

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

Results and Discussion:

Significant differences were observed for most parameters measured (Tables 1 and 2). Lint turnout ranged from 22.9% to 26.7% for Americot 1622B2RF and Deltapine 147RF, respectively. Lint yields varied with a low of 562 lb/acre (Americot 1622B2RF) and a high of 778 lb/acre (Stoneville 4554B2RF). Lint loan values ranged from a low of $0.5448/lb (Deltapine 143B2RF) to a high of $0.5852/lb (Fibermax 9063B2F). After adding lint and seed value, total value/acre ranged from a low of $384.79 for Americot 1622B2RF to a high of $516.58 for Stoneville 4554B2RF. When subtracting ginning and seed/technology costs, the net value/acre among varieties ranged from a high of $391.41 (Stoneville 4554B2RF) to a low of $275.41 (Americot 1622B2RF), a difference of $116.00. Two varieties were in the statistical upper tier for net value. One variety contained Bollgard II with Roundup Ready Flex technology (Stoneville 4554B2RF) and the other was Roundup Ready Flex only (Deltapine 147RF). Micronaire values ranged from a low of 4.0 for Deltapine 143B2RF to a high of 4.8 for Stoneville 4554B2RF. Staple length averaged 36.8 across all varieties with a low of 35.7 for Stoneville 4554B2RF and a high of 37.8 for Fibermax 9063B2F. Uniformity was highest for Americot 1622B2RF (83.2%) and lowest for Deltapine 143B2RF (80.3%). A test average strength of 27.6 g/tex was observed with a high of 31.1 g/tex (FiberMax 9063B2F) and a low of 24.9 g/tex (Americot 1532B2RF). Percent elongation ranged from a high of 7.6 to a low of 5.4 for Stoneville 4554B2RF and FiberMax 9058F, respectively. The highest average leaf grade (4.3) was observed for Deltapine 143B2RF and the lowest (3.0) was observed for four varieties. Test averages for reflectance (Rd) and yellowness (+b) were 80.8 and 8.0, respectively. Color grades were mostly 21's and 31's at this location. These data indicate that substantial differences can be obtained in terms of net value/acre due to variety and technology selection. It should be noted no inclement weather was encountered at this location prior to harvest. Additional multi-site and multi-year applied research is needed to evaluate varieties and technology across a series of environments.

Acknowledgments:

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 - TAES, Lubbock, and Dr. Eric Hequet - Associate Director, International Textile Center, Texas Tech University.

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Table 1. Harvest results from the low input irrigated replicated transgenic cotton variety demonstration, Shelby Elam Farm, Seminole, TX, 2006.

Entry	Lint turnout	Seed turnout	Bur cotton yield	Lint yield	Seed yield	Lint loan value	Lint value	Seed value	Total value	Ginning cost	Seed/technology cost	Net value	
	%	%	lb/acre	lb/acre	lb/acre	$/lb	$/acre	$/acre	$/acre	$/acre	$/acre	$/acre	
Stoneville 4554B2RF	26.2	39.4	2979	778	1171	0.5693	443.43	73.16	516.58	72.98	52.20	391.41	a
Deltapine 147RF	26.7	41.8	2625	699	1093	0.5605	391.96	68.31	460.27	64.31	44.70	351.27	ab
Deltapine 143B2RF	25.8	40.9	2720	703	1116	0.5448	383.55	69.74	453.29	66.63	53.56	333.10	cb
FiberMax 9058F	26.4	38.4	2383	633	919	0.5765	364.77	57.42	422.19	58.38	39.54	324.28	cb
FiberMax 9063B2F	25.9	40.2	2383	616	958	0.5852	360.53	59.86	420.39	58.38	48.56	313.45	bcd
Beltwide Cotton Genetics 4630B2F	25.7	40.3	2465	633	994	0.5707	360.30	62.11	422.41	60.40	51.47	310.54	bcd
Americot 1532B2RF	25.4	39.9	2417	615	966	0.5685	349.87	60.37	410.24	59.21	49.15	301.88	cd
Americot 1622B2RF	22.9	41.1	2458	562	1009	0.5723	321.71	63.08	384.79	60.23	49.15	275.41	d
Test average	25.6	40.3	2554	655	1028	0.5685	372.02	64.26	436.27	62.56	48.54	325.17	
CV, %	4.6	3.9	4.5	5.8	5.4	2.1	6.7	5.4	6.4	4.5	--	8.1	
OSL	0.0372	0.2853	0.0002	0.0002	0.0007	0.0373	0.0018	0.0008	0.0019	0.0002	--	0.0042	
LSD	2.1	NS	200	66	98	0.0207	43.42	6.12	48.95	4.90	--	46.21	

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, NS - nonsignificant.
Note: some columns may not add up due to rounding error.

Assumes:
$2.45/cwt ginning cost.
$125/ton for seed.
Value for lint based on CCC loan value from grab samples and ITC HVI results.

Table 2. HVI fiber property results from the low input irrigated replicated transgenic cotton variety demonstration, Shelby Elam Farm, Seminole, TX, 2006.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32^{nds} inches	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
Stoneville 4554B2RF	4.8	35.7	82.7	30.0	7.6	3.3	79.5	8.6	2	1
Deltapine 147RF	4.1	36.7	81.2	27.6	5.5	3.7	80.2	7.9	3	1
Deltapine 143B2RF	4.0	37.0	80.3	26.6	6.2	4.3	80.1	7.7	3	1
FiberMax 9058F	4.4	36.9	81.6	27.8	5.4	3.0	81.1	7.8	2	1
FiberMax 9063B2F	4.6	37.8	82.6	31.1	5.6	3.0	82.2	7.6	2	1
Beltwide Cotton Genetics 4630B2F	4.3	36.3	82.3	25.3	7.0	3.0	80.7	8.2	2	1
Americot 1532B2RF	4.1	36.3	81.1	24.9	7.0	3.0	81.2	8.2	2	1
Americot 1622B2RF	4.2	37.7	83.2	27.4	6.7	3.3	81.3	7.7	2	1
Test average	4.3	36.8	81.9	27.6	6.4	3.3	80.8	8.0	2.3	1.0
CV, %	3.4	1.4	0.7	3.6	5.2	12.2	0.7	2.7	--	--
OSL	<0.0001	0.0027	0.0002	<0.0001	<0.0001	0.0131	0.0007	0.0006	--	--
LSD	0.3	0.9	0.9	1.7	0.6	0.7	0.9	0.4	--	--

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

Replicated Irrigated Roundup Ready Flex Cotton Variety Demonstration, Halfway, TX - 2006

Cooperator: Texas Agricultural Experiment Station, Halfway Farm

Michael Dolle, Greg Cronholm, Randy Boman, Mark Kelley, and Aaron Alexander
CEA-AG/NR Hale County, EA-IPM Hale County,
Extension Agronomist-Cotton, Extension Program Specialist-Cotton,
and Graduate Student Assistant

Hale County

Summary: Significant differences were observed for most parameters measured (Tables 1 and 2). Lint turnout ranged from a low of 31.4% to a high of 36.7% for PhytoGen 125RF and FiberMax 9060F, respectively. Lint yields varied with a low of 754 lb/acre (AFD 3070F) and a high of 938 lb/acre (FiberMax 9060F). Lint loan values ranged from a low of $0.5168/lb (Deltapine X04V344F) to a high of $0.5670/lb (FiberMax 9058F). After adding lint and seed value, total value/acre among varieties ranged from a low of $500.21 for AFD 3070F to a high of $603.97 for FiberMax 9060F. When subtracting ginning and seed/technology costs, net value/acre ranged from a high of $496.15 (FiberMax 9060F) to a low of $392.86 (PhytoGen 125RF), a difference of $103.29. Significant differences were observed among varieties for micronaire, staple, uniformity, strength, elongation, and leaf. 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:	Deltapine X04V344F, Deltapine 147RF, Stoneville NexGen 3550RF, Stoneville 4664RF, PhytoGen 125RF, AFD 5064F, FiberMax 9060F, FiberMax 9058F, AFD 3074F, and AFD 3070F
Experimental design:	Randomized complete block with 3 replications
Seeding rate:	4.3 seed per row-ft in 40-inch row spacing (John Deere Max Emerge vacuum planter)
Plot size:	4 rows by variable length (343 to 779 ft) due to circular pivot
Planting date:	18-May

Weed management:	Prowl was applied at a rate of 2.0 qt/acre on 28-March. Roundup Weather Max herbicide was applied over-the-top on 3-June, 5-July, and 22-August at a rate of 22 oz/acre with ammonium sulfate (17 lbs/100 gallons of spray mix).
Rainfall and Irrigation:	12 acre-inches of irrigation were applied during the growing season with approximately 13 inches of rainfall.
Insecticides:	Temik was applied in-furrow at planting at 3.0 lbs/acre. No other insecticides were applied at this site.
Fertilizer management:	No fertilizers were applied at this location.
Plant growth regulators:	No plant growth regulators were applied to this test during the growing season.
Harvest aids:	Prep at 1.0 qt/acre plus Aim at 1.0 oz/acre was applied on 20-October.
Harvest:	Plots were harvested on 01-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 A&M University Agricultural Research and Extension Center at Lubbock to determine gin turnouts.
Fiber analysis:	Lint samples were submitted to the International Textile Center at Texas Tech University for HVI analysis, and Commodity Credit Corporation (CCC) loan values were determined for each variety by plot.
Ginning cost and seed values:	Ginning costs were based on $2.45 per cwt. of bur cotton and seed value/acre was based on $125/ton of seed. Ginning costs did not include checkoff.
Seed and technology cost:	Seed and technology costs were calculated using the appropriate seeding rate (seed/row-ft) for the row spacing and entries using the online Plains Cotton Growers Seed Cost Comparison Worksheet with Monsanto Cap Cost Thresholds. available at: http://www.plainscotton.org/Seed/seedindex.html

Results and Discussion:

Significant differences were observed for most parameters measured (Tables 1 and 2). Lint turnout ranged from a low of 31.4% to a high of 36.7% for PhytoGen 125RF and FiberMax 9060F, respectively. Lint yields varied with a low of 754 lb/acre (AFD 3070F) and a high of 938 lb/acre (FiberMax 9060F). Lint loan values ranged from a low of $0.5168/lb (Deltapine X04V344F) to a high of $0.5670/lb (FiberMax 9058F). After adding lint and seed value, total value/acre among varieties ranged from a low of $500.21 for AFD 3070F to a high of $603.97 for FiberMax 9060F. When subtracting ginning and seed/technology costs, net value/acre ranged from a high of $496.15 (FiberMax 9060F) to a low of $392.86 (PhytoGen 125RF), a difference of $103.29. Four varieties were within the statistical upper tier for net value ($/acre). FiberMax 9060F, FiberMax 9058F, Deltapine 147RF, and Stoneville 4664RF produced similar net values. Significant differences were observed among varieties for micronaire, staple, uniformity, strength, elongation, and leaf. Micronaire values ranged from a high of 4.6 for Stoneville 4664RF to a low of 3.8 for AFD 3074F and Stoneville NexGen 3550RF. FiberMax 9058F had the highest staple length (36.4) and Deltapine X04V344F had the lowest (33.5) The test average for percent uniformity was 81.5 and ranged from a low of 79.8 to a high of 82.9 for FiberMax 9060F and Stoneville 4664RF, respectively. Strength values ranged from a high of 31.3 g/tex for PhytoGen 125RF to a low of 26.4 for Deltapine X04V344F. Percent elongation was highest for Stoneville 4664RF (8.7%) and lowest for FiberMax 9058F (5.6%). A test average leaf grade of 3.6 was observed with a high of 4.0 for AFD 5064F, PhytoGen 125RF, Deltapine 147RF and Stoneville NexGen 3550RF, and a low of 3.0 for AFD 3074F. 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 - Texas Agricultural Experiment Station (TAES), Halfway/Helms; and Jim Bordovsky, Research Scientist and Agricultural Engineer - TAES, Halfway/Helms, for their assistance with this project. Further assistance with this project was provided by Dr. John Gannaway - TAES, Lubbock, and Dr. Eric Hequet - Associate Director, International Textile Center, Texas Tech University.

Disclaimer Clause:

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Table 1. Harvest results from the irrigated replicated transgenic cotton variety demonstration, Texas Agricultural Experiment Station, Halfway, TX, 2006.

