Texas Cooperative EXTENSION
The Texas A&M University System

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

2005 Final Report

Submitted to
Plains Cotton Growers
Plains Cotton Improvement Program

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

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

February, 2006

Systems Agronomic and Economic Evaluation of Cotton Varieties

2005 Final Report

submitted to
Plains Cotton Growers
Plains Cotton Improvement Program

Dr. Randy Boman
Extension Agronomist-Cotton

Mr. Mark Kelley
Extension Program Specialist-Cotton

Mr. Mark Stelter
Extension Assistant-Cotton

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

February, 2006

Systems Agronomic and Economic Evaluation of Cotton Varieties

2005 Final Report

Submitted to
Plains Cotton Growers
Plains Cotton Improvement Program

Dr. Randy Boman
Extension Agronomist-Cotton

Mr. Mark Kelley
Extension Program Specialist-Cotton

Mr. Mark Stelter
Extension Assistant-Cotton

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

February, 2006

Acknowledgments

The authors thank the following for their support of this project:

Plains Cotton Growers - Plains Cotton Improvement Program and Cotton Incorporated for funding

Producer-cooperators: David Appling, Mark Appling, Rickey Bearden, and James Brown

Gins: Associated Cotton Growers, Crosbyton, Randy Arnold, Manager; Muleshoe Co-op Gin, Darwin Robertson, Manager; New Tex Gin, Plains, Ron Craft, Owner

Companies: AFD Seed, Americot, Bayer CropScience, Beltwide Cotton Genetics, Delta and Pine Land (Deltapine Seed, Paymaster), Levelland Delinting (All-Tex Seed), PhytoGen, Stoneville, Monsanto, and Syngenta

Texas Cooperative Extension Agents:
Curtis Preston, CEA-Ag, Bailey County
Cody Hill, CEA-Ag, Parmer County
Monti Vandiver, EA-IPM, Bailey/Parmer Counties
Steve Young, CEA-Ag, Crosby County
Steve Davis, EA-IPM, Crosby/Floyd Counties
Arlan Gentry, CEA-Ag, Yoakum County
Scott Russell, EA-IPM, Terry/Yoakum Counties

Student Workers:
Daniel Olivier, Aaron Alexander, Jordan Brown

Texas Agricultural Experiment Station:
Dr. John Gannaway

Table of Contents

Systems Agronomic and Economic Evaluation of Cotton Varieties

February, 2006

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

Texas Cooperative Extension
Lubbock, TX

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. Current small-plot variety testing programs are generally 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 various transgenic cotton varieties when compared to conventional types in producers' fields. Three replications of each variety were included at each location. Plot size was sufficient to enable the combining of all replications of each individual variety into a single module at harvest. Each variety had at least three acres total. Plot weights were determined at harvest. Modules were followed through the commercial ginning process to determine lint turnout, USDA-AMS fiber quality, and CCC Loan value. Expenses for each herbicide system (Roundup Ready, Liberty Link and conventional) were tracked. Three producer-cooperator locations were utilized for this project. Trials were planted in Parmer, Crosby, and Yoakum counties.

In 2005, at some sites, late July and early August rainfall resulted in a significant shift of the boll load to later into the season. This resulted in some immature fiber at some locations. A dry harvest period resulted in high color grades. No bark contamination was noted in any bales from the Muleshoe and Blanco locations, however, some bark was noted at Plains. No major weather events were encountered to result in notable preharvest losses for picker varieties. At the Muleshoe site, yields were substantially higher than in 2004. Within the statistical "upper tier" of net returns, three varieties produced the same net value. Two of the top three varieties were Roundup Ready types. One FiberMax Liberty Link variety also performed very well. Low micronaire was encountered in most bales from picker entries. The highest micronaire (3.7) was produced by a stripper type, but it also had the shortest staple (30.9). Severe micronaire discounts (as much as 650 points) were encountered by FiberMax 960BR, FiberMax 960B2R, FiberMax 989B2R, FiberMax 5035LL, and Deltapine 434RR, with micronaire values of 2.9 or lower. At Blanco, the irrigated site was lost due to a hail event, but a replacement dryland site was used. Within the statistical "upper tier" of net returns, three varieties produced the same net value. These varieties were all conventional types and had low weed pressure. Other than short staple for some varieties, no other fiber properties were of low quality (average loan value of $0.5598/lb). At the Plains site, within the statistical "upper tier" of net returns, one variety (Deltapine 393) produced the highest net value. Four varieties were included in the statistical "second tier." Of these varieties, one was a conventional (FiberMax 958) and the other three were Roundup Ready/Bollgard or Bollgard II, "stacked gene" types (Deltapine 444BG/RR, FiberMax 960B2R, and Paymaster 2280BG/RR). Low micronaire values, low strength values, and bark for some contributed to lower Loan values. The 2005 results indicate that some transgenic varieties were competitive with conventional types in terms of production costs and returns. Some picker varieties tended to produce lower micronaire lint than some stripper types, attributed to later maturity. The data indicate that substantial differences can be obtained in terms of net value/acre due to variety and technology selection. Differences in net value/acre, when comparing the top and bottom varieties were $313, $145 and $287/acre for Muleshoe, Blanco and Plains sites, respectively.

Systems Agronomic and Economic Evaluation of Cotton Varieties

February, 2006

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

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

Introduction

Small-plot cotton variety testing generally includes evaluation of genetic components but not genetics in concert with management programs. Characteristics commonly evaluated in small-plot testing include lint yield, turnout percentages, fiber quality, and earliness. Over the last several years, High Plains cotton producers have increased planted 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 AFD; All-Tex; Americot; Beltwide Cotton Genetics; Croplan Genetics; Delta and Pine Land/Paymaster; DynaGro; FiberMax, PhytoGen; Stoneville Pedigreed Seed/Stoneville, Texas, and others. More transgenic varieties (both picker and stripper types) 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 "stacked" Bt gene (Bollgard II) system from Monsanto was also available in a limited number of varieties in 2004. Liberty Link with Bollgard II types are being commercialized in 2006. Varieties containing Monsanto's Roundup Ready Flex gene system were increased in 2005, with commercialization targeted for 2006. Widestrike "stacked Bt gene" technology was available in a limited number of PhytoGen varieties in 2005, with additional Roundup Ready Flex and "stacked" types coming in the near future. Additional Bt technologies, including VipCot 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 various cotton varieties producers' fields in the Texas High Plains.

Materials and Methods

For scientific validity, three replications of each variety were included at each location. Plot size was sufficient 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 = 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 non-herbicide tolerant varieties. For example, the Roundup Ready varieties were planted in a contiguous block, with a fill variety between the next herbicide system. Varieties within the next herbicide system were then planted, with a fill variety between the previous system. 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 project personnel or by the cooperator. Strike-Zone ammonium sulfate/drift retardant was used with broadcast Roundup Original Max applications in order to reduce drift potential to non-Roundup Ready varieties. Due to the fact that Strike Zone is rather expensive ($3.50/acre), cost for basic ammonium sulfate ($0.42/acre) was used to determine Roundup Ready 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 project personnel and cooperator employees and records were kept by herbicide system to facilitate economic analysis.

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 and grab samples were obtained from each plot. Modules were followed through the ginning process to determine lint turnout, USDA-AMS fiber quality, and Commodity Credit Corporation loan value. Ginners 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
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 11 at 4.0 seed/row-ft

Harvest aid program: October 14, 32.0 oz/acre Prep + 16.0 oz/acre Def with 2.0 oz/acre Activator 90 non-ionic surfactant (NIS) followed by 16.0 oz/acre Gramoxone Max + 2.0 oz/acre Activator 90 on October 21

Harvested: November 10, and 11, 2005

Blanket Weed Control Program: $9.99/acre
Dominant weed species: pigweed, kochia, johnsongrass, cocklebur, volunteer corn

The whole field was treated with 2.0 pt/acre of trifluralin preplant incorporated on March 15. An additional 1.0 pt/acre of Direx (diuron) was banded (12" band) across all varieties at planting.

Specific herbicide systems costs included:
Liberty Link variety: 29 oz/acre Ignite 280 in 15 GPA over-the-top applications on June 10, and July 14, with 17 lb of ammonium sulfate per 100 gallons of spray solution.
Roundup Ready varieties: 22 oz/acre Roundup Original MAX at 15 GPA on June 9, over-the-top application; plus a post-direct hooded application on July 14 with 17 lb of ammonium sulfate per 100 gallons of spray solution.
Roundup Ready Flex variety: 22 oz/acre Mon 3539 in 15 GPA over-the-top applications on June 9, and July 14, with 17 lb of ammonium sulfate per 100 gallons of spray solution.

No cultivation or hoeing was conducted at this site.

Temik was applied in-furrow at planting at 4.0 lb/acre.

Orthene was applied at 4.4 oz/acre for thrips control on June 9, and 10, with Roundup Original Max and Ignite 280 applications. Acephate was aerially applied at 4.0 oz/acre for thrips control on June 6. Another aerial application was made on June 23, using 2.0 oz/acre of acephate with Ammo at 2.14 oz/acre for thrips and bollworms. Karate was aerially applied at 3.9 oz/acre with ULV oil on August 17 for bollworms. Intruder at 0.6 oz/acre with Ammo at 5.12 oz/acre with Activator 90 was aerially applied on September 6 for late season aphids and bollworms. 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 18.0 oz/acre on July 21.

Varieties planted at this site included:
1. Deltapine DPLX04V405DF (stripper type Bollgard 2/Roundup Ready Flex)
2. Paymaster 2167RR (stripper type)
3. Deltapine 434RR (picker type)
4. Deltapine 444BG/RR (picker type)
5. FiberMax 960BR (picker type)
6. FiberMax 960B2R (picker type)
7. FiberMax 989B2R (picker type)
8. Stoneville NexGen 2448R (stripper type)
9. FiberMax 5035LL (stripper type)
10. FiberMax 958LL (picker type)

Location 2 – Blanco (Crosby County)

Mark and David Appling Farm
Reduced tillage following cotton
Irrigation: LEPA, circular rows
Plot Size: 8 40-inch rows/plot
Area: Variable (0.8 to 1.6 acres/plot), 3 replications of each variety

Planted: May 12 at 4.0 seed/row-ft

Varieties planted:

1. AFD 3602R (stripper type)
2. All-Tex Magnum RR (picker type)
3. All-Tex Patriot RR (stripper type)
4. Beltwide Cotton Genetics 50R (stripper type)
5. Deltapine 432RR (picker type)
6. Deltapine 434RR (picker type)
7. FiberMax 960RR (picker type)
8. FiberMax 989RR (picker type)
9. Stoneville NexGen 2448R (stripper type)
10. Stoneville NexGen 3969R (stripper type)
11. FiberMax 958LL (picker type)
12. Beltwide Cotton Genetics 245 (picker type)
13. Beltwide Cotton Genetics 295 (picker type)
14. FiberMax 958 (picker type)

Note: This trial was destroyed by a hailstorm on June 9th, and the cooperators opted to not replant the project.

A large-plot dryland trial was also established with the same cooperators about one mile west of the original irrigated site that was lost due to hail. **Since the dryland site sustained only minor damage by the storm that destroyed the irrigated test, it was decided to use it as a replacement.**

Dryland: straight rows, furrow diked in alternate rows
Reduced tillage following cotton
Plot Size: 8 40-inch rows/plot
Area: 1.19 acres/plot, 3 replications of each variety
Planted: May 25, 2005 at 3.3 seed/row-ft

Harvest aid program: October 1, 24 oz/acre Gramoxone Max + 0.5% NIS.

Harvested: November 3, 4.

Blanket Weed Control Program: $10.25/acre

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

The entire project was treated with 1.0 qt/acre of trifluralin applied preplant incorporated on April 3. An additional 1.0 pt/acre of Direx (diuron) was banded (15" band) across all varieties at planting.

One cultivation was conducted across conventional varieties only on July 15.

Specific herbicide systems costs included:

Liberty Link variety: 29 oz/acre Ignite 280 in 15 GPA on June 21 and August 2 in over-the-top application with 17 lb of ammonium sulfate per 100 gallons of spray solution.