Entry	Lint turnout	Seed turnout	Bur cotton yield	Lint yield	Seed yield	Lint loan value	Lint value	Seed value	Total value	Ginning cost	Seed/technology cost	Net value	
	%	%	lb/acre	lb/acre	lb/acre	$/lb	$/acre	$/acre	$/acre	$/acre	$/acre	$/acre	
FiberMax 9060F	36.7	49.5	2557	938	1265	0.5600	524.93	79.04	603.97	62.64	45.18	496.15	a
FiberMax 9058F	35.4	48.9	2579	912	1262	0.5670	517.16	78.86	596.02	63.18	45.18	487.66	ab
Deltapine 147RF	35.4	48.9	2527	894	1235	0.5505	492.16	77.19	569.34	61.92	51.08	456.35	abc
Stoneville 4664RF	35.5	48.1	2535	900	1219	0.5453	492.39	76.20	568.59	62.10	50.64	455.85	abc
AFD 3074F	32.6	53.9	2493	813	1343	0.5668	460.70	83.95	544.65	61.08	41.01	442.57	bcd
AFD 5064F	33.0	51.6	2599	857	1341	0.5287	453.37	83.83	537.20	63.69	43.20	430.32	cd
Stoneville NexGen 3550RF	33.7	51.4	2498	842	1284	0.5385	453.68	80.26	533.94	61.20	42.80	429.94	cd
Deltapine X04V344F	34.4	51.1	2417	831	1235	0.5168	429.19	77.20	506.39	59.22	46.15	401.02	d
AFD 3070F	32.0	54.0	2354	754	1272	0.5582	420.73	79.48	500.21	57.68	41.67	400.86	d
PhytoGen 125RF	31.4	52.9	2502	786	1323	0.5332	419.16	82.67	501.83	61.30	47.67	392.86	d
Test average	34.0	51.0	2506	853	1278	0.5465	466.35	79.87	546.21	61.40	45.46	439.36	
CV, %	2.0	1.8	5.4	5.4	5.4	1.9	6.3	5.4	6.2	5.4	--	6.9	
OSL	<0.0001	<0.0001	0.5579	0.0023	0.3147	<0.0001	0.0016	0.3148	0.0081	0.5576	--	0.0052	
LSD	1.2	1.6	NS	80	NS	0.0175	50.77	NS	57.71	NS	--	52.24	

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.
$125/ton for seed.
Value for lint based on CCC loan value from grab samples and ITC HVI results. Color grades set at 31.

Table 2. HVI fiber property results from the irrigated replicated transgenic cotton variety demonstration, Texas Agricultural Experiment Station, Halfway, TX, 2006

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf
	units	32^{nds} inches	%	g/tex	%	grade
FiberMax 9060F	4.1	36.0	79.8	28.3	5.7	3.3
FiberMax 9058F	4.0	36.4	80.8	29.5	5.6	3.3
Deltapine 147RF	3.9	36.1	81.4	28.9	6.2	4.0
Stoneville 4664RF	4.6	34.4	82.9	29.3	8.7	3.7
AFD 3074F	3.8	34.6	81.8	30.4	7.1	3.0
AFD 5064F	4.1	33.9	81.9	29.9	6.8	4.0
Stoneville NexGen 3550RF	3.8	34.7	81.2	29.1	6.9	4.0
Deltapine X04V344F	3.9	33.5	80.6	26.4	6.4	3.7
AFD 3070F	4.0	35.2	82.0	28.5	6.2	3.3
PhytoGen 125RF	3.9	33.8	82.7	31.3	7.0	4.0
Test average	4.0	34.8	81.5	29.2	6.7	3.6
CV, %	2.7	1.3	1.0	3.0	3.7	9.8
OSL	<0.0001	<0.0001	0.0070	0.0002	<0.0001	0.0169
LSD	0.2	0.8	1.4	1.5	0.4	0.6

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

Replicated Irrigated Bollgard II/Roundup Ready Flex Cotton Variety Demonstration, Halfway, TX - 2006

Cooperator: Texas Agricultural Experiment Station, Helms Farm

Michael Dolle, Greg Cronholm, Randy Boman, Mark Kelley, and Aaron Alexander
CEA-AG/NR Hale County, EA-IPM Hale County,
Extension Agronomist-Cotton, Extension Program Specialist-Cotton,
and Graduate Student Assistant

Hale 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 33.5% for Beltwide Cotton Genetics (BCG) 4630B2F and Stoneville 4554B2RF, respectively. Lint yields varied with a low of 1422 lb/acre (BCG 4630B2F) and a high of 1682 lb/acre (Paymaster 2140B2RF and Stoneville 4554B2RF). Lint loan values ranged from a low of $0.4813/lb (BCG 4630B2F) to a high of $0.5345/lb (AFD 5065B2F). After adding lint and seed value, total value/acre ranged from a low of $859.59 for BCG 4630B2F to a high of $1077.31 for AFD 5065B2F. When subtracting ginning, seed and technology fee costs, the net value/acre among varieties ranged from a high of $891.29 (AFD 5065B2F) to a low of $680.80 (BCG 4630B2F), a difference of $210.49. Significant differences were observed among varieties for micronaire, uniformity, strength, leaf, 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:	Deltapine 117B2RF, Americot 1521B2RF, Paymaster 2140B2RF, AFD 5065B2RF, Beltwide Cotton Genetics 3255B2F, Stoneville 4554B2RF, Phytogen 485WRF, FiberMax 9063B2F, All-Tex Apex B2RF, and Beltwide Cotton Genetics 4630B2F
Experimental design:	Randomized complete block with 3 replications
Seeding rate:	4.3 seed per row-ft in 30-inch row spacing (John Deere Max Emerge vacuum planter)
Plot size:	4 rows by variable length(380 to 710 ft) due to circular pivot

Planting date:	17-May
Weed management:	An application of 22 oz/acre Roundup Original Max and 48 oz/acre of Prowl was made pre-plant on 25-April. Glystar was applied on 5-June at a rate of 32 oz/acre.
Rainfall and Irrigation:	From 10-May through September, 10.93 inches of rainfall accumulated in addition to 14.67 inches of preplant and seasonal irrigation, for a total of 25.6 inches.
Insecticides:	Temik was applied in-furrow at planting at 3.0 lbs/acre. No other insecticides were applied at this site.
Fertilizer management:	64 lbs/acre of P_2O_5 (10-34-0) and 19 lbs/acre N (32-0-0) were applied on 10-April using a coulter rig. Another 60 lbs/acre N (32-0-0) was applied on 23-May with a coulter rig. An additional 67 lbs/a N (32-0-0) was applied via fertigation during the growing season.
Plant growth regulators:	Plant growth regulators were not used at this location.
Harvest aids:	Harvest aids consisting of 32 oz/a Prep and 1.5 oz/a ET with 1% v/v (1 gal/100 gal spray solution) crop oil concentrate were applied on 24-Oct.
Harvest:	Plots were harvested on 10-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 A&M University Agricultural Research and Extension Center at Lubbock to determine gin turnouts.
Fiber analysis:	Lint samples were submitted to the International Textile Center at Texas Tech University for HVI analysis, and Commodity Credit Corporation (CCC) loan values were determined for each variety by plot.
Ginning cost and seed values:	Ginning costs were based on $2.45 per cwt. of bur cotton and seed value/acre was based on $125/ton of seed. Ginning costs did not include checkoff.
Seed and technology cost:	Seed and technology costs were calculated using the appropriate seeding rate (seed/row-ft) for the row spacing and entries using the online Plains Cotton Growers Seed Cost Comparison Worksheet with Monsanto Cap Cost Thresholds. available at: http://www.plainscotton.org/Seed/seedindex.html

Results and Discussion:

Significant differences were observed for most parameters measured (Tables 1 and 2). Lint turnout ranged from a low of 29.0% to a high of 33.5% for Beltwide Cotton Genetics (BCG) 4630B2F and Stoneville 4554B2RF, respectively. Lint yields varied with a low of 1422 lb/acre (BCG 4630B2F) and a high of 1682 lb/acre (Paymaster 2140B2RF and Stoneville 4554B2RF). Lint loan values ranged from a low of $0.4813/lb (BCG 4630B2F) to a high of $0.5345/lb (AFD 5065B2F). After adding lint and seed value, total value/acre ranged from a low of $859.59 for BCG 4630B2F to a high of $1077.31 for AFD 5065B2F. When subtracting ginning, seed and technology fee costs, the net value/acre among varieties ranged from a high of $891.29 (AFD 5065B2F) to a low of $680.80 (BCG 4630B2F), a difference of $210.49. Micronaire values ranged from a low of 2.7 for BCG 4630B2F to a high of 3.3 for Paymaster 2140B2RF. A test average staple length of 37.6 was observed with no significant differences among varieties. The test average for percent uniformity was 81.9 and ranged from a low of 80.7 to a high of 83.3 for BCG 4630B2F and PhytoGen 485WRF, respectively. Strength values ranged from a high of 30.1 g/tex for Deltapine 117B2RF to a low of 23.1 for BCG 4630B2RF. A test average leaf grade of 3.3 was observed with a high of 4.0 for Deltapine 117B2RF and PhytoGen 485WRF. Reflectance (Rd) values ranged from a high of 82.6 (All-Tex Apex B2RF) to a low of 79.6 (PhytoGen 485WRF) and yellowness (+b) values ranged from a high of 7.9 (Stoneville 4554B2RF) to a low of 6.4 (AFD 5065B2F). Color grades for all varieties were 21's and 31's. 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 - Texas Agricultural Experiment Station (TAES), Halfway/Helms; and Jim Bordovsky, Research Scientist and Agricultural Engineer - TAES, Halfway/Helms, for their assistance with this project. Further assistance with this project was provided by Dr. John Gannaway - TAES, Lubbock, and Dr. Eric Hequet - Associate Director, International Textile Center, Texas Tech University.

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Table 1. Harvest results from the irrigated replicated transgenic cotton variety demonstration, Texas Agricultural Experiment Station, Helms Farm, Halfway, TX, 2006.

Entry	Lint turnout	Seed turnout	Bur cotton yield	Lint yield	Seed yield	Lint loan value	Lint value	Seed value	Total value	Ginning cost	Seed/technology cost	Net value	
	%	%	lb/acre	lb/acre	lb/acre	$/lb	$/acre	$/acre	$/acre	$/acre	$/acre	$/acre	
AFD 5065B2F	30.1	56.5	5496	1652	3104	0.5345	883.28	194.03	1077.31	134.64	51.38	891.29	a
Paymaster 2140B2RF	33.1	54.6	5089	1682	2778	0.5223	878.47	173.61	1052.08	124.67	55.15	872.26	ab
Stoneville 4554B2RF	33.5	56.7	5027	1682	2852	0.5157	867.70	178.24	1045.95	123.17	59.64	863.14	ab
FiberMax 9063B2F	32.3	53.8	4948	1597	2661	0.5282	846.33	166.30	1012.63	121.24	55.48	835.91	abc
Deltapine 117B2RF	32.3	52.4	4892	1582	2563	0.5120	809.61	160.20	969.80	119.86	61.20	788.75	abcd
Americot 1521B2RF	30.0	55.2	5306	1592	2931	0.4963	790.13	183.14	973.27	130.01	56.15	787.11	abcd
All-Tex Apex B2RF	29.7	56.2	5222	1553	2936	0.5048	783.64	183.52	967.17	127.95	59.89	779.33	bcd
Beltwide Cotton Genetics 3255B2F	31.1	55.8	5091	1585	2838	0.4938	782.52	177.40	959.91	124.74	58.80	776.38	bcd
PhytoGen 485WRF	30.0	53.9	4816	1445	2597	0.5158	745.66	162.30	907.96	117.99	56.52	733.45	cd
Beltwide Cotton Genetics 4630B2F	29.0	56.3	4898	1422	2759	0.4813	687.16	172.44	859.59	119.99	58.80	680.80	d
Test average	31.1	55.1	5079	1579	2802	0.5105	807.45	175.12	982.57	124.43	57.30	800.84	
CV, %	3.7	1.8	5.5	5.5	5.5	4.2	7.7	5.5	7.2	5.5	--	8.1	
OSL	0.0010	0.0006	0.1538	0.0188	0.0107	0.1441	0.0213	0.0108	0.0356	0.1538	--	0.0207	
LSD	2.0	1.7	NS	148	264	NS	107.34	16.50	121.51	NS	--	111.39	

For net value/acre, means within a column with the same letter are not significantly different at the 0.05 probability level.
CV - coefficient of variation.
OSL - observed significance level, or probability of a greater F value.
LSD - least significant difference at the 0.05 level, NS - nonsignificant.
Note: some columns may not add up due to rounding error.

Assumes:
$2.45/cwt ginning cost.
$125/ton for seed.
Value for lint based on CCC loan value from grab samples and ITC HVI results.