Roundup Ready varieties: 22 oz/acre Roundup Original MAX in 15 GPA on June 21 were applied over-the-top with a post-direct application at 22 oz/acre made on August 2 with 17 lb of ammonium sulfate per 100 gallons of spray solution.

No mepiquat chloride plant growth regulators were applied 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. AFD 3511R (stripper type)
2. AFD 3602R (stripper type)
3. All-Tex Magnum RR (picker type)
4. All-Tex Patriot RR (stripper type)
5. Deltapine 434RR (picker type)
6. Deltapine 494RR (picker type)
7. FiberMax 960RR (picker type)
8. Stoneville NexGen 2448R (stripper type)
9. Stoneville NexGen 3969R (stripper type)
10. FiberMax 5035LL (stripper type)
11. FiberMax 958LL (picker type)
12. Beltwide Cotton Genetics 245 (picker type)
13. Beltwide Cotton Genetics 295 (picker type)
14. Deltapine 393 (picker type)
15. FiberMax 958 (picker type)

Location 3 – Plains (Yoakum County)

Rickey Bearden Farm
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 19 at 4 seed/row-ft

Harvest aid program: October 14, 2 pt/acre Prep + 5 oz/acre of Ginstar were aerially applied followed by 21 oz/acre Gramoxone Max with 0.25% NIS aerially applied on October 20

Harvested: December 9, and 10

Blanket Weed Control Program: $20.03/acre
Dominant weed species: silverleaf nightshade, russian thistle, devils claw, buffalobur

A conventional 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 were applied on a 10-inch band over the row across all varieties at planting.

Two blanket cultivations were conducted across all varieties.

Specific herbicide systems costs included:

Roundup Ready varieties: 22 oz/acre Roundup Original MAX in 15 GPA were applied on June 17 over-the-top with 17 lb of ammonium sulfate per 100 gallons of spray solution.

Hoeing was required for only conventional varieties and cost was $3.90/acre.

Temik was applied in-furrow at planting at 3 lb/acre.

Intruder at 0.8 oz/acre for aphids plus Mustang Max at 4.2 oz/acre for bollworms were applied only to the non-Bt varieties (not applied to Bollgard, Bollgard II, or Widestrike technologies) on September 2.

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. AFD 3602R (stripper type)
2. All-Tex Magnum RR (picker type)
3. All-Tex Warrior RR (picker type)
4. Americot 262R (picker type)
5. Beltwide Cotton Genetics 24R (picker type)
6. Deltapine 444BG/RR (picker type)
7. Deltapine 445BG/RR (picker type)
8. Deltapine 455BG/RR (picker type)
9. FiberMax 960B2R (picker type)
10. FiberMax 960RR (picker type)
11. FiberMax 989B2R (picker type)
12. Phytogen 470WR (picker type)
13. Paymaster 2280BG/RR (stripper type)
14. Stoneville 5242BR (picker type)
15. Stoneville 5599BR (picker type)
16. Stoneville NexGen 2448R (stripper type)
17. Stoneville NexGen 3969R (stripper type)
18. Americot 8120 (picker type)
19. Beltwide Cotton Genetics 245 (picker type)
20. Deltapine 393 (picker type)
21. FiberMax 958 (picker type)

Results

Agronomic and economic results as well as summaries of the expenses and associated systems costs by location and variety are provided in Tables 1-16.

Location 1 - Muleshoe

The early and late-season growth characteristics are presented in Tables 1 and 2. Plant stands averaged about 53,000 plants/acre on June 1. Notably lower stand was obtained with Stoneville NexGen 2448R, however, other varieties were reasonably similar. Plant mapping conducted on August 29 indicated that some varieties fruited lower on the mainstem, with the stripper varieties Stoneville NexGen 2448R, FiberMax 5035LL, Deltapine DPLX04V405DF, and Paymaster 2167RR having the lowest node of first sympodium. Small differences for plant heights and height to node ratios were noted. Significant differences were noted for total nodes, with FiberMax 958LL and FiberMax 989B2R having the most total nodes. Significant differences were observed for first and second position fruit retention, and the stripper varieties DPLX04V05DF and FiberMax 5035LL had the lowest retention. No significant differences were observed for nodes above white flower (NAWF) among varieties on August 29.

Commercial turnouts of non-fieldcleaned bur cotton ranged from 20.3% for FiberMax 5035LL to 26.3% for Deltapine 444BG/RR (Table 3). Bur cotton yields/acre ranged from 6339 lb/acre for Deltapine 434RR to 7410 lb/acre for FiberMax 960BR. This resulted in lint yields ranging from 1329 lb/acre for FiberMax 5035LL to 1925 lb/acre for FiberMax 960BR. Lint loan values derived from USDA-AMS classing results of the bales obtained in the project show that values ranged from $0.4528 for FiberMax 5035LL to $0.5338 for Stoneville NexGen 2448R. Loan value discounts were attributed to low micronaire, reduced staple length, and lower uniformity for some varieties (Table 4). After totaling lint and seed value per acre and subtracting out ginning costs and system-specific costs (Tables 5 and 6), the net value per acre ranged from a low of $485.29/acre for FiberMax 5035LL to $798.44/acre for FiberMax 960BR (Table 3), a difference of $313.15.

Within the statistical “upper tier” of net returns, three varieties produced the same net value (FiberMax 960BR, FiberMax 958LL, and Paymaster 2167RR). Two of the top three varieties were Roundup Ready types (FiberMax 960BR and Paymaster 2167RR). One FiberMax Liberty Link variety (958LL) also performed very well. Low micronaire was encountered in most bales from picker entries in the project. The highest micronaire (3.7) was produced by a stripper type (Paymaster 2167RR), but it also had the shortest staple (30.9). The second highest micronaire (3.5) was produced by the Stoneville NexGen 2448R, and it had a 33.9 staple. Severe micronaire discounts (as much as 650 points) were encountered by FiberMax 960BR, FiberMax 960B2R, FiberMax 989B2R, FiberMax 5035LL, and Deltapine 434RR, with micronaire values of 2.9 or lower.

Location 2 – Blanco (Replacement Dryland Trial)

Due to the late loss (June hailout) of the irrigated trial, the replacement dryland study is reported. No plant mapping data were taken at this site. Commercial turnouts of fieldcleaned bur cotton ranged from 27.8% for AFD 3511R to 33.4% for FiberMax 958LL (Table 7). Bur cotton yields/acre ranged from 2321 lb/acre for Stoneville NexGen 2448R to a high of 2654 lb/acre for Beltwide Cotton Genetics (BCG) 245. This resulted in lint yields ranging from 653 lb/acre for AFD 3511R to 833 lb/acre for FiberMax 958LL. Lint loan values derived from USDA-AMS classing results of the bales obtained in the project show that values ranged from $0.5238 for FiberMax 5035LL to

$0.5765 for Deltapine 494RR. Loan value discounts were attributed to short staple for some varieties (Table 8). After totaling lint and seed value per acre and subtracting out ginning costs and system-specific costs (Tables 9 and 10), the net value per acre ranged from a low of $289.89/acre for FiberMax 5035LL to $434.68/acre for BCG 245, a conventional variety, a difference of $144.79.

Within the statistical “upper tier” of net returns, three varieties produced the same net value (BCG 245, FiberMax 958, and BCG 295). These varieties are all conventional types and due to relatively low weed pressure at this site, additional weed control inputs were not required. Other than short staple for some varieties, no other fiber properties were of low quality as noted by the overall average loan value of $0.5598/lb.

Location 3 – Plains

The early and late-season growth characteristics are presented in Tables 11 and 12. Plant stands averaged about 35,000 plants/acre on June 16. Stands ranged from a low of 30,231 for Americot 262R to a high of 43,560 for Deltapine 393. Plant mapping conducted on August 10 indicated that some varieties fruited lower on the mainstem, with Deltapine 393, Deltapine 444BG/RR and AFD 3602R having the lowest node of first sympodium. FiberMax 989B2R and FiberMax 960B2R had the highest, about a 2.5-node difference. Plant heights ranged from a low of 19.1 inches for the stripper variety Stoneville NexGen 3969R to a high of 26.1 inches for Deltapine 444BG/RR. Height to node ratios ranged from a low of 1.07 for the stripper types Stoneville NexGen 3969R, Stoneville NexGen 2448R, and the picker type FiberMax 960RR to a high of 1.53 for Deltapine 444BG/RR. Differences in total nodes ranged from a low of 16.1 for Deltapine 393 to a high of 19.7 for BCG 245. Significant differences were noted for late-season first position fruit retention, 77.7% for AFD 3602R to a high of 96.2% for Stoneville 5599BR. Second position fruit retention ranged from a low of 64.2% for AFD 3602R to a high of 88.9% for Stoneville 5599BR. On August 23, NAWF ranged from a low of 5.7 for FiberMax 960RR to a high of 7.5 for Deltapine 455BG/RR, both picker types. On September 12, all varieties had reached cutout and NAWF ranged from a low of 3.7 for FiberMax 960RR and 960B2R to a high of 5.3 for Stoneville NexGen 3969R.

Commercial turnouts of field cleaned bur cotton ranged from 28.3% for BCG 245 to 35.9% for FiberMax 960RR (Table 13). Bur cotton yields/acre ranged from 2519 lb/acre for Stoneville NexGen 3969R to 3511 lb/acre for Deltapine 393. This resulted in lint yields ranging from 754 lb/acre for Stoneville NexGen 3969R to 1201 lb/acre for Deltapine 393. Lint loan values derived from USDA-AMS classing results of the bales obtained in the project show that values ranged from $0.5118 for Stoneville NexGen 3969R to $0.5547 for Deltapine 445BG/RR. Loan value discounts were mostly attributed to low micronaire, lower uniformity, and bark for some varieties (Table 14). After totaling lint and seed value per acre and subtracting ginning costs and system-specific costs (Tables 15 and 16), the net value per acre ranged from a low of $324.06/acre for Stoneville NexGen 3969R to $610.91/acre for Deltapine 393 (Table 13), a difference of $286.85.

Within the statistical “upper tier” of net returns, one conventional variety (Deltapine 393) produced the highest net value. Four varieties were included in the statistical “second tier." Of these four varieties, one was a conventional (FiberMax 958) and the other three were Roundup Ready/Bollgard or Bollgard II, "stacked gene" types (Deltapine 444BG/RR, FiberMax 960B2R, and Paymaster 2280BG/RR). Low micronaire, low strength, and bark content for some varieties contributed to lower CCC Loan values.

Summary and Conclusions

In 2005, a year characterized by timely rainfall at most sites and reasonably adequate heat units, some important variety differences were noted. At some sites, late July and early August rainfall resulted in a significant shift of the boll load to later into the season. This resulted in some immature fiber (as indicated by low micronaire) at some locations. Lack of substantial rainfall after early October resulted in high color grades. No bark contamination was noted in any bales from the Muleshoe and Blanco locations however, some bark contamination was observed at Plains. No major weather events were encountered to result in notable preharvest losses for picker varieties.

At the Muleshoe site, yields were substantially higher than in 2004. Within the statistical “upper tier” of net returns, three varieties produced the same net value (FiberMax 960BR, FiberMax 958LL, and Paymaster 2167RR). Two of the top three varieties were Roundup Ready types (FiberMax 960BR and Paymaster 2167RR). One FiberMax Liberty Link variety (958LL) also performed very well. Low micronaire was encountered in most bales from picker entries in the project. The highest micronaire (3.7) was produced by a stripper type (Paymaster 2167RR), but it also had the shortest staple (30.9). The second highest micronaire (3.5) was produced by the Stoneville NexGen 2448R, and it had a 33.9 staple. Severe micronaire discounts (as much as 650 points) were encountered by FiberMax 960BR, FiberMax 960B2R, FiberMax 989B2R, FiberMax 5035LL, and Deltapine 434RR, with micronaire values of 2.9 or lower. At Blanco, the irrigated site was lost due to a hail event, but a replacement dryland site was used. Rainfall was such that very good yields were obtained. Within the statistical “upper tier” of net returns, three varieties produced the same net value (BCG 245, FiberMax 958, and BCG 295). These varieties are all conventional types and due to relatively low weed pressure at this site, additional weed control inputs were not required. Other than short staple for some varieties, no other fiber properties were of low quality as noted by the overall average loan value of $0.5598/lb. At the Plains site, lint yields were also higher when compared to 2004. Within the statistical “upper tier” of net returns, one conventional variety (Deltapine 393) produced the highest net value. Four varieties were included in the statistical “second tier." Of these four varieties, one was a conventional (FiberMax 958) and the other three were Roundup Ready/Bollgard or Bollgard II, "stacked gene" types (Deltapine 444BG/RR, FiberMax 960B2R, and Paymaster 2280BG/RR). Low micronaire values, some low strength values, and bark content for some varieties contributed to lower CCC Loan values.