Table 2. HVI fiber property results from the irrigated replicated transgenic cotton variety demonstration, Texas Agricultural Experiment Station, Helms Farm, Halfway, TX, 2006.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32^{nds} inches	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
AFD 5065B2F	3.2	37.2	81.8	27.8	7.3	3.3	82.4	6.4	3	1
Paymaster 2140B2RF	3.3	36.6	82.5	27.1	6.9	3.7	81.0	6.5	3	1
Stoneville 4554B2RF	3.0	38.1	81.9	26.4	6.9	3.3	81.5	7.9	2	1
FiberMax 9063B2F	3.0	38.3	81.5	27.2	6.6	3.0	82.1	7.4	2	1
Deltapine 117B2RF	3.1	37.5	81.8	30.1	6.1	4.0	79.7	7.0	3	1
Americot 1521B2RF	2.9	37.7	81.1	23.9	6.9	3.0	82.5	7.1	2	1
All-Tex Apex B2RF	2.8	38.1	82.3	27.4	7.2	3.0	82.6	7.1	2	1
Beltwide Cotton Genetics 3255B2F	2.8	37.0	81.6	23.6	7.2	3.0	82.3	7.1	3	1
PhytoGen 485WRF	3.1	37.4	83.3	27.0	7.3	4.0	79.6	7.6	3	1
Beltwide Cotton Genetics 4630B2F	2.7	38.0	80.7	23.1	6.9	3.0	82.4	7.3	2	1
Test average	3.0	37.6	81.9	26.4	6.9	3.3	81.6	7.1	2.6	1.0
CV, %	6.8	2.3	0.9	7.7	8.7	8.8	1.2	7.0	--	--
OSL	0.0375	0.3896	0.0175	0.0127	0.3479	0.0006	0.0072	0.0323	--	--
LSD	0.3	NS	1.2	3.5	NS	0.5	1.7	0.9	--	--

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

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

Cooperator: Greg White

Kent Lewis, Emilio Nino, Randy Boman, Mark Kelley, and Aaron Alexander
CEA-AG/NR Lamb County, EA-IPM Castro/Lamb Counties,
Extension Agronomist-Cotton, Extension Program Specialist-Cotton,
and Graduate Student Assistant

Lamb County

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

Objective: The objective of this project was to compare yields, gin turnout, fiber quality, and economics of Roundup Ready and Roundup Ready Flex cotton varieties under skip-row (2 in/1 out) dryland production systems.

Materials and Methods:

Varieties:	AFD 3070F, AFD 3074F, AFD 5064F, Deltapine 147RF, FiberMax 9058F, FiberMax 9060F, FiberMax 989RR, PhytoGen 125RF, Stoneville 4664RF, and Stoneville NexGen 3550RF
Experimental design:	Randomized complete block with 3 replications
Seeding rate:	3.7 seed per row-ft in planted rows on 40-inch row spacing
Plot size:	6 planted rows out of 9 (2 in/1 out skip-row pattern)

Planting date:	18-May
Weed management:	Trifluralin was applied preplant incorporated at 1.3 pt/acre. Diuron was applied at planting in a 13 inch band at a rate of 32 oz/acre. Roundup Original Max herbicide was applied over-the-top on 10-June at a rate of 32 oz/acre with ammonium sulfate (15 lbs/100 gallons of spray mix). Another application of Roundup Original Max was post directed at a rate of 32 oz/acre with ammonium sulfate (15 lbs/100 gallons of spray mix).
Rainfall and Irrigation:	According to personal communication with cooperator, 11.0 inches of rainfall accumulated during the growing season.
Insecticides:	Temik was applied in-furrow at planting at 3.0 lb/acre. No other insecticides were used at this site during the growing season.
Fertilizer management:	None used at this site during the growing season.
Plant growth regulators:	None used at this site during the growing season.
Harvest aids:	Plots were left to freeze.
Harvest:	Plots were harvested on 21-November using a commercial John Deere 7445 stripper harvester with field cleaner. Harvested material was transferred into a weigh wagon with integral electronic scales to determine individual plot weights. Plot yields were adjusted to lbs/acre.
Gin turnout:	Grab samples were taken by plot and ginned at the Texas A&M University Agricultural Research and Extension Center at Lubbock to determine gin turnouts.
Fiber analysis:	Lint samples were submitted to the International Textile Center at Texas Tech University for HVI analysis, and Commodity Credit Corporation (CCC) loan values were determined for each variety by plot.
Ginning cost and seed values:	Ginning costs were based on $2.45 per cwt. of bur cotton and seed value/acre was based on $125/ton of seed. Ginning costs did not include checkoff.
Seed and technology cost:	Seed and technology costs were calculated using the appropriate seeding rate (seed/row-ft) for the row spacing and entries using the online Plains Cotton Growers Seed Cost Comparison Worksheet with Monsanto Cap Cost Thresholds. available at: http://www.plainscotton.org/Seed/seedindex.html

Results and Discussion:

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

Acknowledgments:

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

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

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

† Note: all values reported are on a land-acre basis.
For net value/acre, means within a column with the same letter are not significantly different at the 0.05 probability level
CV - coefficient of variation.
OSL - observed significance level, or probability of a greater F value.
LSD - least significant difference at the 0.05 level, NS - nonsignificant.
Note: some columns may not add up due to rounding error.

Assumes:
$2.45/cwt ginning cost.
$125/ton for seed.
Value for lint based on CCC loan value from grab samples and ITC HVI results.

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

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

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

Replicated Irrigated Transgenic Cotton Variety Demonstration, Dumas, TX - 2006

Cooperator: Keith Watson

Mark Kelley, Randy Boman, Aaron Alexander, and Brent Bean
Extension Program Specialist-Cotton, Extension Agronomist-Cotton,
Graduate Student Assistant,
and Extension Agronomist - District 1 (Amarillo, TX)

Moore County

Summary: Significant differences were observed for most parameters measured (Tables 1 and 2). Lint turnout ranged from a low of 25.9% for PhytoGen 125RF to a high of 29.0% for Paymaster 2140B2RF and FiberMax 9058F. Lint yields varied with a low of 1316 lb/acre (Phytogen 125RF) and a high of 1553 lb/acre (Deltapine X04V344F). No significant differences were observed among varieties for lint loan value, total value, or net value ($/acre). Lint loan values ranged from a low of $0.4787/lb (FiberMax 9058F) to a high of $0.5148/lb (AFD 5064F). After adding lint and seed value, total value/acre ranged from a low of $820.43 for PhytoGen 125RF to a high of $971.51 for Deltapine X04V344F. When subtracting ginning and seed/technology costs, the net value/acre ranged from a high of $780.49 (Deltapine X04V344F) to a low of $643.01 (PhytoGen 125F), a difference of $137.48. Significant differences were observed among varieties for staple length, uniformity, strength, elongation, reflectance (Rd) and yellowness (+b). These data indicate that substantial differences can be obtained in yield and fiber quality due to variety and technology selection but may not be reflected in overall net value.

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:	FiberMax 9058F, PhytoGen 125RF, Deltapine X04V344F, AFD 5064F, Stoneville NexGen 3550RF, and Paymaster 2140B2RF
Experimental design:	Randomized complete block with 3 replications
Seeding rate:	4.0 seed per row-ft in 30-inch row spacing (John Deere 7200 Max Emerge)
Plot size:	6 rows by variable length of circular pivot (732 to 938 ft long)
Planting date:	16-May

Weed management:	Diuron plus Caparol herbicides were applied preemergence broadcast at 1/2X rates. Roundup Original Max was applied over-the-top on 1-July at a rate of 20 oz/acre with ammonium sulfate (17 lbs/100 gallons of spray mix).
Rainfall and Irrigation:	A total of 7.31 inches of rainfall accumulated at this location during the growing season. This was in addition to 10.25 inches of irrigation for a total of 17.46 inches of moisture.
Insecticides:	Temik was applied in-furrow at planting at 3.6 lbs/acre. No other insecticides were used at this site during the growing season.
Fertilizer management:	37.5 lb N, 28.5 lb P_2O_5 and 14.3 lb K_2O/acre were applied in a strip (strip tillage) prior to planting and 60 lb N were applied in increments during the growing season via fertigation.
Plant growth regulators:	A total of 32 oz/acre of Pix was applied during the growing season at this site.
Harvest aids:	Finish 6 Pro at 32 oz/acre was applied on 10-October.
Harvest:	Plots were harvested on 13-November using a commercial John Deere 7460 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 A&M University Agricultural Research and Extension Center at Lubbock to determine gin turnouts.
Fiber analysis:	Lint samples were submitted to the International Textile Center at Texas Tech University for HVI analysis, and Commodity Credit Corporation (CCC) loan values were determined for each variety by plot.
Ginning cost and seed values:	Ginning costs were based on $2.45 per cwt. of bur cotton and seed value/acre was based on $125/ton of seed. Ginning costs did not include checkoff.
Seed and technology cost:	Seed and technology costs were calculated using the appropriate seeding rate (seed/row-ft) for the row spacing and entries using the online Plains Cotton Growers Seed Cost Comparison Worksheet with Monsanto Cap Cost Thresholds. available at: http://www.plainscotton.org/Seed/seedindex.html

Results and Discussion:

Significant differences were observed for most parameters measured (Tables 1 and 2). Lint turnout ranged from a low of 25.9% for PhytoGen 125RF to a high of 29.0% for Paymaster 2140B2RF and FiberMax 9058F. Lint yields varied with a low of 1316 lb/acre (Phytogen 125RF) and a high of 1553 lb/acre (Deltapine X04V344F). No significant differences were observed among varieties for lint loan value, total value, or net value ($/acre). Lint loan values ranged from a low of $0.4787/lb (FiberMax 9058F) to a high of $0.5148/lb (AFD 5064F). After adding lint and seed value, total value/acre ranged from a low of $820.43 for PhytoGen 125RF to a high of $971.51 for Deltapine X04V344F. When subtracting ginning and seed/technology costs, the net value/acre ranged from a high of $780.49 (Deltapine X04V344F) to a low of $643.01 (PhytoGen 125F), a difference of $137.48. Although numerically different, all varieties resulted in statistically similar net values. No differences were observed among varieties for micronaire or leaf grade at this location. A test average 3.0, was observed for micronaire, and 4.1, was observed for leaf. Staple length averaged 37.0 across all varieties with a low of 36.1 for PhytoGen 125RF and a high of 38.6 for FiberMax 9058F. Uniformity was highest for PhytoGen 125RF (83.2%) and lowest for FiberMax 9058F (80.4%). A test average strength of 27.8 g/tex was observed with a high of 29.6 g/tex (PhytoGen 125RF) and a low of 26.0 g/tex (Deltapine X04V344F). Percent elongation ranged from a high of 7.1, for AFD 5064F and PhytoGen 125RF, to a low of 5.9 for FiberMax 9058F. Test averages for reflectance (Rd) and yellowness (+b) were 81.2 and 7.2, respectively. Color grades were mostly 31's, with a few 21's at this location. These data indicate that substantial differences can be obtained in yield and fiber quality due to variety and technology selection but may not be reflected in overall net value. 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 Keith Watson for the use of his land, equipment and labor for this project. Further assistance with this project was provided by Dr. John Gannaway - TAES, Lubbock, and Dr. Eric Hequet - Associate Director, International Textile Center, Texas Tech University.

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Table 1. Harvest results from the irrigated replicated transgenic cotton variety demonstration, Keith Watson Farm, Dumas, TX, 2006.

Entry	Lint turnout	Seed turnout	Bur cotton yield	Lint yield	Seed yield	Lint loan value	Lint value	Seed value	Total value	Ginning cost	Seed/technology cost	Net value	
	%	%	lb/acre	lb/acre	lb/acre	$/lb	$/acre	$/acre	$/acre	$/acre	$/acre	$/acre	
Deltapine X04V344F	27.2	53.3	5708	1553	3040	0.5032	781.52	190.00	971.51	139.84	51.19	780.49	a
AFD 5064F	27.7	53.6	5025	1390	2693	0.5148	714.29	168.32	882.61	123.10	47.50	712.02	a
Stoneville NexGen 3550RF	28.5	54.0	4756	1354	2566	0.5000	680.58	160.39	840.97	116.52	47.00	677.46	a
Paymaster 2140B2RF	29.0	52.0	4844	1403	2521	0.4907	688.31	157.52	845.83	118.68	60.19	666.97	a
FiberMax 9058F	29.0	51.3	4864	1412	2493	0.4787	675.00	155.82	830.82	119.16	49.97	661.69	a
PhytoGen 125RF	25.9	53.1	5075	1316	2696	0.4958	651.91	168.52	820.43	124.34	53.09	643.01	a
Test average	27.9	52.9	5045	1405	2668	0.4972	698.60	166.76	865.36	123.61	51.49	690.27	
CV, %	3.7	2.0	4.3	4.3	4.4	6.4	8.9	4.4	7.8	4.3	---	9.2	
OSL	0.0298	0.0849	0.0036	0.0124	0.0020	0.8148	0.2479	0.0020	0.1561	0.0036	---	0.1955	
LSD	1.9	1.6†	397	111	214	NS	NS	13.35	NS	9.71	---	NS	

For net value/acre, means within a column with the same letter are not significantly different at the 0.05 probability level.
CV - coefficient of variation.
OSL - observed significance level, or probability of a greater F value.
LSD - least significant difference at the 0.05 level, † denotes LSD at the 0.10 level, NS - nonsignificant.
Note: some columns may not add up due to rounding error.

Assumes:
$2.45/cwt ginning cost.
$125/ton for seed.
Value for lint based on CCC loan value from grab samples and ITC HVI results.