Results from the 2005 production season at varying locations in the Texas High Plains indicate that some transgenic varieties were competitive with conventional types in terms of production costs and returns. Some picker varieties tended to produce lower micronaire lint than some stripper types, attributed to later maturity. 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 $313, $145 and $287/acre for Muleshoe, Blanco and Plains sites, respectively. Additional multi-site and multi-year applied research is needed to evaluate varieties across a series of environments.

Acknowledgments

The authors thank the following for their support.

Cotton Incorporated Texas State Support Committee and Plains Cotton Growers-Plains Cotton Improvement Program for funding

Producer-cooperators: David Appling, Mark Appling, Rickey Bearden, and James Brown

Gins: Associated Cotton Growers, Crosbyton, Randy Arnold, Manager; Muleshoe Co-op Gin, Darwin Robertson, Manager; New -Tex Gin, Plains, Ron Craft, Manager

Companies: AFD Seed, Americot, Bayer CropScience, Beltwide Cotton Genetics, Delta and Pine Land (Deltapine Seed, Paymaster), Levelland Delinting (All-Tex Seed), PhytoGen, Stoneville, Monsanto, and Syngenta.

Texas Cooperative Extension Agents:
- Curtis Preston, CEA-Ag, Bailey County
- Cody Hill, CEA-Ag, Parmer County
- Monti Vandiver EA-IPM Parmer/Bailey Counties
- Steve Young, CEA-Ag, Crosby County
- J.D. Ragland, CEA-Ag, Floyd County
- Steve Davis, EA-IPM, Crosby/Floyd Counties
- Arlan Gentry, CEA-Ag, Yoakum County
- Chris Bishop, CEA-Ag, Terry County
- Scott Russell, EA-IPM, Terry/Yoakum Counties

Student workers:
- Daniel Olivier
- Aaron Alexander
- Jordan Brown

Texas Agricultural Experiment Station:
- Dr. John Gannaway

Table 1. Stand count and nodes above white flower (NAWF) results from the irrigated large plot replicated systems trial, Brown Farm, Muleshoe, TX, 2005.

	1-Jun		29-Aug
Variety	Plants/row ft	Plants/acre	NAWF
Deltapine 434RR	3.2	55,060	6.1
Deltapine 444BG/RR	3.2	55,408	5.8
Deltapine DPLX 04V405DF	3.3	56,802	5.7
FiberMax 5035LL	3.2	56,454	6.0
FiberMax 958LL	3.4	59,358	6.3
FiberMax 960B2R	2.8	48,787	6.1
FiberMax 960BR	3.2	55,641	5.7
FiberMax 989B2R	3.1	54,828	6.2
Paymaster 2167RR	2.8	48,671	5.0
Stoneville NexGen 2448R	2.3	40,075	5.9
Test average	3.0	53,108	5.9
CV, %	9.1	9.1	7.6
OSL	0.0047	0.0048	0.0979
LSD 0.05	0.5	8,256	NS

Nodes above white flower (NAWF) numbers 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 2. Plant map results from the irrigated large plot replicated systems trial, Brown Farm, Muleshoe, TX, 2005.

Variety	29-Aug						
	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
Deltapine 434RR	23.2	6.3	11.2	16.4	1.40	95.1	89.6
Deltapine 444BG/RR	23.6	6.2	11.7	16.9	1.40	89.5	90.8
Deltapine DPLX 04V405DF	20.3	5.4	12.1	16.5	1.23	83.9	80.8
FiberMax 5035LL	22.6	5.7	12.7	17.4	1.33	84.3	80.8
FiberMax 958LL	20.3	7.3	12.1	18.3	1.10	91.4	91.8
FiberMax 960B2R	21.5	6.9	11.8	17.7	1.20	92.6	92.2
FiberMax 960BR	21.2	7.1	11.3	17.5	1.23	91.2	91.1
FiberMax 989B2R	22.3	6.8	12.6	18.5	1.20	90.5	89.8
Paymaster 2167RR	20.0	5.7	12.2	16.9	1.20	87.5	83.9
Stoneville NexGen 2448R	20.9	5.9	12.4	17.4	1.23	93.6	86.6
Test average	21.6	6.3	12.0	17.4	1.25	90.0	87.7
CV, %	4.7	5.2	3.8	2.6	4.8	4.2	4.7
OSL	0.0027	<0.0001	0.0084	0.0003	0.0002	0.0236	0.0111
LSD 0.05	1.8	0.6	0.8	0.8	0.10	6.4	7.1

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 3. Harvest results from the irrigated large plot replicated systems trial, Brown Farm, Muleshoe, TX, 2005.

Variety	Commercial turnout	Bur cotton yield	Lint yield	Seed yield	Seed	Lint loan value	Gross loan 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	26.0	7410	1925	2599	648	0.4824	928.64	129.93	1058.57	181.54	78.59	798.44	a
FiberMax 958LL	25.5	6780	1730	2290	635	0.5294	915.94	114.50	1030.44	166.10	76.41	787.93	ab
Paymaster 2167RR	25.9	6951	1803	2413	642	0.4909	885.11	120.67	1005.77	170.30	55.09	780.39	ab
Deltapine 444BG/RR	26.3	6768	1783	2257	608	0.5095	908.28	112.86	1021.14	165.81	83.11	772.21	b
Stoneville NexGen 2448R	24.9	6576	1640	2238	655	0.5338	875.53	111.87	987.40	161.13	58.70	767.57	b
FiberMax 989B2R	23.8	7105	1692	2524	716	0.4891	827.78	126.22	954.01	174.08	77.53	702.40	c
FiberMax 960B2R	24.1	7000	1685	2306	657	0.4891	824.11	115.29	939.40	171.51	79.16	688.74	c
Deltapine 434RR	25.0	6339	1584	2118	642	0.4729	749.10	105.92	855.02	155.30	70.66	629.06	d
Deltapine DPLX04V405DF	21.6	7061	1528	2418	759	0.4841	739.73	120.89	860.62	173.00	83.11	604.51	e
FiberMax 5035LL	20.3	6538	1329	2137	772	0.4528	601.86	106.87	708.73	160.19	63.25	485.29	f
Test mean	24.4	6853	1670	2330	673	0.4934	825.61	116.50	942.11	167.90	72.56	701.65	
CV, %	--	1.6	1.7	1.6	--	--	1.7	1.6	1.7	1.6	--	1.9	
OSL	--	<0.0001	<0.0001	<0.0001	--	--	<0.0001	<0.0001	<0.0001	<0.0001	--	<0.0001	
LSD 0.05	--	191	48	64	--	--	24.36	3.21	27.55	4.68	--	22.91	

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.
$100/ton for seed.
Value for lint based on CCC loan value from grab samples and ITC HVI results.

Table 4. USDA-AMS classing results of commercially ginned bales from the irrigated large plot replicated systems trial, Brown Farm, Muleshoe, TX, 2005

Variety		Color 1	Color 2	Staple	Leaf	Mic	Remarks	rd	+b	Length	Strength	Unif	Loan
		units	units	32nds	units	units	bales	%	units	100ths	g/tx	%	$/lb
FiberMax 960BR	Mean	1.0	1.0	34.3	2.0	2.8	0/9 bales	84.1	8.0	106.8	28.0	78.2	0.4824
	Std Dev	0.0	0.0	0.7	0.5	0.1		0.4	0.1	1.6	0.7	1.0	0.0163
FiberMax 958LL	Mean	1.1	1.0	35.1	1.8	3.2	0/8 bales	83.7	8.0	109.6	28.2	79.5	0.5294
	Std Dev	0.4	0.0	0.6	0.5	0.1		0.7	0.2	1.6	0.5	1.1	0.0113
Paymaster 2167RR	Mean	1.1	1.0	30.9	2.1	3.7	0/8 bales	82.2	8.5	96.3	25.5	78.9	0.4909
	Std Dev	0.4	0.0	0.8	0.4	0.1		0.3	0.1	2.0	1.0	1.0	0.0091
Deltapine 444BG/RR	Mean	1.0	1.0	34.5	1.8	3.0	0/8 bales	83.1	8.5	107.1	27.3	79.8	0.5095
	Std Dev	0.0	0.0	0.8	0.7	0.2		0.3	0.1	2.3	1.7	0.7	0.0142
Stoneville NexGen 2448R	Mean	1.0	1.0	33.9	2.3	3.5	0/7 bales	81.7	8.5	105.0	28.8	80.2	0.5338
	Std Dev	0.0	0.0	0.4	0.5	0.1		0.4	0.2	1.0	0.6	0.8	0.0136
FiberMax 989B2R	Mean	1.1	1.0	34.6	1.9	2.8	0/7 bales	83.5	8.5	107.7	27.3	78.9	0.4891
	Std Dev	0.4	0.0	0.5	0.4	0.1		0.5	0.2	2.3	0.9	0.9	0.0121
FiberMax 960B2R	Mean	1.0	1.0	34.5	1.8	2.9	0/8 bales	84.5	8.2	107.8	27.3	77.5	0.4891
	Std Dev	0.0	0.0	0.8	0.5	0.2		0.3	0.2	2.0	1.3	1.3	0.0161
Deltapine 434RR	Mean	1.0	1.0	34.1	1.9	2.8	0/7 bales	83.5	8.5	106.1	24.8	77.9	0.4729
	Std Dev	0.0	0.0	0.4	0.4	0.1		0.1	0.2	1.1	1.0	1.0	0.0127
Deltapine DPLX04V405DF	Mean	1.0	1.0	33.6	1.9	3.2	0/7 bales	83.9	8.5	105.0	24.9	77.9	0.4841
	Std Dev	0.0	0.0	0.5	0.4	0.1		0.5	0.2	1.7	0.6	0.9	0.0160
FiberMax 5035LL	Mean	1.6	1.0	33.4	2.6	2.7	0/7 bales	81.0	8.5	104.1	27.6	80.0	0.4528
	Std Dev	1.1	0.0	1.1	0.5	0.1		2.8	0.2	3.5	2.2	0.5	0.0282

Table 5. Expenses incurred for the irrigated large plot replicated systems trial, James Brown Farm, Muleshoe, TX, 2005.

	Variety	Seed cost/bag	Tech fees/bag	Total cost/bag	Seed & tech fee/ac	Herb apps	Herb app cost/ac	Roundup Original MAX[1] and Mon 3539[2] cost/ac	Ignite 280 cost/ac	Systems cost/ac
1	DP 434RR	99.95	84.90	184.85	51.02	2	9.00	10.64	--	70.66
2	DP 444BG/RR	104.95	125.00	229.95	63.47	2	9.00	10.64	--	83.11
3	DPLX 04V405DF	104.95	125.00	229.95	63.47	2	9.00	10.64	--	83.11
4	FM 960B2R	77.95	107.50	185.45	59.52	2	9.00	10.64	--	79.16
5	FM 960BR	77.95	110.00	187.95	58.95	2	9.00	10.64	--	78.59
6	FM 989B2R	77.95	115.00	192.95	57.89	2	9.00	10.64	--	77.53
7	PM 2167RR	56.95	71.50	128.45	35.45	2	9.00	10.64	--	55.09
8	ST NG 2448R	64.40	65.80	130.20	39.06	2	9.00	10.64	--	58.70
9	FM 5035LL	102.5	0.00	102.5	30.75	2	9.00	--	23.50	63.25
10	FM 958LL	140.00	0.00	140.00	43.91	2	9.00	--	23.50	76.41

30" inch rows
4.0 seed/row-ft
69,000 seed/ac

4.50/ac

[1]June 9 over-the-top and July 14 post-direct 22 oz/a Roundup Original MAX to Roundup Ready varieties.