Table 2. HVI fiber property results from the irrigated replicated transgenic cotton variety demonstration, Keith Watson Farm, Dumas, TX, 2006.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32^{nds} inches	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
Deltapine X04V344F	3.1	36.4	80.5	26.0	6.2	3.7	81.4	7.6	2.7	1.0
AFD 5064F	3.2	36.6	82.4	29.2	7.1	4.0	81.0	7.2	3.0	1.0
Stoneville NexGen 3550RF	3.1	36.7	82.5	27.8	6.8	5.0	80.1	6.5	3.0	1.0
Paymaster 2140B2RF	3.1	37.5	81.5	27.9	7.0	4.0	81.1	7.2	3.0	1.0
FiberMax 9058F	2.7	38.6	80.4	26.5	5.9	3.7	82.5	7.2	2.0	1.0
PhytoGen 125RF	2.9	36.1	83.2	29.6	7.1	4.0	81.1	7.2	3.0	1.0
Test average	3.0	37.0	81.8	27.8	6.7	4.1	81.2	7.2	2.8	1.0
CV, %	8.5	1.0	0.8	3.6	4.4	14.0	0.9	4.0	--	--
OSL	0.3024	<0.0001	0.0027	0.0076	0.0021	0.1299	0.0320	0.0146	--	--
LSD	NS	0.6	1.3	1.8	0.5	NS	1.3	0.5	--	--

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

Replicated Irrigated Cotton Variety Demonstration, Sunray, TX - 2006

Cooperator: Kerry Cartrite

Mark Kelley, Randy Boman, Aaron Alexander, and Brent Bean
Extension Program Specialist-Cotton, Extension Agronomist-Cotton,
Graduate Student Assistant,
and Extension Agronomist - District 1 (Amarillo, TX)

Sherman County

Summary: Significant differences were observed for most parameters measured (Tables 1 and 2). Lint turnout ranged from a low of 23.0% to 28.5% for AFD 5065B2F and Paymaster 2140B2RF, respectively. Lint yields varied with a low of 1379 lb/acre (AFD 5065B2F) and a high of 1694 lb/acre (Paymaster 2140B2RF). Lint loan values ranged from a low of $0.4558/lb (Americot 1521B2RF) to a high of $0.5168/lb (Beltwide Cotton Genetics 3255B2F). After adding lint and seed value, total value/acre ranged from a low of $850.32 for Americot 1521B2RF to a high of $1049.63 for FiberMax 9063B2F. When subtracting ginning and seed/technology costs, the net value/acre among varieties ranged from a high of $836.72 (FiberMax 9063B2F) to a low of $645.89 (Americot 1521B2RF), a difference of $190.83. Significant differences were observed among varieties for all lint quality parameters measured. 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 cotton varieties under irrigated production systems.

Materials and Methods:

Varieties:	Paymaster 2140B2RF, Beltwide Cotton Genetics 3255B2F, FiberMax 9063B2F, Americot 1521B2RF, AFD 5065B2RF, and Deltapine X04V334F
Experimental design:	Randomized complete block with 3 replications
Seeding rate:	4.1 seed per row-ft in 30-inch row spacing
Plot size:	8 rows by variable length of field (~800-900 ft long)
Planting date:	16-May

Weed management:	Prowl H2O was applied preplant incorporated at 4.0 pt/acre. Roundup Weather Max herbicide was applied over-the-top on 27-May and 14-July at a rate of 32 oz/acre with ammonium sulfate (17 lbs/100 gallons of spray mix). Dual Magnum at a rate of 1.3 pts/acre was applied with the acephate and Pentia application on 10-June.
Rainfall and Irrigation:	According to personal communication with cooperator, 11.4 inches of rainfall accumulated during the growing season in addition to 8.0 inches of irrigation, for a total of 19.4 inches.
Insecticides:	Temik was applied in-furrow at planting at 3.5 lb/acre. Acephate was applied at a rate of 3.0 oz/acre on 10-June with the Pentia and Dual Magnum application.
Fertilizer management:	150 lb/acre of 11-52-0 dry fertilizer (16.5 lb N and 78 lb P_2O_5/acre) were applied pre-plant on 3-April. Another 20 gal/acre application of 32-0-0 (70.8 lb N/acre) was applied via fertigation.
Plant growth regulators:	Pentia was applied at a rate of 4 oz/acre on 10-June with the acephate and Dual Magnum application.
Harvest aids:	A tank mix of Ethephon 6 at 1.0 pt/acre and Def 6 at 1.0 pt/acre was applied on 10-October.
Harvest:	Plots were harvested on 16-November 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 A&M University Agricultural Research and Extension Center at Lubbock to determine gin turnouts.
Fiber analysis:	Lint samples were submitted to the International Textile Center at Texas Tech University for HVI analysis, and Commodity Credit Corporation (CCC) loan values were determined for each variety by plot.
Ginning cost and seed values:	Ginning costs were based on $2.45 per cwt. of bur cotton and seed value/acre was based on $125/ton of seed. Ginning costs did not include checkoff.
Seed and technology cost:	Seed and technology costs were calculated using the appropriate seeding rate (seed/row-ft) for the row spacing and entries using the online Plains Cotton Growers Seed Cost Comparison Worksheet with Monsanto Cap Cost Thresholds. available at: http://www.plainscotton.org/Seed/seedindex.html

Results and Discussion:

Significant differences were observed for most parameters measured (Tables 1 and 2). Lint turnout ranged from a low of 23.0% to 28.5% for AFD 5065B2F and Paymaster 2140B2RF, respectively. Lint yields varied with a low of 1379 lb/acre (AFD 5065B2F) and a high of 1694 lb/acre (Paymaster 2140B2RF). Lint loan values ranged from a low of $0.4558/lb (Americot 1521B2RF) to a high of $0.5168/lb (Beltwide Cotton Genetics 3255B2F). After adding lint and seed value, total value/acre ranged from a low of $850.32 for Americot 1521B2RF to a high of $1049.63 for FiberMax 9063B2F. When subtracting ginning and seed/technology costs, the net value/acre among varieties ranged from a high of $836.72 (FiberMax 9063B2F) to a low of $645.89 (Americot 1521B2RF), a difference of $190.83. Four varieties were in the statistical upper tier for net value ($/acre). Micronaire values ranged from a low of 2.4 for Americot 1521B2RF to a high of 3.1 for Paymaster 2140B2RF. Staple averaged 37.9 across all varieties with a low of 36.8 for Paymaster 2140B2RF and a high of 40.3 for FiberMax 9063B2F. Uniformity was highest for FiberMax 9063B2F (82.5%) and lowest for Americot 1521B2RF (80.1%). A test average strength of 27.0 g/tex was observed with a high of 30.7 g/tex (FiberMax 9063B2F) and a low of 24.1 g/tex (Americot 1521B2RF). Percent elongation values ranged from a high of 7.3 to a low of 6.1 for Beltwide Cotton Genetics 3255B2F and Deltapine X04V344F, respectively. The highest average leaf grade (5.7) was observed for Paymaster 2140B2RF and the lowest (3.0) for Beltwide Cotton Genetics 3255B2RF. Test averages for reflectance (Rd) and yellowness (+b) were 82.4 and 6.7, respectively. Color grades were mostly 31's and with some 21's and 11's at this location. These data indicate that substantial differences can be obtained in terms of net value/acre due to variety and technology selection. It should be noted no inclement weather was encountered at this location prior to harvest. Additional multi-site and multi-year applied research is needed to evaluate varieties and technology across a series of environments.

Acknowledgments:

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 - TAES, Lubbock, and Dr. Eric Hequet - Associate Director, International Textile Center, Texas Tech University.

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Table 1. Harvest results from the irrigated replicated transgenic cotton variety demonstration, Kerry Cartrite Farm, Sunray, TX 2006.

Entry	Lint turnout	Seed turnout	Bur cotton yield	Lint yield	Seed yield	Lint loan value	Lint value	Seed value	Total value	Ginning cost	Seed/technology cost	Net value	
	%	%	lb/acre	lb/acre	lb/acre	$/lb	$/acre	$/acre	$/acre	$/acre	$/acre	$/acre	
FiberMax 9063B2F	27.2	52.6	6186	1685	3252	0.5035	846.41	203.22	1049.63	151.57	61.34	836.72	a
Beltwide Cotton Genetics 3255B2F	27.5	53.6	5784	1588	3102	0.5168	821.94	193.86	1015.80	141.70	65.60	808.50	a
Deltapine X04V344F	24.8	51.8	6281	1555	3255	0.5032	782.24	203.46	985.71	153.88	51.91	779.91	a
Paymaster 2140B2RF	28.5	53.0	5951	1694	3152	0.4600	779.19	196.99	976.18	145.81	60.91	769.46	a
AFD 5065B2F	23.0	53.7	6006	1379	3223	0.4830	666.01	201.43	867.45	147.15	56.07	664.22	b
Americot 1521B2RF	24.9	52.5	5806	1446	3050	0.4558	659.71	190.60	850.32	142.24	62.19	645.89	b
Test average	26.0	52.9	6002	1558	3172	0.4871	759.25	198.26	957.51	147.06	59.67	750.78	
CV, %	4.8	2.0	2.8	2.9	2.8	5.2	6.0	2.8	5.1	2.8	---	6.2	
OSL	0.0024	0.3419	0.0254	<0.0001	0.0818	0.0692	0.0018	0.0816	0.0025	0.0253	---	0.0022	
LSD	2.3	NS	307	81	132†	0.0375†	82.78	8.22†	88.19	7.53	---	84.12	

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 LSD at the 0.10 level, NS - nonsignificant.
Note: some columns may not add up due to rounding error.

Assumes:
$2.45/cwt ginning cost.
$125/ton for seed.
Value for lint based on CCC loan value from grab samples and ITC HVI results.

Table 2. HVI fiber property results from the irrigated replicated transgenic cotton variety demonstration, Kerry Cartrite Farm, Sunray, TX 2006.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32^{nds} inches	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
FiberMax 9063B2F	2.8	40.3	82.5	30.7	6.3	3.3	84.1	6.8	1.7	1.0
Beltwide Cotton Genetics 3255B2F	2.9	37.6	82.2	24.8	7.3	3.0	84.2	7.1	2.0	1.0
Deltapine X04V344F	2.9	36.9	80.8	25.7	6.1	4.0	80.5	7.3	3.0	1.0
Paymaster 2140B2RF	3.1	36.8	82.0	28.2	7.2	5.7	79.5	5.9	3.0	1.0
AFD 5065B2F	2.8	38.1	81.4	28.6	7.2	3.7	81.9	6.5	3.0	1.0
Americot 1521B2RF	2.4	37.4	80.1	24.1	7.0	3.3	84.0	6.9	2.0	1.0
Test average	2.8	37.9	81.5	27.0	6.9	3.8	82.4	6.7	2.4	1.0
CV, %	8.5	1.3	1.1	2.1	4.4	17.2	1.2	3.4	--	--
OSL	0.0660	<0.0001	0.0601	<0.0001	0.0020	0.0065	0.0005	0.0002	--	--
LSD	0.4†	0.9	1.3†	1.0	0.5	1.2	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, † denotes LSD at the 0.10 level.

Replicated Irrigated Cotton Variety Demonstration,
Brownfield, TX - 2006

Cooperator: Geoff Cooper

Chris Bishop, Scott Russell, Randy Boman, Aaron Alexander, and Mark Kelley;
CEA-AG/NR Terry County, EA-IPM Terry/Yoakum Counties,
Extension Agronomist-Cotton, Graduate Student Assistant,
and Extension Program Specialist-Cotton

Terry County

Summary: Significant differences were noted for most characteristics measured (Tables 1 and 2). Lint turnout ranged from a low of 30.6% (PhytoGen 125 RF) to a high of 36.8% (Deltapine 147 RF). Lint yields averaged 1483 lb/acre with a low of 1177 lb/acre (PhytoGen 125RF) and a high of 1656 lb/acre (Stoneville 4554B2RF). Lint loan values varied from a low of $0.5300/lb (Deltapine 113B2RF) to a high of $0.5760/lb (FiberMax 9060F). After adding lint and seed value, total value/acre ranged from a low of $770.30 (PhytoGen 125RF) to a high of $1072.78 (FiberMax 989B2R). When subtracting ginning and seed/technology costs, the net value/acre among varieties ranged from a high of $910.40 (FiberMax 989B2R) to a low of $631.50 (PhytoGen 125RF), a difference of $278.90. Significant differences were observed among varieties for all fiber quality parameters measured. 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 yield, gin turnout, and fiber quality of transgenic cotton varieties.