28.50/gal
includes AMS at 0.42/ac

[2]June 9 and July 14 over-the-top 22 oz/a Mon 3539 to RR Flex variety.

June 10 and July 14 over-the-top 29 oz/a Ignite 280 to Liberty Link varieties.

50.00/gal
includes AMS at 0.42/ac

		chem cost	app cost	total cost
Base weed control program				
15-Mar	2.0 pt/acre trifluralin PPI	3.56	4.50	8.06
11-May	1.0 pt/acre Direx at-planting to 12" band behind press wheel	1.93		1.93
Total blanket weed control program				9.99
PGR program				
21-Jul	18.0 oz/acre Pix	3.80	4.30	8.10
	2.0 oz/acre Activator 90	0.18		0.18
	by airplane			
Insecticide program				
11-May	4.0 lb/acre Temik at plant	13.12		13.12
6-Jun	4.0 oz/acre acephate for thrips	2.38	3.75	6.13
	by airplane			
9&10-Jun	4.4 oz/acre Orthene for thrips with Roundup and Ignite 280 applications	2.68		2.68
23-Jun	2.0 oz/acre acephate for thrips	1.19	3.75	4.94
	2.14 oz/acre Ammo for bollworms	1.46		1.46
	by airplane			
17-Aug	3.9 oz/acre Karate for bollworms	5.82	4.00	9.82
	64.0 oz/a Shield-brite (ULV oil)	2.25		2.25
	by airplane			
6-Sep	5.12 oz/acre Ammo for bollworms	3.50	4.00	7.50
	0.6 oz/acre Intruder for aphids	4.50		4.50
	2.0 oz/acre Activator 90	0.18		0.18
	by airplane			
Harvest aid program				
14-Oct	32.0 oz/acre Prep	7.74	4.55	12.29
	16.0 oz/acre Def	5.84		5.84
	2.0 oz/acre Activator 90	0.18		0.18
	by airplane			
21-Oct	16 oz/acre Gramoxone Max	4.63	4.25	8.88
	2.0 oz/acre Activator 90	0.18		0.18
	by airplane			
Total blanket input cost ($/acre)				98.21

Table 6. Seed and technology expenses* for the irrigated large plot replicated systems trial, James Brown Farm, Muleshoe, TX, 2005.

Variety	Seed/lb	Seed/bag	Acres planted /bag	Seed fee $/bag	Tech fee $/bag	Total seed and tech fee $/bag	Seed and tech fee $/acre
Deltapine 434RR	--	250,000	3.62	99.95	84.90	184.85	51.02
Deltapine 444BG/RR	--	250,000	3.62	104.95	125.00	229.95	63.47
Deltapine DPLX 04V405DF	--	250,000	3.62	104.95	125.00	229.95	63.47
FiberMax 960B2R	4300	215,000	3.12	77.95	107.50	185.45	59.52
FiberMax 960BR	4400	220,000	3.19	77.95	110.00	187.95	58.95
FiberMax 989B2R	4600	230,000	3.33	77.95	115.00	192.95	57.89
Paymaster 2167RR	--	250,000	3.62	56.95	71.50	128.45	35.45
Stoneville NexGen 2448R	--	230,000	3.33	64.40	65.80	130.20	39.06
FiberMax 5035LL	4600	230,000	3.33	102.50	0.00	102.50	30.75
FiberMax 958LL	4400	220,000	3.19	140.00	0.00	140.00	43.91

***Trial was planted at 69,000 seed/acre in 30-inch rows.**

Table 7. Harvest results from the dryland large plot replicated systems trial, Appling Farms, Blanco, TX, 2005.

Variety	Commercial turnout	Bur cotton yield	Lint yield	Seed yield	Seed	Lint loan value	Gross loan 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	
Beltwide Cotton Genetics 245	30.2	2654	803	1174	702	0.5667	454.83	58.70	513.53	65.01	13.84	434.68	a
FiberMax 958	33.0	2409	794	1018	615	0.5662	449.57	50.91	500.47	59.03	21.19	420.25	ab
Beltwide Cotton Genetics 295	31.0	2413	747	1160	746	0.5749	429.51	58.02	487.54	59.11	13.84	414.58	ab
FiberMax 958LL	33.4	2498	833	1061	611	0.5696	474.61	53.03	527.64	61.19	60.22	406.24	bc
Deltapine 393	29.7	2540	755	990	629	0.5764	435.26	49.49	484.74	62.23	23.42	399.09	bcd
Deltatpine 494RR	30.7	2558	784	1026	628	0.5765	451.96	51.30	503.26	62.66	51.85	388.75	cde
FiberMax 960RR	29.7	2636	782	1080	663	0.5624	439.50	53.97	493.47	64.57	49.91	378.99	def
All Tex Patriot RR	28.9	2554	739	1137	739	0.5750	424.54	56.85	481.38	62.57	40.75	378.06	def
Stoneville NexGen 3969R	30.1	2436	733	1127	738	0.5708	418.35	56.33	474.68	59.68	44.30	370.69	efg
AFD 3602RR	30.2	2497	755	1195	760	0.5474	413.36	59.76	473.12	61.17	44.64	367.30	efg
All Tex Magnum RR	30.9	2439	754	1166	742	0.5405	407.46	58.29	465.74	59.76	45.79	360.19	fg
Stoneville NexGen 2448R	32.4	2321	751	1084	693	0.5399	405.52	54.21	459.73	56.86	44.30	358.57	fg
Deltapine 434RR	28.9	2539	735	973	636	0.5664	414.72	48.65	463.36	62.21	51.85	349.30	g
AFD 3511R	27.8	2345	653	1038	763	0.5406	353.01	51.90	404.90	57.45	41.98	305.48	h
FiberMax 5035LL	28.2	2338	659	1078	785	0.5238	345.18	53.90	399.08	57.27	51.91	289.89	h
Test mean	30.3	2478	752	1087	697	0.5598	421.16	54.35	475.51	60.72	39.99	374.80	
CV, %	--	3.5	3.5	3	--	--	3.5	3.5	3.5	3.5	--	3.82	
OSL	--	0.0004	<0.0001	<0.0001	--	--	<0.0001	<0.0001	<0.0001	0.0005	--	<0.0001	
LSD 0.05	--	144	44	64	--	--	24.32	3.18	27.46	3.52	--	23.96	

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.
$100/ton for seed.
Value for lint based on CCC loan value from grab samples and ITC HVI results.

Table 8. USDA-AMS classing results of commercially ginned bales from the dryland large plot replicated systems trial, Appling Farms, Blanco, TX, 2005.

Variety		Color 1	Color 2	Staple	Leaf	Mic	Remarks	rd	+b	Length	Strength	Unif	Loan
		units	units	32nds	units	units	bales	%	units	100ths	g/tx	%	$/lb
BCG 245	Mean	2.2	1.0	35.2	2.4	3.8	0/5 bales	80.9	8.4	109.8	30.7	81.5	0.5667
	Std Dev	0.4	0.0	1.1	0.5	0.1		1.1	0.2	3.1	1.0	0.6	0.0169
FM 958	Mean	1.8	1.0	35.0	1.2	4.2	0/5 bales	81.6	8.3	108.8	29.2	80.5	0.5662
	Std Dev	0.4	0.0	0.7	0.4	0.1		1.1	0.2	1.9	0.7	0.9	0.0128
BCG 295	Mean	2.0	1.0	35.6	1.6	4.1	0/5 bales	80.2	8.7	110.6	29.3	81.5	0.5749
	Std Dev	0.7	0.0	0.5	0.5	0.0		1.2	0.2	1.1	1.0	0.9	0.0056
FM 958LL	Mean	1.7	1.0	34.7	2.0	4.2	0/6 bales	81.6	8.4	108.0	29.0	80.8	0.5591
	Std Dev	0.5	0.0	0.8	0.6	0.1		0.6	0.3	2.0	3.0	0.7	0.0258
DP 393	Mean	1.4	1.0	35.8	2.4	4.1	0/5 bales	79.7	9.4	111.0	29.4	82.1	0.5764
	Std Dev	0.5	0.0	0.4	0.5	0.1		1.4	0.2	0.7	0.3	0.5	0.0066
DP 494RR	Mean	1.4	1.0	35.8	2.0	4.3	0/5 bales	80.5	9.1	111.6	30.5	81.5	0.5765
	Std Dev	0.5	0.0	0.8	0.0	0.0		0.3	0.1	1.8	0.8	0.7	0.0050
FM 960RR	Mean	1.2	1.0	34.8	2.8	3.7	0/5 bales	81.1	9.1	109.2	28.3	80.8	0.5624
	Std Dev	0.4	0.0	0.4	0.4	0.1		0.5	0.1	1.3	1.0	0.7	0.0093
All Tex Patriot RR	Mean	1.0	1.0	35.6	1.8	3.9	0/5 bales	81.9	8.8	110.6	28.0	80.5	0.5750
	Std Dev	0.0	0.0	0.5	0.4	0.1		0.4	0.1	1.5	1.4	0.9	0.0060
ST NG 3969R	Mean	1.0	1.0	35.2	1.6	3.8	0/5 bales	82.2	8.8	109.4	29.8	81.1	0.5708
	Std Dev	0.0	0.0	0.8	0.5	0.1		0.4	0.1	2.1	1.3	0.8	0.0141
AFD 3602R	Mean	1.2	1.0	34.0	1.6	4.2	0/5 bales	80.5	9.2	105.8	29.8	81.4	0.5474
	Std Dev	0.4	0.0	1.0	0.5	0.1		0.2	0.2	2.0	0.3	0.4	0.0221
All Tex Magnum RR	Mean	1.0	1.0	33.8	1.2	4.2	0/5 bales	82.3	9.1	105.4	27.3	80.6	0.5405
	Std Dev	0.0	0.0	0.4	0.4	0.1		1.6	0.2	1.1	1.2	0.6	0.0113
ST NG 2448R	Mean	1.8	1.0	33.6	1.8	4.1	0/5 bales	79.6	9.1	105.2	30.0	81.1	0.5399
	Std Dev	0.4	0.0	0.5	0.4	0.1		0.9	0.0	1.3	0.4	1.0	0.0141
DP 434RR	Mean	1.4	1.0	35.4	2.2	4.0	0/5 bales	79.8	9.4	109.8	25.6	80.2	0.5644
	Std Dev	0.5	0.0	0.9	0.4	0.1		0.4	0.1	2.4	1.4	1.2	0.0212
AFD 3511R	Mean	1.8	1.0	33.8	2.3	4.4	0/4 bales	79.8	9.3	105.8	29.5	81.3	0.5406
	Std Dev	0.5	0.0	0.5	0.5	0.2		0.4	0.2	1.9	0.5	0.6	0.0109
FM 5035LL	Mean	2.0	1.0	33.0	3.0	4.1	0/4 bales	80.2	8.6	103.3	29.4	81.4	0.5238
	Std Dev	0.0	0.0	0.8	0.0	0.2		0.2	0.3	1.7	0.3	0.4	0.0186

Table 9. Expenses incurred for the replicated dryland systems variety demonstration, Appling Farms, Blanco, TX, 2005.