Materials and Methods:

Variety:	All-Tex Summit B2RF, Americot 1532B2RF, Deltapine 113B2RF, Deltapine 147RF, Dyna-Gro 2100B2RF, FiberMax 9060F, FiberMax 989B2R, PhytoGen 125RF, PhytoGen 485WRF, Stoneville 4554B2RF, and Stoneville NexGen 3550RF
Experimental design:	Randomized complete block with 3 replications
Seeding rate:	4.0 seed per row-ft in 40-inch row spacings (John Deere Max Emerge vacuum planter)
Plot size:	8 rows by variable length due to circular pivot (770-1470 feet long)

Planting date:	8-May
Weed management:	Trifluralin was applied preplant incorporated at 1 on 15-March. A banded application of trifluralin at 8.0 oz/acre, Caparol at 3.3 oz/acre, and 0.2 oz/acre of Staple was made at planting. One over-the-top application of Roundup Original Max (26 oz/acre) with ammonium sulfate (17 lbs/100 gallons spray solution) was made prior to 4th true leaf stage. A post-directed application of 26 oz/a Roundup Original Max with ammonium sulfate at 17 lb/100 gallons spray solution was made on 26-June. Also, 2.0 pt/acre LayBy Pro was applied post-direct in late July.
Rainfall and Irrigation:	According to personal communication with cooperator, 9.55 inches of rainfall accumulated during the summer and 9.20 inches of irrigation were applied during the growing season for a total of 18.75 inches.
Insecticides:	Temik was applied at planting at 2 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:	150 lb/acre 8-24-4 liquid fertilizer (12 lb N, 32 lb P_2O_5, and 6 lb K_2O/acre) was applied pre-plant and 100 lb/acre 20-0-0-5 was applied via fertigation during the growing season.
Harvest aids:	Prep at 1 qt/acre plus ET at 1.5 oz/acre with 1 pt/acre crop oil concentrate was applied on 4-October. On 18-October, a sequential application of 1 pt/acre Gramoxone Inteon with a non-ionic surfactant was made.
Harvest:	Plots were harvested on 24-October using a commercial John Deere 7455 stripper with field cleaner. Harvested material was dumped into a weigh wagon with integral digital scales to determine individual plot weights. Plot yields were adjusted to lb/acre.
Gin turnout:	Grab samples were taken by plot and ginned at the Texas A&M University Agricultural Research and Extension Center at Lubbock to determine gin turnouts.
Fiber analysis:	Lint samples were submitted to the International Textile Center at Texas Tech University for HVI analysis, and Commodity Credit Corporation (CCC) loan values were determined for each variety by plot.
Ginning cost and seed values:	Ginning costs were based on $2.45 per cwt. of bur cotton and seed value/acre was based on $125/ton of seed. Ginning costs did not include checkoff.
Seed and technology cost:	Seed and technology costs were calculated using the appropriate seeding rate (seed/row-ft) for the row spacing and entries using the online Plains Cotton Growers Seed Cost Comparison Worksheet with Monsanto Cap Cost Thresholds. available at: http://www.plainscotton.org/Seed/seedindex.html

Results and Discussion:

Significant differences were noted for most characteristics measured (Tables 1 and 2). Lint turnout ranged from a low of 30.6% (PhytoGen 125 RF) to a high of 36.8% (Deltapine 147 RF). Lint yields averaged 1483 lb/acre with a low of 1177 lb/acre (PhytoGen 125RF) and a high of 1656 lb/acre (Stoneville 4554B2RF). Lint loan values varied from a low of $0.5300/lb (Deltapine 113B2RF) to a high of $0.5760/lb (FiberMax 9060F). After adding lint and seed value, total value/acre ranged from a low of $770.30 (PhytoGen 125RF) to a high of $1072.78 (FiberMax 989B2R). When subtracting ginning and seed/technology costs, the net value/acre among varieties ranged from a high of $910.40 (FiberMax 989B2R) to a low of $631.50 (PhytoGen 125RF), a difference of $278.90. Six of the ten varieties produced statistically similar net values/acre. Of the six, one contained Bollgard II/Roundup Ready technology, two were Bollgard II/Roundup Ready Flex types, one was Widestrike/Roundup Ready Flex and two were Roundup Ready Flex only types. Micronaire values ranged from a low of 3.8 for Deltapine 113B2RF to a high of 4.5 for Stoneville 4554B2RF. Staple averaged 36.7 across all varieties with a low of 35.1 for PhytoGen 125RF and a high of 38.5 for FiberMax 9060F. Uniformity was highest for PhytoGen 485WRF (84.1%) and lowest for Stoneville NexGen 3550RF (81.6%). A test average strength of 28.5 g/tex was observed with a high of 32.1 g/tex (FiberMax 989B2R) and a low of 26.0 g/tex (Americot 1532B2RF). Percent elongation values ranged from a high of 8.6 to a low of 5.4 for PhytoGen 485WRF and FiberMax 9060F, respectively. The highest average leaf grade (5.0) was observed for Deltapine 113B2RF and the lowest (3.0) for FiberMax 9060F. Test averages for reflectance (Rd) and yellowness (+b) were 78.9 and 7.2, respectively. Color grades were mostly 31's at this location. These data indicate that substantial differences can be obtained in terms of net value/acre due to variety and technology selection. No inclement weather was encountered at this location to cause significant preharvest lint losses from looser picker type varieties. Additional multi-site and multi-year applied research is needed to evaluate varieties and technologies across a series of dryland environments.

Acknowledgments:

Appreciation is expressed to Geoff Cooper for the use of his land, equipment and labor for this project. Further assistance with this project was provided by Dr. John Gannaway - TAES, 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. 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 irrigated replicated transgenic cotton variety demonstration, Geoff Cooper Farm, Brownfield, TX, 2006.

Entry	Lint turnout	Seed turnout	Bur cotton yield	Lint yield	Seed yield	Lint loan value	Lint value	Seed value	Total value	Ginning cost	Seed/technology cost	Net value	
	%	%	lb/acre	lb/acre	lb/acre	$/lb	$/acre	$/acre	$/acre	$/acre	$/acre	$/acre	
FiberMax 989B2R	33.4	52.8	4760	1594	2515	0.5738	915.61	157.17	1072.78	116.62	45.76	910.40	a
FiberMax 9060F	35.5	49.6	4441	1575	2204	0.5760	907.14	137.74	1044.87	108.81	42.18	893.88	a
Stoneville 4554B2RF	34.5	49.3	4800	1656	2365	0.5487	908.65	147.83	1056.48	117.61	55.68	883.20	a
Deltapine 147RF	36.8	50.4	4373	1607	2203	0.5442	874.72	137.67	1012.38	107.14	47.68	857.56	ab
Americot 1532B2RF	33.7	50.4	4587	1547	2313	0.5632	871.50	144.54	1016.04	112.39	52.42	851.23	abc
PhytoGen 485WRF	33.7	52.0	4672	1576	2428	0.5428	855.68	151.78	1007.46	114.48	54.09	838.90	abc
All-Tex Summit B2RF	33.4	52.4	4336	1450	2270	0.5668	821.64	141.88	963.53	106.23	56.96	800.34	bc
Dyna-Gro 2100B2RF	33.4	51.5	4289	1432	2207	0.5623	805.26	137.89	943.15	105.08	56.09	781.98	c
Stoneville NexGen 3550RF	33.7	52.4	4225	1424	2214	0.5490	781.58	138.34	919.93	103.52	39.95	776.46	c
Deltapine 113B2RF	33.7	50.2	3801	1280	1909	0.5300	678.25	119.30	797.55	93.10	57.13	647.32	d
PhytoGen 125RF	30.6	54.3	3849	1177	2087	0.5438	639.84	130.46	770.30	94.29	44.50	631.50	d
Test average	33.9	51.4	4376	1483	2247	0.5546	823.62	140.42	964.04	107.21	50.22	806.61	
CV, %	3.0	1.6	3.8	3.9	3.5	1.9	5.1	3.5	4.8	3.8	--	5.5	
OSL	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	0.0005	<0.0001	<0.0001	<0.0001	<0.0001	--	<0.0001	
LSD	1.8	1.4	281	100	134	0.0181	72.42	8.35	79.00	6.87	--	75.22	

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.
$125/ton for seed.
Value for lint based on CCC loan value from grab samples and ITC HVI results.

Table 2. HVI fiber property results from the irrigated replicated transgenic cotton variety demonstration, Geoff Cooper Farm, Brownfield, TX, 2006.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32^{nds} inches	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
FiberMax 989B2R	4.1	37.9	83.5	32.1	5.7	3.3	79.8	7.2	3	1
FiberMax 9060F	4.2	38.5	82.6	29.8	5.4	3.0	80.8	6.9	3	1
Stoneville 4554B2RF	4.5	36.4	82.6	28.0	8.4	4.0	78.0	7.8	3	1
Deltapine 147RF	4.1	38.0	82.3	29.0	5.9	4.3	78.7	7.0	3	1
Americot 1532B2RF	4.3	37.6	82.7	26.0	6.9	3.3	80.5	7.5	3	1
PhytoGen 485WRF	4.4	36.5	84.1	28.8	8.6	4.3	76.6	7.3	3	1
All-Tex Summit B2RF	4.1	35.8	83.5	26.2	7.4	3.3	80.6	7.5	3	1
Dyna-Gro 2100B2RF	4.3	35.6	82.8	26.1	7.4	3.3	79.9	7.4	3	1
Stoneville NexGen 3550RF	4.2	35.7	81.6	27.8	7.3	4.0	79.1	7.0	3	1
Deltapine 113B2RF	3.8	36.5	82.2	31.0	6.0	5.0	76.9	7.1	3	1
PhytoGen 125RF	4.3	35.1	82.4	29.2	7.4	4.0	77.3	6.9	3	1
Test average	4.2	36.7	82.7	28.5	6.9	3.8	78.9	7.2	3.0	1.0
CV, %	2.5	0.8	0.5	3.1	4.0	11.4	0.9	2.7	--	--
OSL	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0005	<0.0001	<0.0001	--	--
LSD	0.2	0.5	0.7	1.5	0.5	0.7	1.2	0.3	--	--

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

Sites Planted but Lost Due to Weather

Appling Dryland Systems Demonstration - 2006

	Fill NG 3550RF
Rep I	DP 147RF
	ST NG 3550RF
	FM 9058F
	FM 9068F
	AFD 3074F
	BW 9775B2F
	AT APEX B2RF
	AT 45039 B2RF
	ST NG 2448R
	AC 821R
	Fill
	BW 245
	BW 295
	DP 393
	DP 565
	FM 958
	Fill
Rep II	AFD 3074F
	ST NG 3550RF
	FM 9058F
	AT 45039 B2RF
	FM 9068F
	BW 9775B2F
	DP 147RF
	AT APEX B2RF
	AC 821R
	ST NG 2448R
	Fill
	DP 393
	DP 565
	BW 245
	FM 958
	BW 295
	Fill
Rep III	ST NG 3550RF
	FM 9058F
	BW 9775B2F
	AT APEX B2RF
	FM 9068F
	AT 45039 B2RF
	DP 147RF
	AFD 3074F
	ST NG 2448R
	AC 821R
	Fill
	DP 565
	BW 295
	FM 958
	BW 245
	DP 393
	Fill
	Fill NG 3550RF

Variety	RRF	RR	Conv
DP 147RF	1		
ST NG 3550RF	2		
FM 9058F	3		
FM 9068F	4		
AFD 3074F	5		
BW 9775B2F	6		
AT APEX B2RF	7		
AT 45039 B2RF	8		
ST NG 2448R		1	
AC 821R		2	
BW 245			1
BW 295			2
DP 393			3
DP 565			4
FM 958			5

Planting date	5/24/2006
Planting rate	43.9 K seed/acre
Plot size	1.19 acres
Herbicide	1 qt/a Direx in 15" band

Bearden Dryland Systems Demonstration - 2006

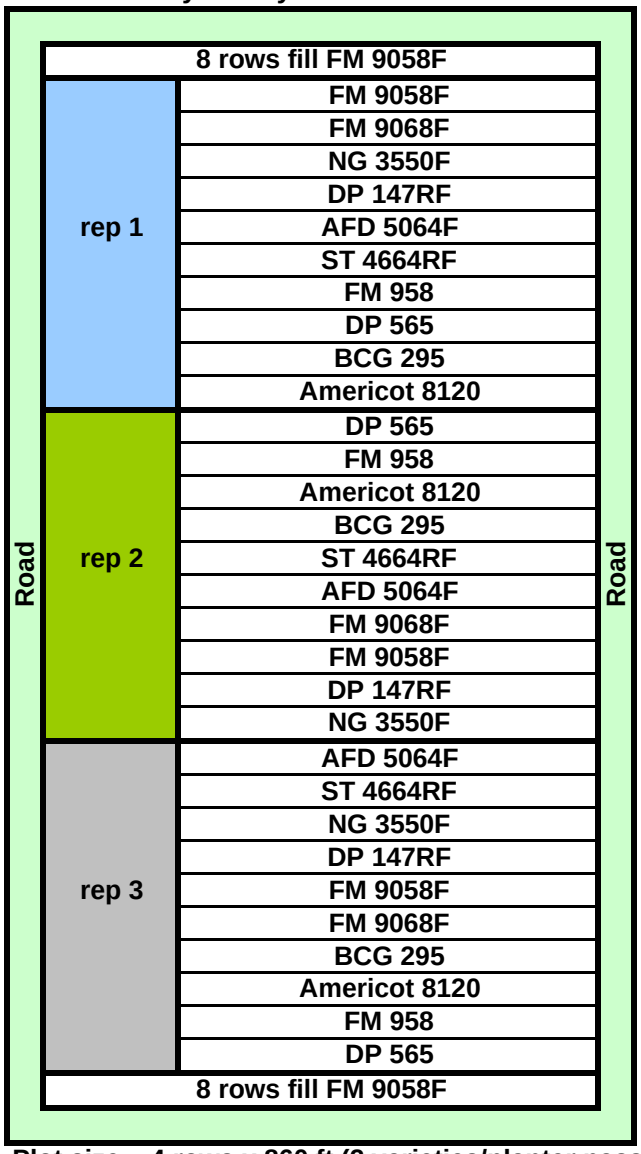
Border Fill			
Rep I	**FM 9058F**	**1**	1
	ST 4664RF	**2**	
	DP 147F	**3**	2
	ST NG 3550RF	**4**	
	PH 125RF	**5**	3
	AFD 3074F	**6**	
	PH 425RF	**7**	4
	FM 9068F	**8**	
	ST 4554B2RF	**9**	5
	AT Summit B2RF	**10**	
	AC 1532B2RF	**11**	6
	AT Apex B2RF	**12**	
	FM 9063B2F	**13**	7
	DP 143B2RF	**14**	
	PH 485WRF	**15**	8
	BCG 3255B2RF	**16**	
	DP 2140B2RF	**17**	9
	AT Titan B2RF	**18**	
	DP 117B2F	**19**	10
	FM 960B2R	**20**	
	PM 2280BG/RR	**21**	11
	DP 445BG/RR	**22**	
	AT Patriot RR	**23**	12
	AC 821R	**24**	
	12 Row Fill		
	FM 958	**25**	13
	DP 393	**26**	
	AC 8120	**27**	14
	BCG 245	**28**	
	AT Toppick	**29**	15
	BCG 295	**30**	
Rep II	**BCG 245**	**28**	14
	AC 8120	**27**	
	DP 393	**26**	13
	FM 958	**25**	
	BCG 295	**30**	15
	AT Toppick	**29**	
	12 Row Fill		
	DP 445BG/RR	**22**	11
	PM 2280BG/RR	**21**	
	AC 821R	**24**	12
	AT Patriot RR	**23**	
	FM 960B2R	**20**	10
	DP 117B2F	**19**	
	AT Apex B2RF	**12**	6
	AC 1532B2RF	**11**	
	BCG 3255B2RF	**16**	8
	PH 485WRF	**15**	
	AT Summit B2RF	**10**	5
	ST 4554B2RF	**9**	
	AT Titan B2RF	**18**	9
	DP 2140B2RF	**17**	
	DP 143B2RF	**14**	7
	FM 9063B2F	**13**	
	ST NG 3550RF	**4**	2
	DP 147F	**3**	
	FM 9068F	**8**	4
	PH 425RF	**7**	
	ST 4664RF	**2**	1
	FM 9058F	**1**	
	AFD 3074F	**6**	3
	PH 125RF	**5**	
Rep III	**PH 425RF**	**7**	4
	FM 9068F	**8**	
	DP 147F	**3**	2
	ST NG 3550RF	**4**	
	PH 125RF	**5**	3
	AFD 3074F	**6**	
	FM 9058F	**1**	1
	ST 4664RF	**2**	
	DP 2140B2RF	**17**	9
	AT Titan B2RF	**18**	
	AC 1532B2RF	**11**	6
	AT Apex B2RF	**12**	
	PH 485WRF	**15**	8
	BCG 3255B2RF	**16**	
	ST 4554B2RF	**9**	5
	AT Summit B2RF	**10**	
	FM 9063B2F	**13**	7
	DP 143B2RF	**14**	
	DP 117B2F	**19**	10
	FM 960B2R	**20**	
	AT Patriot RR	**23**	12
	AC 821R	**24**	
	PM 2280BG/RR	**21**	11
	DP 445BG/RR	**22**	
	12 Row Fill		
	AT Toppick	**29**	15
	BCG 295	**30**	
	AC 8120	**27**	14
	BCG 245	**28**	
	FM 958	**25**	13
	DP 393	**26**	
Border Fill			

	Variety	RF	Stacked	RR	Conv.
1	FM 9058F	X			
2	ST 4664RF	X			
3	DP 147F	X			
4	ST NG 3550RF	X			
5	PH 125RF	X			
6	AFD 3074F	X			
7	PH 425RF	X			
8	FM 9068F	X			
9	ST 4554B2RF	X	X		
10	AT Summit B2RF	X	X		
11	AC 1532B2RF	X	X		
12	AT Apex B2RF	X	X		
13	FM 9063B2F	X	X		
14	DP 143B2RF	X	X		
15	PH 485WRF	X	X		
16	BCG 3255B2RF	X	X		
17	DP 2140B2RF	X	X		
18	AT Titan B2RF	X	X		
19	DP 117B2F	X	X		
20	FM 960B2R		X	X	
21	PM 2280BG/RR		X	X	
22	DP 445BG/RR		X	X	
23	AT Patriot RR			X	
24	AC 821R			X	
25	FM 958				X
26	DP 393				X
27	AC 8120				X
28	BCG 245				X
29	AT Toppick				X
30	BCG 295				X

6 row plots
12 row throughs

Planted 5-30
Seeding rate = 42 K seed/acre
3.5 lb/a Temik infurrow
Herbicide @ planting
4.0 oz Trifluralin
4.0 oz Gen. Caparol
0.2 oz Staple LX
10" band

AGCARES Dryland Systems Demonstration - 2006



#	Varieties	RF	Conv
1	FM 9058F	1	
2	FM 9068F	2	
3	NG 3550F	3	
4	DP 147RF	4	
5	AFD 5064F	5	
6	ST 4664RF	6	
7	FM 958		1
8	DP 565		2
9	BCG 295		3
10	Americot 8120		4

Plot size = 4 rows x 860 ft (2 varieties/planter pass)
Seeding rate = 44,018 seed/acre or 3 9/16" seed spacing (L-29-26)
Planting date = 05-16-06

AGCARES Dryland Seeding Rate x Planting Pattern Demonstration - 2006

South Edge

East Turnrow	Rep 1	Rep 2	Rep 3	West Turnrow
	4 seed/ft, solid	6 seed/ft, solid	4 seed/ft, solid	
	4 seed/ft, 2x1	2 seed/ft, 2x1	6 seed/ft, 2x1	
	2 seed/ft, solid	4 seed/ft, solid	4 seed/ft, 2x1	
	2 seed/ft, 2x1	6 seed/ft, 2x1	2 seed/ft, solid	
	6 seed/ft, solid	2 seed/ft, solid	2 seed/ft, 2x1	
	6 seed/ft, 2x1	4 seed/ft, 2x1	6 seed/ft, solid	

North Edge

Each EU is 16 rows wide
Each rep is 260 ft long

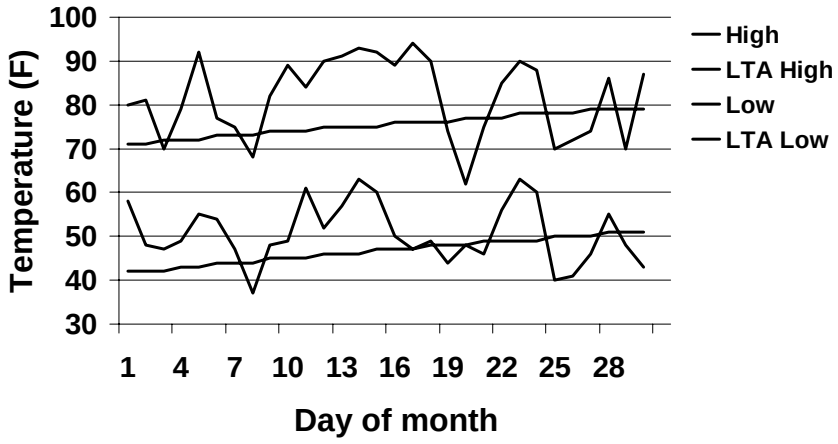
FM 9058F

Planting Date **5/16/2006**
Variable Seeding rate

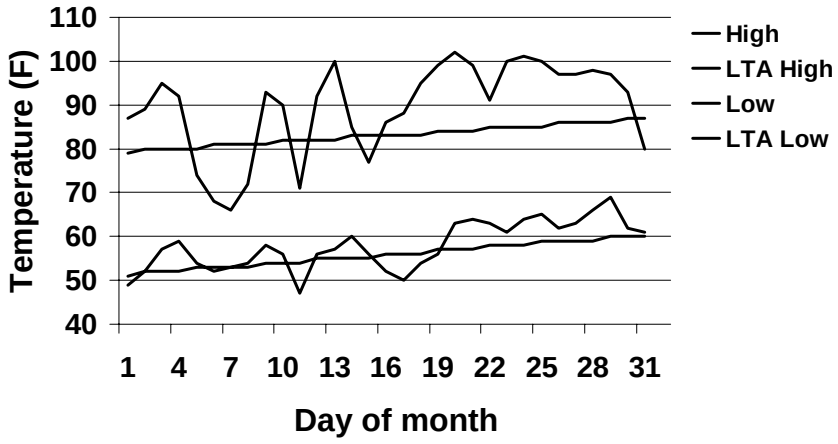
2 seed/ft	**L-16Drvr-24Drvn**
4 seed/ft	**L-35Drvr-26Drvn**
6 seed/ft	**H-20Drvr-27Drvn**