	Variety	Seed cost/bag	Tech fees/bag	Total cost/bag	Seed & tech fee/ac	Herb apps	Herb app cost/ac	Roundup Orginal MAX cost/ac	Ingnite 280 cost/ac	Cultivation cost/ac	Systems cost/ac
1	AFD 3511R	49.40	64.30	113.70	22.34	2	9.00	10.64	--	--	41.98
2	AFD 3602R	64.40	65.80	130.20	25.00	2	9.00	10.64	--	--	44.64
3	All Tex Magnum RR	65.00	84.90	149.90	26.15	2	9.00	10.64	--	--	45.79
4	All Tex Patriot RR	48.00	71.50	119.50	21.11	2	9.00	10.64	--	--	40.75
5	DP 434RR	99.95	84.90	184.85	32.21	2	9.00	10.64	--	--	51.85
6	DP 494RR	99.95	84.90	184.85	32.21	2	9.00	10.64	--	--	51.85
7	FM 960RR	77.95	74.70	152.65	30.27	2	9.00	10.64	--	--	49.91
8	ST NG 2448R	64.40	65.80	130.20	24.66	2	9.00	10.64	--	--	44.30
9	ST NG 3969R	64.40	65.80	130.20	24.66	2	9.00	10.64	--	--	44.30
10	FM 5035LL	102.50	0.00	102.50	19.41	2	9.00	--	23.50	--	51.91
11	FM 958LL	140.00	0.00	140.00	27.72	2	9.00	--	23.50	--	60.22
12	BCG 245	45.00	0.00	45.00	7.84	0	--	--	--	6.00	13.84
13	BCG 295	45.00	0.00	45.00	7.84	0	--	--	--	6.00	13.84
14	DP 393	99.95	0.00	99.95	17.42	0	--	--	--	6.00	23.42
15	FM 958	77.95	0.00	77.95	15.19	0	--	--	--	6.00	21.19
					40" rows 3.3 seed/row-ft 43,560 seed/ac		4.50/ac	June 21 over-the-top and Aug 2 post-direct 22 oz/a Roundup Original MAX to Roundup Ready varieties. 28.50/gal includes AMS at 0.42/ac	June 21 and Aug 2 over-the-top 29 oz/a Ignite 280 to Liberty Link varieties. 50.00/gal includes AMS at 0.42/ac	July 15 cultivated conventionals	

Base weed control program		chem cost	app cost	total cost
3-Apr	1.0 qt/acre Trifluralin PPI	3.56	4.50	8.06
25-May	1.0 pt/acre Direx at-planting to 15" band behind press wheel	2.19		2.19
Total blanket weed control program				10.25
Insecticide program				
	no insecticides applied			
Harvest aid program				
1-Oct	24 oz/acre Gramoxone Max	6.94	4.50	11.44
	with 0.5% v/v NIS	0.90		0.90
Total blanket input cost ($/acre)				22.58

Table 10. Seed and technology expenses* for the replicated dryland systems variety demonstration, Appling Farms, Blanco, TX, 2005.

Variety	Seed/lb	Seed/bag	Acres planted /bag	Seed fee $/bag	Tech fee $/bag	Total seed and tech fee $/bag	Seed and tech fee $/acre
AFD 3511R	4434	221,700	5.09	49.40	64.30	113.70	22.34
AFD 3602R	4538	226,900	5.21	64.40	65.80	130.20	25.00
All Tex Magnum RR	4994	249,700	5.73	65.00	84.90	149.90	26.15
All Tex Patriot RR	4931	246,550	5.66	48.00	71.50	119.50	21.11
Deltapine 434RR	--	250,000	5.74	99.95	84.90	184.85	32.21
Deltapine 494RR	--	250,000	5.74	99.95	84.90	184.85	32.21
FiberMax 960RR	4394	219,700	5.04	77.95	74.70	152.65	30.27
Stoneville NexGen 2448R	--	230,000	5.28	64.40	65.80	130.20	24.66
Stoneville NexGen 3969R	--	230,000	5.28	64.40	65.80	130.20	24.66
FiberMax 5035LL	4600	230,000	5.28	102.50	0.00	102.50	19.41
FiberMax 958LL	4400	220,000	5.05	140.00	0.00	140.00	27.72
Beltwide Cotton Genetics 245	5000	250,000	5.74	45.00	0.00	45.00	7.84
Beltwide Cotton Genetics 295	5000	250,000	5.74	45.00	0.00	45.00	7.84
Deltapine 393	--	250,000	5.74	99.95	0.00	99.95	17.42
FiberMax 958	4472	223,600	5.13	77.95	0.00	77.95	15.19

*Trial was planted at 43,560 seed/acre in 40-inch rows.

Table 11. Stand count and nodes above white flower (NAWF) results from the irrigated large plot replicated systems trial, Bearden Farm, Plains, TX, 2005.

Variety	16-Jun		23-Aug	12-Sep
	Plants/row ft	Plants/acre	NAWF	NAWF
AFD 3602R	2.3	30,405	6.8	5.0
All Tex Magnum RR	2.6	33,628	7.1	4.9
All Tex Warrior RR	2.7	35,545	7.0	4.8
Americot 262R	2.3	30,231	6.4	4.6
Beltwide Cotton Genetics 24R	2.3	30,579	6.7	4.7
Deltapine 444BG/RR	3.0	38,943	6.8	4.7
Deltapine 445BG/RR	2.6	34,935	6.9	4.8
Deltapine 455BG/RR	3.1	40,685	7.5	4.3
FiberMax 960B2R	2.8	36,503	5.9	3.7
FiberMax 960RR	2.8	36,765	5.7	3.7
FiberMax 989B2R	2.7	35,110	6.5	3.9
Phytogen 470WR	3.3	42,776	6.6	4.7
Paymaster 2280BG/RR	3.1	40,075	6.6	4.1
Stoneville 5242BR	2.5	32,844	6.6	4.1
Stoneville 5599BR	2.7	35,109	6.5	4.5
Stoneville NexGen 2448R	2.7	35,806	7.0	4.0
Stoneville NexGen 3969R	2.6	33,715	7.3	5.3
Americot 8120	2.4	32,060	6.9	4.7
Beltwide Cotton Genetics 245	2.3	30,666	6.9	5.0
Deltapine 393	3.3	43,560	6.1	4.7
FiberMax 958	3.0	39,204	6.2	5.0
Test average	2.7	35,674	6.7	4.5
CV, %	7.4	7.3	6.1	8.7
OSL	<0.0001	<0.0001	0.0003	<0.0001
LSD 0.05	0.3	4,309	0.7	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, 2005.

Variety	10-Aug						
	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
AFD 3602R	22.9	5.6	13.2	17.9	1.27	77.7	64.2
All Tex Magnum RR	22.6	6.2	12.9	18.1	1.23	84.7	73.6
All Tex Warrior RR	23.5	6.9	12.7	18.6	1.23	84.6	68.9
Americot 262R	22.1	7.1	12.2	18.3	1.23	90.2	75.4
Beltwide Cotton Genetics 24R	22.9	6.3	13.4	18.7	1.23	85.7	74.6
Deltapine 444BG/RR	26.1	5.7	12.6	17.3	1.53	82.9	77.2
Deltapine 445BG/RR	22.1	6.4	11.7	17.1	1.30	83.8	68.3
Deltapine 455BG/RR	24.0	6.8	12.7	18.5	1.30	92.4	80.9
FiberMax 960B2R	20.3	8.0	10.7	17.7	1.17	89.8	79.5
FiberMax 960RR	19.3	7.7	10.5	17.5	1.07	95.2	80.3
FiberMax 989B2R	20.1	8.3	11.0	18.2	1.10	89.9	76.3
Phytogen 470WR	19.5	6.8	10.7	16.5	1.20	87.3	64.9
Paymaster 2280BG/RR	22.7	6.8	12.9	18.4	1.23	81.3	70.9
Stoneville 5242BR	21.9	6.1	11.2	16.3	1.33	90.9	70.1
Stoneville 5599BR	24.0	6.3	12.2	17.6	1.37	96.2	88.9
Stoneville NexGen 2448R	19.6	7.0	12.5	18.4	1.07	87.5	75.0
Stoneville NexGen 3969R	19.1	6.4	12.4	17.8	1.07	90.1	75.3
Americot 8120	24.2	6.1	12.6	17.6	1.37	79.8	69.2
Beltwide Cotton Genetics 245	21.8	7.8	12.9	19.7	1.13	86.7	77.1
Deltapine 393	23.7	5.2	11.9	16.1	1.47	88.0	75.6
FiberMax 958	21.1	7.9	12.4	19.3	1.10	89.1	77.3
Test average	22.1	6.7	12.1	17.9	1.2	87.3	74.5
CV, %	8.2	5.3	5.5	3.6	6.0	5.1	10.1
OSL	0.0006	<0.0001	<0.0001	<0.0001	<0.0001	0.0004	0.0629
LSD 0.05	3.0	0.6	1.1	1.0	0.12	7.3	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 13. Harvest results from the irrigated large plot replicated systems trial, Bearden Farm, Plains, TX, 2005.

Variety	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	
Deltapine 393	34.2	3511	1201	1677	670	0.5461	655.94	83.85	739.79	86.01	42.87	610.91	a
FiberMax 958	32.9	3178	1045	1469	675	0.5532	578.19	73.45	651.65	77.87	40.16	533.62	b
Deltapine 444BG/RR	32.7	3320	1086	1417	626	0.5255	570.74	70.84	641.57	81.33	58.40	501.84	bc
FiberMax 960B2R	32.9	3202	1055	1525	694	0.5134	541.59	76.25	617.85	78.46	55.38	484.00	bcd
Paymaster 2280BG/RR	29.4	3319	975	1576	775	0.5479	534.44	78.80	613.24	81.30	48.26	483.67	bcd
FiberMax 960RR	35.9	2845	1023	1451	681	0.5139	525.46	72.56	598.02	69.70	64.37	463.95	cde
Deltapine 445BG/RR	32.9	2914	958	1230	616	0.5547	531.46	61.49	592.95	71.40	58.40	463.15	cde
Americot 8120	29.6	3146	930	1481	765	0.5245	487.78	74.08	561.86	77.07	27.67	457.13	cdef
FiberMax 989B2R	31.9	2927	932	1454	749	0.5423	505.50	72.72	578.22	71.70	54.13	452.38	cdef
AFD 3602R	30.0	3127	938	1438	736	0.5444	510.81	71.90	582.72	76.61	57.98	448.13	cdef
Stoneville 5242BR	32.6	3024	985	1327	647	0.5189	510.86	66.37	577.23	74.09	58.41	444.73	cdef
All-Tex Magnum RR	33.7	2865	965	1410	701	0.5147	496.64	70.48	567.12	70.20	59.38	437.54	defg
Stoneville NexGen 2448R	30.7	3015	926	1352	701	0.5335	494.13	67.60	561.73	73.87	57.57	430.29	defg
Americot 262R	32.7	2949	964	1352	673	0.5184	499.68	67.61	567.29	72.24	72.40	422.64	efg
Deltapine 455BG/RR	31.0	2902	901	1171	624	0.5276	475.25	58.55	533.80	71.11	58.40	404.29	fgh
Stoneville 5599BR	30.1	3034	913	1313	691	0.5135	468.73	65.65	534.38	74.34	58.41	401.62	fgh
Beltwide Cotton Genetics 245	28.3	3011	852	1247	703	0.5198	442.65	62.37	505.02	73.77	31.26	399.99	fgh
Beltwide Cotton Genetics 24R	30.6	2747	841	1196	683	0.5354	450.15	59.78	509.92	67.31	59.83	382.78	gh
PhytoGen 470WR	31.6	2626	830	1176	680	0.5370	445.68	58.76	504.45	64.34	58.30	381.81	ghi
All-Tex Warrior RR	31.2	2558	799	1260	757	0.5124	409.35	63.02	472.37	62.67	59.38	350.32	hi
Stoneville NexGen 3969R	29.9	2519	754	1154	735	0.5118	385.67	57.69	443.36	61.73	57.57	324.06	i
Test average	31.7	2988	946	1365	694	0.5290	500.99	68.28	569.26	73.20	54.22	441.85	
CV, %	--	7.0	7.0	7.1	--	--	7.1	7.1	7.1	7.0	--	8.0	
OSL	--	<0.0001	<0.0001	<0.0001	--	--	<0.0001	<0.0001	<0.0001	<0.0001	--	<0.0001	
LSD 0.05	--	347	110	161.0	--	--	58.67	8.04	66.67	8.50	--	58.20	

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.
$100/ton for seed.
Value for lint based on CCC loan value from grab samples and ITC HVI results.

Table 14. USDA-AMS classing results of commercially ginned bales for the irrigated large plot replicated systems trial, Ricky Bearden Farm, Plains, TX, 2005.