Lubbock 2006 Weather and Crop Information

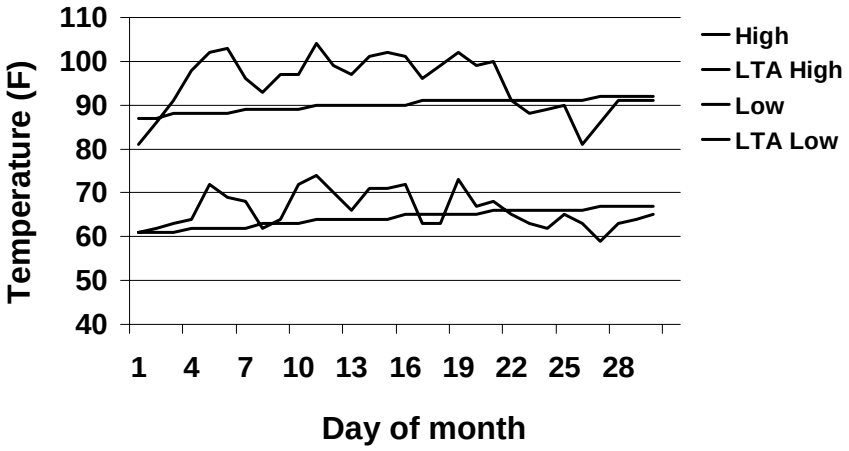
Lubbock Air Temperatures
April, 2006



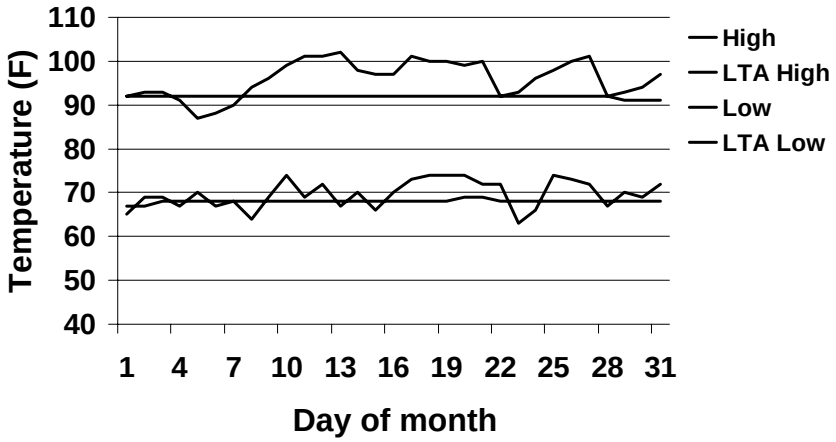
Lubbock Air Temperatures
May, 2006



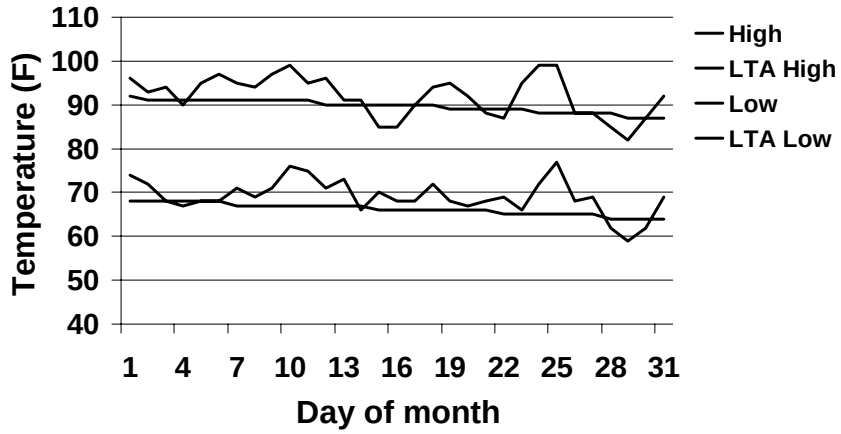
Lubbock Air Temperatures
June, 2006



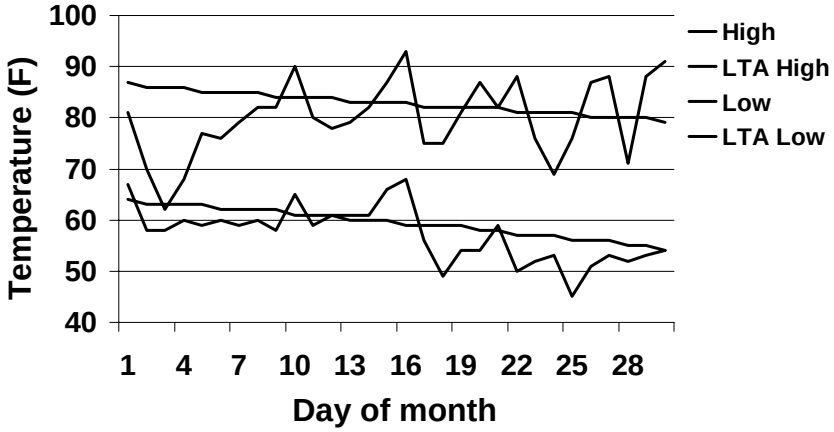
Lubbock Air Temperatures
July, 2006



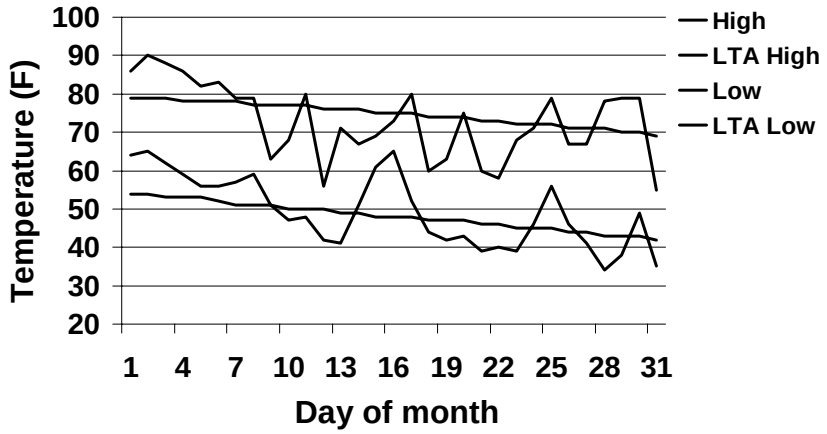
Lubbock Air Temperatures
August, 2006



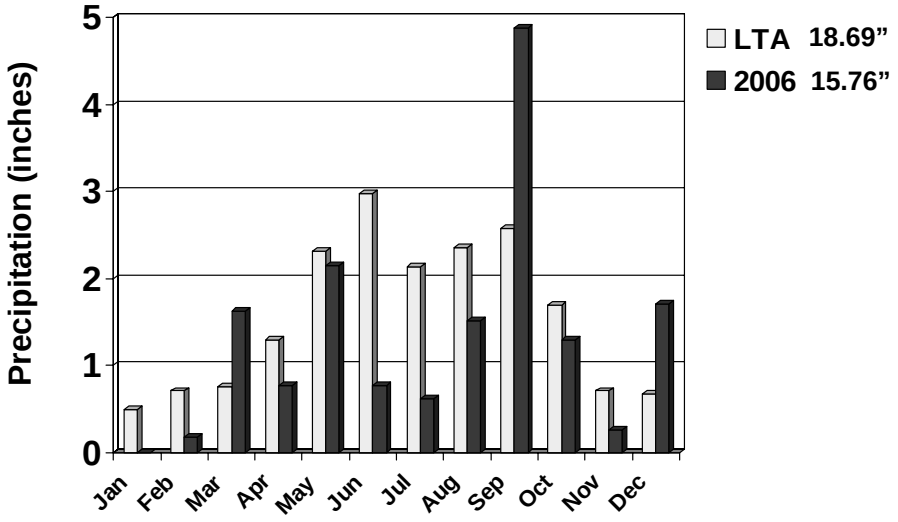
Lubbock Air Temperatures
September, 2006



Lubbock Air Temperatures
October, 2006

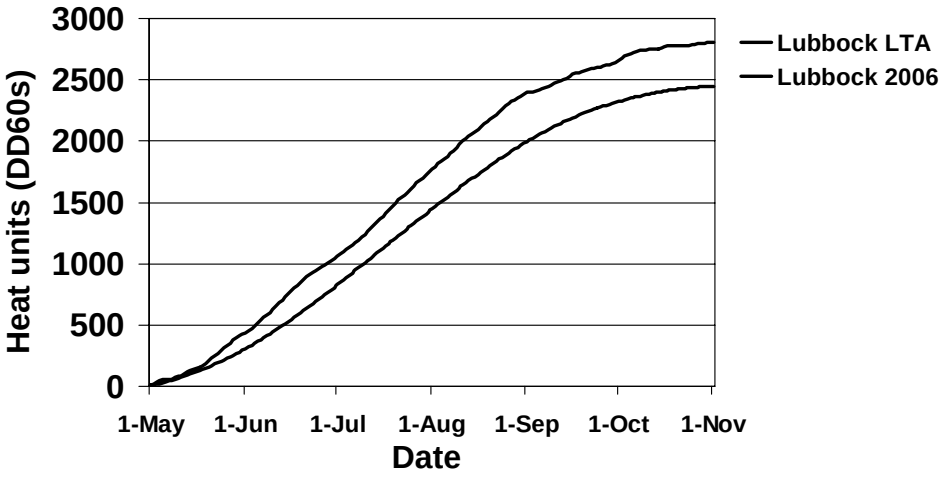


Lubbock LTA (1971-2000)
vs. 2006 Rainfall

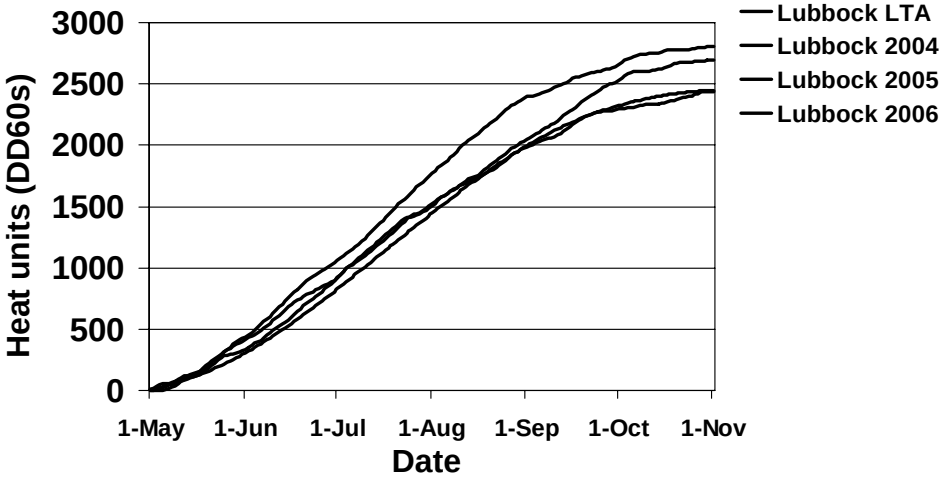


Source: http://www.weather.gov/climate/index.php?wfo=lub

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



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

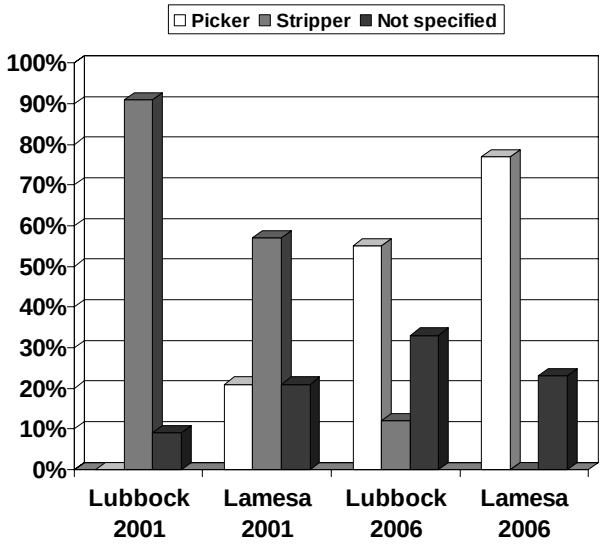


Cotton Production/Quality Records 2006 High Plains Crop

- # 3 bale production (~4 million bales)
- Longest EVER average staple (~36.1)
- Highest EVER % of bales 34 staple or longer (96%)
- Highest EVER % of bales 35 staple or longer (88%)
- Highest EVER % of bales 36 staple or longer (69%)
- Highest EVER % of bales 37 staple or longer (42%)

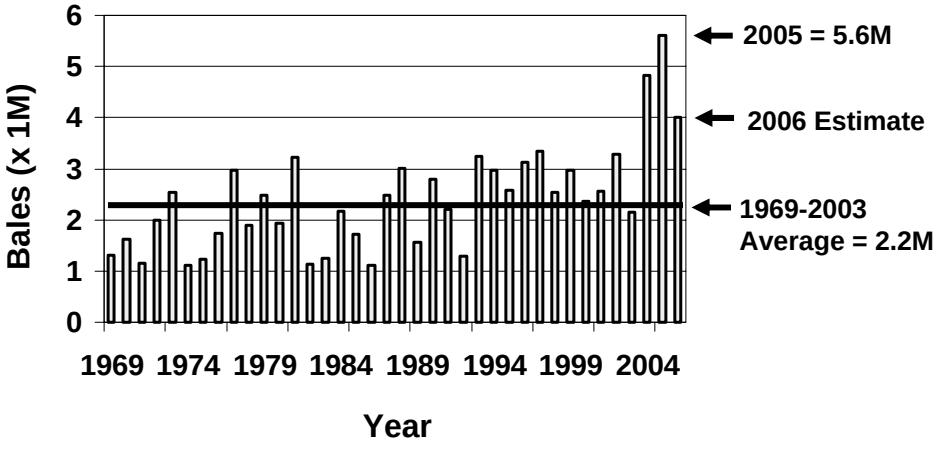
- Highest EVER average strength (29.4 g/tex)