Variety		Color 1	Color 2	Staple	Leaf	Mic	Remarks	rd	+b	Length	Strength	Unif	Loan
		units	units	32nds	units	units	bales	%	units	inches	g/tx	%	$/lb
AFD 3602R	Mean	2.0	1.0	34.5	2.8	3.6	3/6 bales	81.6	7.9	1.1	28.8	81.2	0.5444
	Std Dev	0.0	0.0	0.5	0.4	0.1		0.5	0.1	0.0	1.3	0.3	0.0124
All-Tex Magnum RR	Mean	1.8	1.0	33.5	2.7	3.5	1/6 bales	83.3	7.6	1.1	25.9	80.4	0.5147
	Std Dev	0.4	0.0	0.5	0.5	0.1		0.9	0.3	0.0	1.9	1.1	0.0308
All-Tex Warrior RR	Mean	2.0	1.0	34.6	2.8	3.2	2/5 bales	82.7	7.6	1.08	26.6	79.0	0.5124
	Std Dev	0.0	0.0	0.5	0.4	0.1		0.5	0.1	0.02	0.7	0.8	0.0153
Americot 262R	Mean	1.5	1.0	33.8	3.0	3.7	3/6 bales	82.7	8.0	1.1	26.4	80.1	0.5184
	Std Dev	0.5	0.0	1.6	0.0	0.1		0.4	0.2	0.1	2.9	0.7	0.0246
Beltwide Cotton Genetics 24R	Mean	1.6	1.0	34.2	2.6	3.5	2/5 bales	83.6	7.7	1.1	27.1	80.9	0.5354
	Std Dev	0.5	0.0	0.8	0.5	0.0		0.7	0.3	0.0	0.5	0.6	0.0126
Deltapine 444BG/RR	Mean	2.0	1.0	34.4	3.0	3.4	2/7 bales	82.4	7.6	1.1	25.6	80.3	0.5255
	Std Dev	0.0	0.0	0.5	0.0	0.1		0.6	0.1	0.0	1.2	0.8	0.0246
Deltapine 445BG/RR	Mean	1.8	1.0	34.7	2.3	3.6	1/6 bales	82.1	8.1	1.1	27.3	80.1	0.5547
	Std Dev	0.4	0.0	0.5	0.5	0.0		0.3	0.2	0.0	1.1	0.5	0.0098
Deltapine 455BG/RR	Mean	1.5	1.0	34.3	2.2	3.5	3/6 bales	81.6	8.4	1.1	26.0	78.9	0.5276
	Std Dev	0.5	0.0	0.5	0.4	0.1		0.3	0.1	0.0	0.8	1.2	0.0279
FiberMax 960B2R	Mean	1.6	1.0	35.0	3.0	3.2	4/7 bales	84.0	7.5	1.1	27.0	79.4	0.5134
	Std Dev	0.5	0.0	1.0	0.0	0.1		0.8	0.3	0.0	1.4	0.9	0.0232
FiberMax 960RR	Mean	1.9	1.0	34.4	3.0	3.1	0/7 bales	83.5	7.5	1.1	27.6	79.5	0.5139
	Std Dev	0.4	0.0	0.5	0.0	0.0		0.4	0.3	0.0	0.8	0.6	0.0107
FiberMax 989B2R	Mean	2.0	1.0	35.5	3.0	3.3	2/6 bales	82.7	7.6	1.1	29.0	80.8	0.5423
	Std Dev	0.0	0.0	0.5	0.0	0.1		0.6	0.3	0.0	1.0	0.5	0.0121
PhytoGen 470WR	Mean	2.0	1.0	34.2	3.0	3.5	2/5 bales	81.3	8.1	1.1	27.2	80.1	0.5370
	Std Dev	0.0	0.0	0.8	0.0	0.1		0.3	0.1	0.0	1.1	1.7	0.0173
Paymaster 2280BG/RR	Mean	2.0	1.0	34.7	3.0	3.7	3/6 bales	81.7	7.7	1.1	27.8	81.4	0.5479
	Std Dev	0.0	0.0	0.5	0.0	0.1		0.3	0.1	0.0	0.6	0.4	0.0150
Stoneville 5242BR	Mean	1.0	1.0	33.2	2.0	3.8	0/6 bales	83.3	7.9	1.0	25.2	80.6	0.5189
	Std Dev	0.0	0.0	1.0	0.0	0.0		0.4	0.1	0.0	0.9	0.6	0.0267
Stoneville 5599BR	Mean	2.2	1.0	33.7	3.0	3.5	3/6 bales	79.9	8.4	1.0	25.6	78.5	0.5135
	Std Dev	0.4	0.0	0.5	0.0	0.1		0.4	0.2	0.0	0.9	0.7	0.0128
Stoneville NexGen 2448R	Mean	2.0	1.0	34.0	2.7	3.9	4/6 bales	81.2	8.1	1.1	28.7	81.6	0.5335
	Std Dev	0.0	0.0	0.6	0.5	0.1		0.7	0.2	0.0	1.1	0.7	0.0179
Stoneville NexGen 3969R	Mean	1.8	1.0	34.6	3.0	3.1	2/5 bales	82.7	7.7	1.1	29.0	80.6	0.5118
	Std Dev	0.4	0.0	0.5	0.0	0.0		0.2	0.2	0.0	1.1	0.8	0.0083
Americot 8120	Mean	1.8	1.0	34.3	2.3	3.5	4/6 bales	82.4	7.8	1.1	24.8	79.8	0.5245
	Std Dev	0.4	0.0	0.5	0.5	0.1		0.9	0.4	0.0	1.4	0.6	0.0235
Beltwide Cotton Genetics 245	Mean	2.0	1.0	36.3	2.8	3.1	5/6 bales	82.4	7.4	1.1	28.8	80.5	0.5198
	Std Dev	0.0	0.0	0.8	0.4	0.1		1.0	0.3	0.0	1.0	0.7	0.0094
Deltapine 393	Mean	1.5	1.0	35.4	2.6	3.7	6/8 bales	82.3	8.1	1.1	25.3	80.2	0.5461
	Std Dev	0.5	0.0	0.5	0.5	0.1		0.7	0.2	0.0	1.6	1.0	0.0168
FiberMax 958	Mean	2.0	1.0	36.1	3.0	3.5	5/7 bales	82.6	7.4	1.1	27.5	80.1	0.5532
	Std Dev	0.0	0.0	0.7	0.0	0.1		0.3	0.1	0.0	0.8	0.4	0.0138

Table 15. Expenses incurred for the irrigated large plot replicated systems trial, Ricky Bearden Farm, Plains, TX, 2005.

	Variety	Seed cost/bag	Tech fees/bag	Total cost/bag	Seed & tech fee/ac	Herb & Insect apps	Herb & Insect app cost/ac	Roundup Orginal MAX cost/ac	Hoe cost/ac	Insecticide cost/ac	Systems cost/ac
1	AFD 3602R	64.40	65.80	130.20	30.31	2	9.00	5.32	--	13.35	57.98
2	All Tex Magnum RR	65.00	84.90	149.90	31.71	2	9.00	5.32	--	13.35	59.38
3	All Tex Warrior RR	65.00	84.90	149.90	31.71	2	9.00	5.32	--	13.35	59.38
4	Americot 262R	118.20	83.20	201.40	44.73	2	9.00	5.32	--	13.35	72.40
5	BCG 24R	68.50	86.60	155.10	32.16	2	9.00	5.32	--	13.35	59.83
6	DP 444BG/RR	104.95	125.00	229.95	48.58	1	4.50	5.32	--	--	58.40
7	DP 445BG/RR	104.95	125.00	229.95	48.58	1	4.50	5.32	--	--	58.40
8	DP 455BG/RR	104.95	125.00	229.95	48.58	1	4.50	5.32	--	--	58.40
9	FM 960B2R	77.95	107.50	185.45	45.56	1	4.50	5.32	--	--	55.38
10	FM 960RR	77.95	74.70	152.65	36.70	2	9.00	5.32	--	13.35	64.37
11	FM 989B2R	77.95	115.00	192.95	44.31	1	4.50	5.32	--	--	54.13
12	PhytoGen 470WR	95.00	116.10	211.10	48.48	1	4.50	5.32	--	--	58.30
13	PM 2280BG/RR	56.95	125.00	181.95	38.44	1	4.50	5.32	--	--	48.26
14	ST 5242BR	96.60	115.00	211.60	48.59	1	4.50	5.32	--	--	58.41
15	ST 5599BR	96.60	115.00	211.60	48.59	1	4.50	5.32	--	--	58.41
16	ST NG 2448R	64.40	65.80	130.20	29.90	2	9.00	5.32	--	13.35	57.57
17	ST NG 3969R	64.40	65.80	130.20	29.90	2	9.00	5.32	--	13.35	57.57
18	Americot 8120	28.00	0.00	28.00	5.92	1	4.50	--	3.90	13.35	27.67
19	BCG 245	45.00	0.00	45.00	9.51	1	4.50	--	3.90	13.35	31.26
20	DP 393	99.95	0.00	99.95	21.12	1	4.50	--	3.90	13.35	42.87
21	FM 958	77.95	0.00	77.95	18.41	1	4.50	--	3.90	13.35	40.16
					40" rows 4.0 seed/row-ft 52,820 seed/ac		4.50/ac	June 17 over-the-top 22oz/a Roundup Original MAX to Roundup Ready varieties. 28.50/gal includes AMS at 0.42/ac	July 19 spent 9.8 hrs hoeing 16.4 acres of conventionals. 0.6 hrs/a at 6.50/hr	Sept 2 over-the-top 0.8 oz/ac Intruder* (aphids) +4.2 oz/ac Mustang Max (bollworms) to non Bt varieties. Intruder = 7.50/oz Mustang Max = 1.75/oz	

Base weed control program		chem cost	app cost	total cost
15-Mar	1 pt/acre trifluralin PPI	1.78	4.50	6.28
19-May	4.0 oz/acre trifluralin at planting	0.45		0.45
	6.0 oz/acre prometryn at planting to 10" band behind press wheel	1.30		1.30
20-Jun	Blanket cultvation		6.00	6.00
14-Jul	Blanket cultvation		6.00	6.00
Total blanket weed control program				20.03
Insecticide program				
13-May	3 lb/acre Temik at planting	9.84		9.84
Harvest aid program				
14-Oct	2 pt/ac Prep	7.74	3.50	11.24
	5 oz/ac Ginstar by airplane	6.87		6.87
20-Oct	21 oz/ac Gramoxone Max	6.07	3.50	9.57
	with 0.25% v/v non-ionic surfactant by airplane	0.22		0.22
Total blanket input cost ($/acre)				57.77

*Intruder was applied as to reduce the potential for aphid flaring after pyrethroid application.

Table 16. Seed and technology expenses* for the irrigated large plot replicated systems trial, Ricky Bearden Farm, Plains, TX, 2005.

Variety	Seed/lb	Seed/bag	Acres planted /bag	Seed fee $/bag	Tech fee $/bag	Total seed and tech fee $/bag	Seed and tech fee $/acre
AFD 3602R	4538	226,900	4.30	64.40	65.80	130.20	30.31
All-Tex Magnum RR	4994	249,700	4.73	65.00	84.90	149.90	31.71
All-Tex Warrior RR	4994	249,700	4.73	65.00	84.90	149.90	31.71
Americot 262R	4756	237,800	4.50	118.20	83.20	201.40	44.73
Beltwide Cotton Genetics 24R	5094	254,700	4.82	68.50	86.60	155.10	32.16
Deltapine 444BG/RR	--	250,000	4.73	104.95	125.00	229.95	48.58
Deltapine 445BG/RR	--	250,000	4.73	104.95	125.00	229.95	48.58
Deltapine 455BG/RR	--	250,000	4.73	104.95	125.00	229.95	48.58
FiberMax 960B2R	4300	215,000	4.07	77.95	107.50	185.45	45.56
FiberMax 960RR	4394	219,700	4.16	77.95	74.70	152.65	36.70
FiberMax 989B2R	4600	230,000	4.35	77.95	115.00	192.95	44.31
PhytoGen 470WR	--	230,000	4.35	95.00	116.10	211.10	48.48
Paymaster 2280BG/RR	--	250,000	4.73	56.95	125.00	181.95	38.44
Stoneville 5242BR	--	230,000	4.35	96.60	115.00	211.60	48.59
Stoneville 5599BR	--	230,000	4.35	96.60	115.00	211.60	48.59
Stoneville NexGen 2448R	--	230,000	4.35	64.40	65.80	130.20	29.90
Stoneville NexGen 3969R	--	230,000	4.35	64.40	65.80	130.20	29.90
Americot 8120	5000	250,000	4.73	28.00	0.00	28.00	5.92
Beltwide Cotton Genetics 245	5000	250,000	4.73	45.00	0.00	45.00	9.51
Deltapine 393	--	250,000	4.73	99.95	0.00	99.95	21.12
FiberMax 958	4472	223,600	4.23	77.95	0.00	77.95	18.41

*Trial was planted at 58,820 seed/acre in 40-inch rows.

Additional Replicated Sites

Replicated Dryland Cotton Systems Variety Demonstration, Plains, TX - 2005

Cooperator: Rickey Bearden

Arlan Gentry, Scott Russell, Randy Boman, Mark Kelley, and Mark Stelter
County Extension Agent-Agriculture, Yoakum Country,
Extension Agent-IPM, Terry/Yoakum Counties,
Extension Agronomist-Cotton, Extension Program Specialist-Cotton,
and Extension Assistant-Cotton

Yoakum County

Summary: Significant differences were noted for most characteristics measured (Tables 1 and 2). Lint turnout ranged from a low of 29.4% (AFD 3511R) to a high of 37.2% (Deltapine 445BG/RR). Lint yields varied from a low of 564 lb/acre (FM 989) to a high of 797 lb/acre (Deltapine 445BG/RR). Lint loan values varied from a low of $0.5140/lb (FiberMax 960RR) to a high of $0.5663/lb (Deltapine 393). After adding lint and seed value, total value/acre for varieties ranged from a low of $339.69 (FM 989) to a high of $486.77 (Deltapine 445BG/RR). When subtracting ginning and systems costs, the net value/acre among varieties ranged from a high of $390.28 (Beltwide Cotton Genetics 295) to a low of $277.78, (FM 989) a difference of $112.50. Micronaire ranged from a low of 3.1 units (FiberMax 960RR and FiberMax 989) to a high of 3.8 units (Deltapine 393, FiberMax 958, Deltapine 432RR, All-Tex Atlas and Paymaster 2266RR). Staple ranged from a low of 33.1 (Americot 262R) to a high of 35.9 (All-Tex Toppick). 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 conventional and transgenic varieties in under dryland production systems.

Materials and Methods:

Varieties: AFD 3602R, AFD 3511R, All-Tex Magnum RR, All-Tex Patriot RR, All-Tex Warrior RR, All-Tex Atlas, All-Tex Toppick, Americot 262R, Americot 821R, Americot 8120, Beltwide Cotton Genetics 24R, Beltwide Cotton Genetics 245, Beltwide Cotton Genetics 295, Deltapine 432RR, Deltapine 434RR, Deltapine 445BG/RR, Deltapine 488BG/RR, Deltapine 494RR, Deltapine 393, FiberMax 960B2R, FiberMax 960RR, FiberMax 989B2R, FiberMax 989RR, FiberMax 958, FiberMax 989, Paymaster 2266RR, Paymaster 2280BG/RR, Stoneville 55599BR, Stoneville NexGen 2448R, and Stoneville NexGen 3969R

Experimental design: Randomized complete block with 3 replications

Seeding rate: 3.3 seed/row-ft in 40-inch row spacings (John Deere Max Emerge vacuum planter)

Plot size: 6 rows by 1355 ft long

Planting date: 8-June

Weed management: Trifluralin was applied preplant incorporated at 1 pt/acre across all varieties on 15-March. A banded application of trifluralin at 4.0 oz/acre and prometryn at 6.0 oz/acre was made at planting. Roundup Original MAX herbicide was applied broadcast to Roundup Ready varieties on 5-July at 22 oz/acre. Conventional varieties were hoed at a cost of $5.27/acre. All varieties were cultivated on 20-July, and 15-August.

Rainfall: Based on the West Texas Mesonet rainfall data for Plains, amounts (in inches) were as follows: May: 4.04, June: 0.07, July: 2.04, August: 4.24, and September: 0.06. This is a total rainfall for May-September of 10.45 inches.

Insecticides: Temik was applied at planting at 2 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: 10-34-0 dry fertilizer was applied pre-plant at 60 lb/acre on 15-March followed by 32-0-0 liquid fertilizer sidedressed at 100 lb/acre on 20-July.

Harvest aids: Prep at 1.5 pt/acre was applied on 27-October.

Harvest: Plots were harvested on 29-December using two commercial John Deere 7455 strippers equipped 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 Research and Extension Center at Lubbock to determine gin turnouts.

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

Ginning costs and seed values: Ginning costs are based on $2.45 per cwt. of bur cotton and seed values are based on $100/ton. Ginning costs do not include checkoff.

Systems costs: Systems cost was determined by variety per acre using manufacturer's suggested retail price for seed and appropriate technology fee for Bollgard, Bollgard II, and/or Roundup Ready based on 3.3 seed/row-ft.

Results and Discussion:

Significant differences were noted for most characteristics measured (Tables 1 and 2). Lint turnout ranged from a low of 29.4% (AFD 3511R) to a high of 37.2% (Deltapine 445BG/RR). Lint yields varied from a low of 564 lb/acre (FM 989) to a high of 797 lb/acre (Deltapine 445BG/RR). Lint loan values varied from a low of $0.5140/lb (FiberMax 960RR) to a high of $0.5663/lb (Deltapine 393). After adding lint and seed value, total value/acre for varieties ranged from a low of $339.69 (FM 989) to a high of $486.77 (Deltapine 445BG/RR). When subtracting ginning and systems costs, the net value/acre among varieties ranged from a high of $390.28 (Beltwide Cotton Genetics 295) to a low of $277.78, (FM 989) a difference of $112.50. Micronaire ranged from a low of 3.1 units (FiberMax 960RR and FiberMax 989) to a high of 3.8 units (Deltapine 393, FiberMax 958, Deltapine 432RR, All-Tex Atlas and Paymaster 2266RR). Staple ranged from a low of 33.1 (Americot 262R) to a high of 35.9 (All-Tex Toppick). Strength had an average of 27.8 with a low of 25.1 (Americot 8120 and Deltapine 434RR) to a high of 30.5 (FiberMax 989B2R). Significant differences were observed for uniformity, elongation, reflectance (Rd) and yellowness (+b). These data indicate that substantial differences can be obtained in terms of net value/acre due to variety and technology selection. 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 Rickey Bearden for the use of his land, equipment and labor for this project.

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 dryland large plot replicated systems variety trial, Ricky Bearden Farm, Plains, TX, 2005.

Variety	Lint turnout	Seed turnout	Bur cotton yield	Lint yield	Seed yield	Lint loan value	Lint value	Seed value	Total value	Ginning cost	Systems cost	Net value	
	%	%	lb/acre	lb/acre	lb/acre	$/lb	$/acre	$/acre	$/acre	$/acre	$/acre	$/acre	
Beltwide Cotton Genetics 295	34.4	52.9	2056	707	1087	0.5645	399.33	54.35	453.68	50.37	13.03	390.28	a
Deltapine 393	33.0	48.4	2203	727	1066	0.5663	411.75	53.29	465.03	53.96	22.51	388.56	a
Deltapine 445BG/RR	37.2	48.2	2142	797	1033	0.5460	435.13	51.63	486.77	52.48	49.49	384.80	a
FbierMax 958	34.9	49.6	2015	703	999	0.5658	397.97	49.98	447.95	49.36	20.30	378.29	ab
Deltapine 434RR	34.9	49.8	2218	775	1104	0.5323	412.72	55.22	467.94	54.34	41.71	371.89	abc
Deltapine 494RR	35.6	50.0	2053	731	1026	0.5588	408.52	51.32	459.84	50.30	41.71	367.83	abcd
AFD 3602R	33.1	54.1	2149	712	1161	0.5397	384.38	58.07	442.45	52.64	34.57	355.24	bcde
Stoneville 5599BR	35.8	49.5	2157	773	1067	0.5213	402.83	53.33	456.17	52.85	49.49	353.83	bcde
All-Tex Toppick	32.2	53.0	1988	640	1053	0.5633	360.99	52.67	413.66	48.70	12.07	352.89	bcde
FiberMax 960B2R	33.5	50.1	2162	724	1084	0.5487	396.89	54.20	451.09	52.98	47.02	351.09	cde
Deltapine 432RR	34.2	50.7	2169	741	1099	0.5257	389.93	54.96	444.89	53.14	41.71	350.04	cdef
Paymaster 2280BG/RR	30.3	54.1	2367	718	1279	0.5353	384.37	63.97	448.35	57.99	41.21	349.14	cdefg
Americot 821R	34.8	53.2	1954	679	1040	0.5455	370.59	52.02	422.61	47.88	28.07	346.66	cdefgh
Deltapine 488BG/RR	33.3	50.8	2186	728	1112	0.5373	391.29	55.60	446.88	53.56	48.62	344.70	defgh
All-Tex Magnum RR	33.8	49.5	2093	708	1035	0.5330	376.61	51.75	428.36	51.27	35.71	341.37	efghi
FiberMax 989B2R	32.4	51.9	2188	708	1137	0.5393	381.34	56.84	438.18	53.61	46.00	338.57	efghi
Stoneville NexGen 2448R	31.6	52.2	2100	663	1096	0.5565	368.98	54.80	423.78	51.44	34.23	338.11	efghi
Americot 8120	31.7	51.4	2020	639	1038	0.5393	345.39	51.90	397.29	49.49	10.10	337.70	efghi
FiberMax 960RR	36.4	53.2	1956	711	1041	0.5140	365.77	52.03	417.81	47.92	39.78	330.11	efghi
All-Tex Atlas	31.2	53.5	2045	637	1095	0.5278	336.19	54.74	390.94	50.11	11.27	329.56	efghi
Beltwide Cotton Genetics 245	33.4	50.0	1871	624	935	0.5392	336.79	46.75	383.53	45.84	13.03	324.66	fghij
Americot 262R	34.9	51.7	1936	676	1000	0.5203	351.85	50.01	401.86	47.44	31.26	323.16	ghij
FiberMax 989RR	35.2	50.4	1929	680	973	0.5303	360.13	48.62	408.75	47.27	39.12	322.36	hij
Beltwide Cotton Genetics 24R	34.3	50.8	1972	675	1001	0.5277	356.07	50.04	406.11	48.31	36.08	321.73	hij
Paymaster 2266RR	31.0	53.7	2073	643	1113	0.5413	348.34	55.67	404.00	50.80	31.98	321.22	hij
All-Tex Patriot RR	31.4	52.0	2052	644	1068	0.5352	344.69	53.40	398.08	50.28	30.72	317.09	ijk
Stoneville NexGen 3969R	32.0	53.1	1948	623	1034	0.5345	333.20	51.67	384.88	47.73	34.23	302.92	jkl
AFD 3511R	29.4	53.7	2086	613	1121	0.5362	328.85	56.04	384.89	51.10	31.94	301.85	jkl
All-Tex Warrior RR	30.6	52.9	2044	625	1081	0.5178	323.09	54.06	377.15	50.07	35.71	291.37	kl
FiberMax 989	32.9	50.2	1717	564	861	0.5262	296.63	43.06	339.69	42.06	19.85	277.78	l
Test average	33.3	51.5	2062	686	1061	0.5390	370.02	53.07	423.09	50.51	32.42	340.16	
CV, %	4.1	4.5	3.3	3.2	3.3	3.2	4.3	3.3	4.0	3.3	---	4.7	
OSL	<0.0001	0.0386	<0.0001	<0.0001	<0.0001	0.0060	<0.0001	<0.0001	<0.0001	<0.0001	---	<0.0001	
LSD 0.05	2.2	3.8	110	36	56	0.0280	25.94	2.82	27.98	2.69	---	26.03	

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.
$100/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 large plot replicated systems variety trial, Ricky Bearden Farm, Plains, TX, 2005.