USDA-AMS Planted Varieties Survey



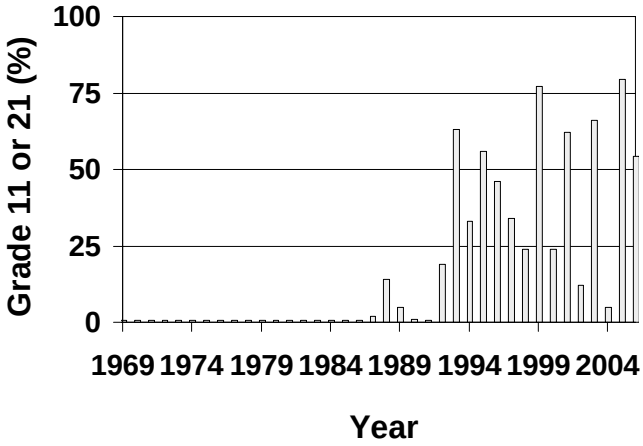
Source: USDA-AMS

High Plains (TASS 1N and 1S)
Total Bale Production
1969-2006



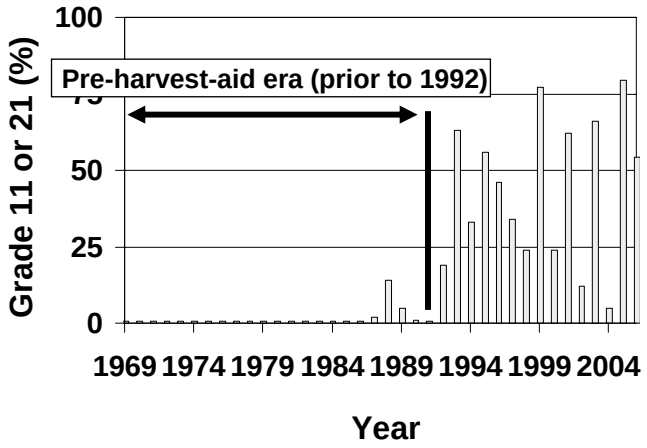
Source: USDA-AMS

High Plains Color Grades 11 or 21
1969-2006



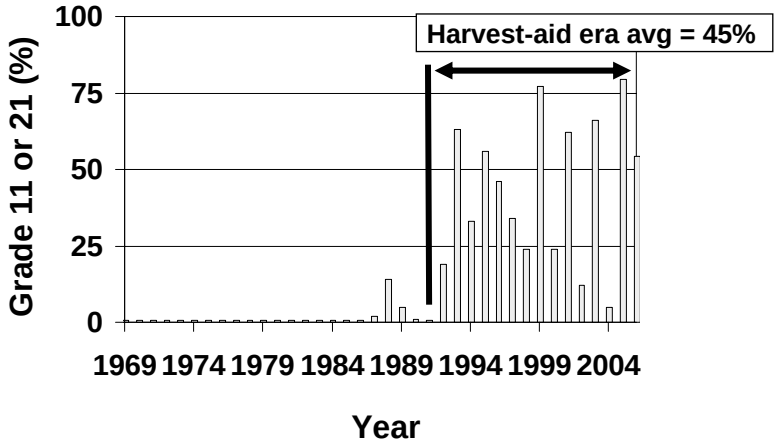
Source: USDA-AMS

High Plains Color Grades 11 or 21 1969-2006



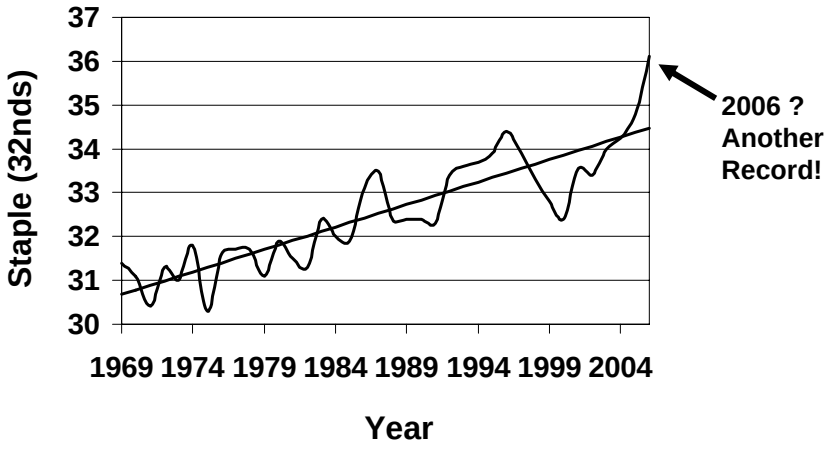
Source: USDA-AMS

High Plains Color Grades 11 or 21 1969-2006



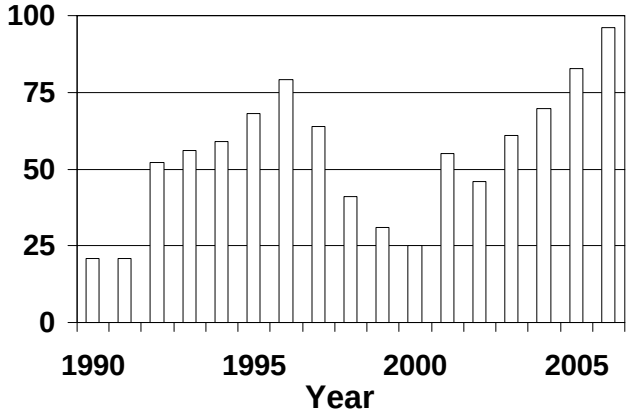
Source: USDA-AMS

High Plains Average Staple 1969-2006



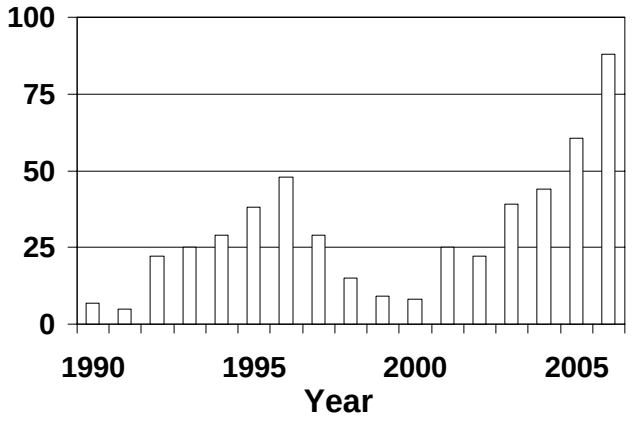
Source: USDA-AMS

Percent of High Plains Bales with ≥34 Staple 1990-2006



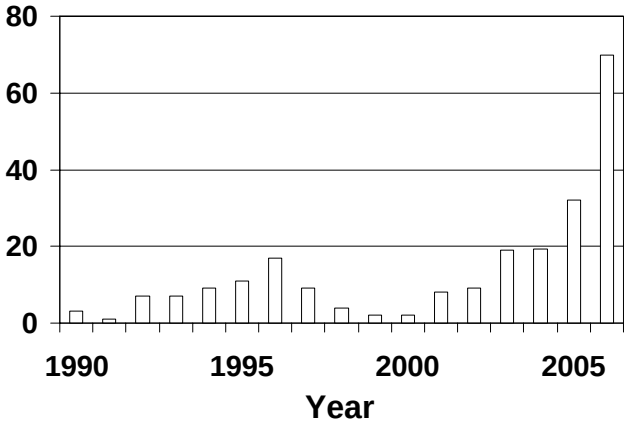
Source: USDA-AMS

Percent of High Plains Bales with ≥35 Staple 1990-2006



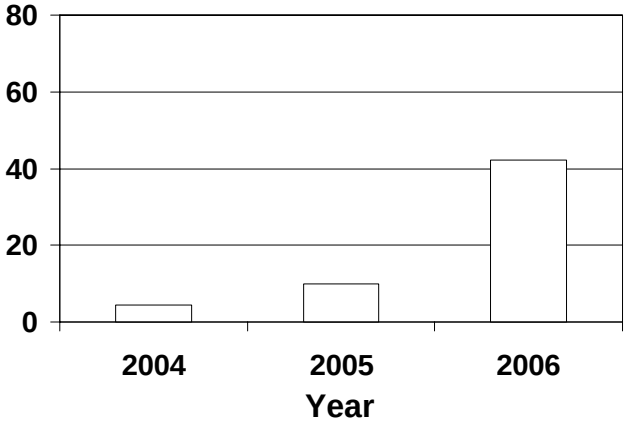
Source: USDA-AMS

Percent of High Plains Bales with ≥36 Staple 1990-2006



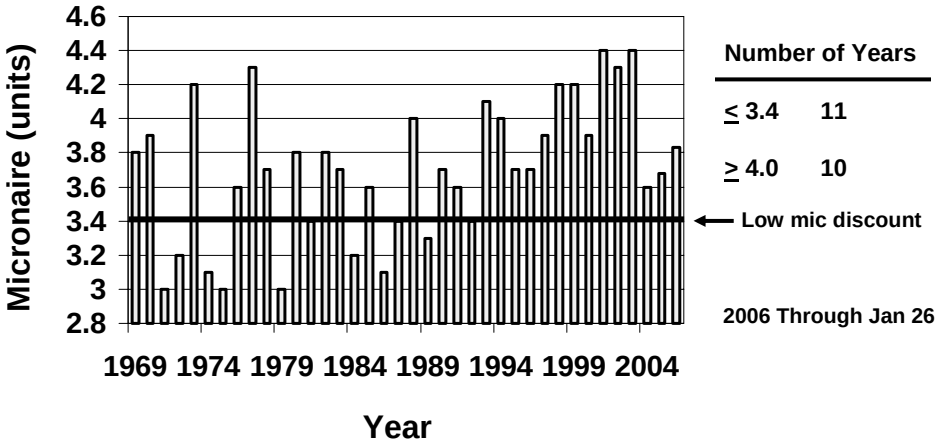
Source: USDA-AMS

Percent of High Plains Bales with ≥37 Staple 2005-2006



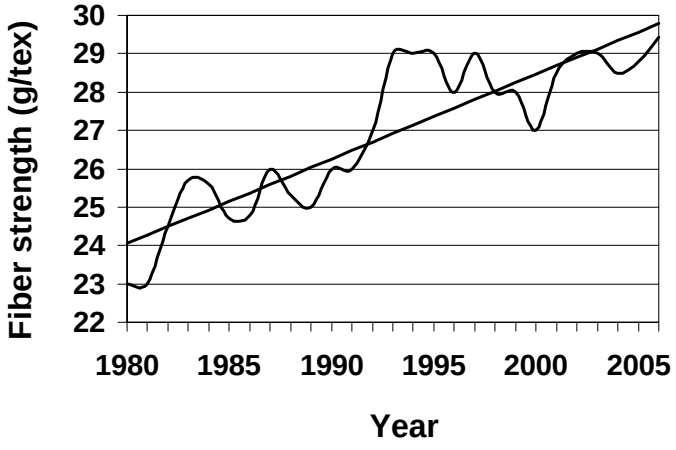
Source: USDA-AMS

High Plains Micronaire 1969-2006 (38 Years)



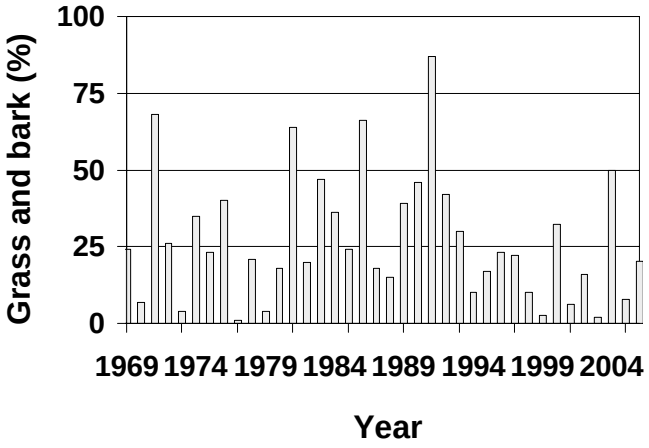
Source: USDA-AMS

High Plains Average Fiber Strength 1980-2006



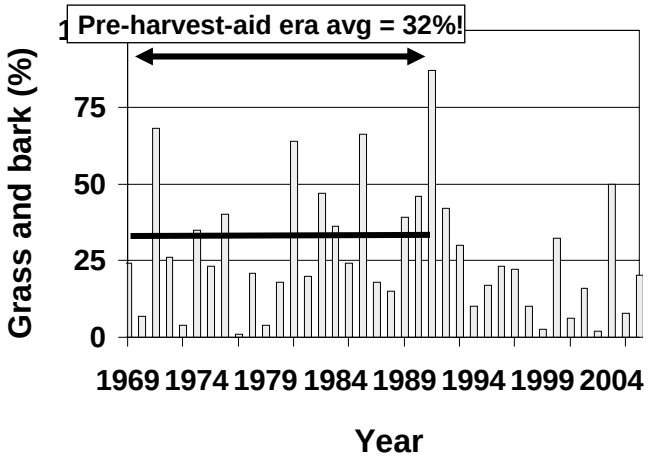
Source: USDA-AMS

High Plains Grass and Bark 1969-2006



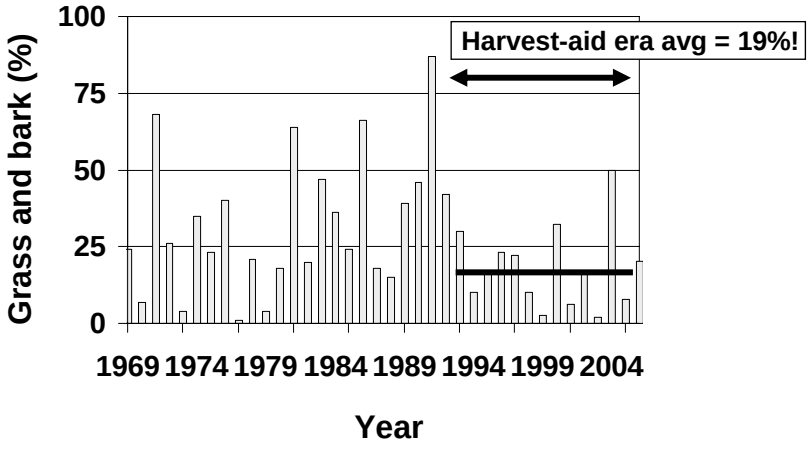
Source: USDA-AMS

High Plains Grass and Bark 1969-2006



Source: USDA-AMS

High Plains Grass and Bark 1969-2006



Source: USDA-AMS

2006 Roundup Ready Flex Acres?

- **According to Monsanto's Dr. Shea Murdock:**
  - **> 2 million acres across the Belt**
  - **~ 15% of US acres?**
  - **40% of cotton producers planted some acres with the technology**
- **~800,000 acres in the High and Rolling Plains regions**
- **Largest technology launch ever by Monsanto!**

2006 – A Tough Year!

- **Hot, dry conditions resulted in the failure of greater than 1 million acres in the region**
- **Produced drought-stressed weeds with thick leaf cuticles**
- **Difficult to get herbicides into the weeds**
- **Sometimes control was less than desired - even with good coverage**
- **After irrigation or rainfall event, control improved**

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**