Variety	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32nds inches	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
Beltwide Cotton Genetics 295	3.6	35.5	81.2	27.9	5.0	1.0	80.4	7.7	2.3	1.0
Deltapine 393	3.8	35.2	81.0	26.8	7.6	1.0	80.1	7.8	2.7	1.0
Deltapine 445BG/RR	3.6	34.2	80.9	28.0	7.1	1.0	80.6	7.8	2.0	1.0
FbierMax 958	3.8	35.2	80.3	27.7	4.5	1.0	80.0	7.6	2.7	1.0
Deltapine 434RR	3.5	34.4	79.1	25.1	7.5	1.0	81.2	7.5	2.0	1.0
Deltapine 494RR	3.6	34.7	80.1	29.4	6.1	1.0	79.8	7.8	2.7	1.0
AFD 3602R	3.5	34.0	80.8	27.8	5.2	1.0	80.1	7.6	3.0	1.0
Stoneville 5599BR	3.7	33.4	78.8	27.0	5.8	1.0	78.5	8.2	3.0	1.0
All-Tex Toppick	3.6	35.9	80.7	27.4	6.8	1.0	80.2	7.4	3.0	1.0
FiberMax 960B2R	3.5	34.7	78.7	28.3	4.0	1.0	81.4	7.6	2.0	1.0
Deltapine 432RR	3.8	33.3	80.4	27.3	8.3	1.3	78.5	8.2	3.0	1.0
Paymaster 2280BG/RR	3.3	34.7	80.3	28.7	6.3	1.0	79.9	7.7	3.0	1.0
Americot 821R	3.7	33.6	80.2	26.6	7.0	1.0	79.8	8.1	2.3	1.0
Deltapine 488BG/RR	3.4	34.6	79.3	27.6	6.2	1.0	79.9	7.7	2.3	1.0
All-Tex Magnum RR	3.3	33.9	79.8	26.7	6.9	1.0	81.4	7.8	2.0	1.0
FiberMax 989B2R	3.4	35.0	81.4	30.5	5.0	1.7	79.3	7.2	3.3	1.0
Stoneville NexGen 2448R	3.6	34.6	81.6	29.5	5.7	1.0	79.5	7.8	3.0	1.0
Americot 8120	3.7	34.0	79.4	25.1	7.3	1.0	79.1	7.5	3.0	1.0
FiberMax 960RR	3.1	34.0	79.3	28.8	4.3	1.0	80.8	8.1	2.0	1.0
All-Tex Atlas	3.8	33.6	81.0	27.5	6.3	1.0	78.2	8.1	2.7	1.0
Beltwide Cotton Genetics 245	3.3	35.3	80.5	29.5	4.4	1.3	79.5	7.4	3.0	1.0
Americot 262R	3.7	33.1	80.4	26.4	7.2	1.0	79.2	8.2	2.3	1.0
FiberMax 989RR	3.3	34.3	80.0	30.0	5.1	1.0	80.3	8.2	2.0	1.0
Beltwide Cotton Genetics 24R	3.4	33.6	80.2	27.7	7.1	1.0	81.2	7.3	2.7	1.0
Paymaster 2266RR	3.8	34.0	81.7	27.6	6.7	1.0	78.4	7.7	3.0	1.0
All-Tex Patriot RR	3.4	34.9	80.0	26.3	7.0	1.0	80.2	7.4	2.7	1.0
Stoneville NexGen 3969R	3.2	34.8	80.6	28.8	6.7	1.0	81.4	7.5	2.3	1.0
AFD 3511R	3.4	34.5	80.6	27.2	6.4	1.0	78.1	8.0	3.0	1.0
All-Tex Warrior RR	3.3	34.3	79.6	26.1	6.8	1.0	80.3	7.9	2.3	1.0
FiberMax 989	3.1	34.7	79.5	29.7	4.7	1.0	79.9	8.4	2.0	1.0
Test average	3.5	34.4	80.2	27.8	6.2	1.0	79.9	7.8	2.6	1.0
CV, %	3.9	1.4	1.1	3.3	8.4	24.7	1.1	3.3	--	--
OSL	<0.0001	<0.0001	0.0010	<0.0001	<0.0001	0.5512	<0.0001	<0.0001	--	--
LSD 0.05	0.2	0.8	1.4	1.5	0.8	NS	1.5	0.4	--	--

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

Table 3. Expenses incurred for the dryland large plot replicated systems trial, Ricky Bearden Farm, Plains, TX, 2005

	Variety	Seed cost/bag	Tech fees/bag	Total cost/bag	Seed & tech fee/ac	Herb apps	Herb cost/ac	Roundup Orginal MAX cost/ac	Hoe cost/ac	Systems cost/ac
1	AFD 3511R	49.40	64.30	113.70	22.12	1	4.50	5.32	--	31.94
2	AFD 3602R	64.40	65.80	130.20	24.75	1	4.50	5.32	--	34.57
3	All-Tex Magnum RR	65.00	84.90	149.90	25.89	1	4.50	5.32	--	35.71
4	All-Tex Patriot RR	48.00	71.50	119.50	20.90	1	4.50	5.32	--	30.72
5	All-Tex Warrior RR	65.00	84.90	149.90	25.89	1	4.50	5.32	--	35.71
6	Americot 262R	35.00	83.20	118.20	21.44	1	4.50	5.32	--	31.26
7	Americot 821R	35.00	72.90	107.90	18.25	1	4.50	5.32	--	28.07
8	Beltwide Cotton Genetics 24R	68.50	86.60	155.10	26.26	1	4.50	5.32	--	36.08
9	Deltapine 432RR	99.95	84.90	184.85	31.89	1	4.50	5.32	--	41.71
10	Deltapine 434RR	99.95	84.90	184.85	31.89	1	4.50	5.32	--	41.71
11	Deltapine 445BG/RR	104.95	125.00	229.95	39.67	1	4.50	5.32	--	49.49
12	Deltapine 488BG/RR	99.95	125.00	224.95	38.80	1	4.50	5.32	--	48.62
13	Deltapine 494RR	99.95	84.90	184.85	31.89	1	4.50	5.32	--	41.71
14	FiberMax 960B2R	77.95	107.50	185.45	37.20	1	4.50	5.32	--	47.02
15	FiberMax 960RR	77.95	74.70	152.65	29.96	1	4.50	5.32	--	39.78
16	FiberMax 989B2R	77.95	115.00	192.95	36.18	1	4.50	5.32	--	46.00
17	FiberMax 989RR	77.95	78.10	156.05	29.30	1	4.50	5.32	--	39.12
18	Paymaster 2266RR	56.95	71.50	128.45	22.16	1	4.50	5.32	--	31.98
19	Paymaster 2280BG/RR	56.95	125.00	181.95	31.39	1	4.50	5.32	--	41.21
20	Stoneville 5599BR	96.60	115.00	211.60	39.67	1	4.50	5.32	--	49.49
21	Stoneville NexGen 2448R	64.40	65.80	130.20	24.41	1	4.50	5.32	--	34.23
22	Stoneville NexGen 3969R	64.40	65.80	130.20	24.41	1	4.50	5.32	--	34.23
23	All-Tex Atlas	31.00	0.00	31.00	6.00	0	--	--	5.27	11.27
24	All-Tex Toppick	36.00	0.00	36.00	6.80	0	--	--	5.27	12.07
25	Americot 8120	28.00	0.00	28.00	4.83	0	--	--	5.27	10.10
26	Beltwide Cotton Genetics 245	45.00	0.00	45.00	7.76	0	--	--	5.27	13.03
27	Beltwide Cotton Genetics 295	45.00	0.00	45.00	7.76	0	--	--	5.27	13.03
28	Deltapine 393	99.95	0.00	99.95	17.24	0	--	--	5.27	22.51
29	FiberMax 958	77.95	0.00	77.95	15.03	0	--	--	5.27	20.30
30	FiberMax 989	77.95	0.00	77.95	14.58	0	--	--	5.27	19.85
					40" rows 3.3 seed/row-ft 43,124 seed/ac		4.50/ac	July 5 over-the-top 22oz/a Roundup Original MAX to Roundup Ready varieties. 28.50/gal includes AMS at 0.42/ac	Aug 1 spent 12 hrs hoeing 14.9 acres of conventionals. 0.81 hrs/a at 6.50/hr	

Base weed control program		chem cost	app cost	total cost
15-Mar	1 pt/acre trifluralin PPI	1.78	4.50	6.28
8-Jun	4.0 oz/acre trifluralin at planting	0.45		0.45
	6.0 oz/acre prometryn at planting to 10" band behind press wheel	1.30		1.30
20-Jul	Blanket cultvation		6.00	6.00
15-Aug	Blanket cultvation		6.00	6.00
Total blanket weed control program				20.03
Insecticide program				
13-May	2 lb/acre Temik at planting	6.56		6.56
Harvest aid program				
27-Oct	1.5 pt/ac Prep	5.81	4.50	10.31
Total blanket input cost ($/acre)				36.90

Table 4. Seed and technology expenses* for the dryland large plot replicated systems trial, Ricky Bearden Farm, Plains, TX, 2005.

Variety	Seed/lb	Seed/bag	Acres planted /bag	Seed fee $/bag	Tech fee $/bag	Total seed and tech fee $/bag	Seed and tech fee $/acre
AFD 3511R	4434	221,700	5.14	49.40	64.30	113.70	22.12
AFD 3602R	4538	226,900	5.26	64.40	65.80	130.20	24.75
All-Tex Magnum RR	4994	249,700	5.79	65.00	84.90	149.90	25.89
All-Tex Patriot RR	4931	246,550	5.72	48.00	71.50	119.50	20.90
All-Tex Warrior RR	4994	249,700	5.79	65.00	84.90	149.90	25.89
Americot 262R	4756	237,800	5.51	35.00	83.20	118.20	21.44
Americot 821R	5100	255,000	5.91	35.00	72.90	107.90	18.25
Beltwide Cotton Genetics 24R	5094	254,700	5.91	68.50	86.60	155.10	26.26
Deltapine 432RR	--	250,000	5.80	99.95	84.90	184.85	31.89
Deltapine 434RR	--	250,000	5.80	99.95	84.90	184.85	31.89
Deltapine 445BG/RR	--	250,000	5.80	104.95	125.00	229.95	39.67
Deltapine 488BG/RR	--	250,000	5.80	99.95	125.00	224.95	38.80
Deltapine 494RR	--	250,000	5.80	99.95	84.90	184.85	31.89
FiberMax 960B2R	4300	215,000	4.99	77.95	107.50	185.45	37.20
FiberMax 960RR	4394	219,700	5.09	77.95	74.70	152.65	29.96
FiberMax 989B2R	4600	230,000	5.33	77.95	115.00	192.95	36.18
FiberMax 989RR	4594	229,700	5.33	77.95	78.10	156.05	29.30
Paymaster 2266RR	--	250,000	5.80	56.95	71.50	128.45	22.16
Paymaster 2280BG/RR	--	250,000	5.80	56.95	125.00	181.95	31.39
Stoneville 5599BR	--	230,000	5.33	96.60	115.00	211.60	39.67
Stoneville NexGen 2448R	--	230,000	5.33	64.40	65.80	130.20	24.41
Stoneville NexGen 3969R	--	230,000	5.33	64.40	65.80	130.20	24.41
All-Tex Atlas	4454	222,700	5.16	31.00	0.00	31.00	6.00
All-Tex Toppick	4564	228,200	5.29	36.00	0.00	36.00	6.80
Americot 8120	5000	250,000	5.80	28.00	0.00	28.00	4.83
Beltwide Cotton Genetics 245	5000	250,000	5.80	45.00	0.00	45.00	7.76
Beltwide Cotton Genetics 295	5000	250,000	5.80	45.00	0.00	45.00	7.76
Deltapine 393	--	250,000	5.80	99.95	0.00	99.95	17.24
FiberMax 958	4472	223,600	5.19	77.95	0.00	77.95	15.03
FiberMax 989	4610	230,500	5.35	77.95	0.00	77.95	14.58

*Trial was planted at 43,124 seed/acre in 40-inch rows.

Replicated Dryland Cotton Systems Variety Demonstration, AG-CARES, Lamesa, TX - 2005

Cooperators: Lamesa Cotton Growers/Texas Agricultural Experiment Station/Texas Cooperative Extension
Tommy Doederlein, Randy Boman, Mark Kelley, and Mark Stelter
EA-IPM Dawson/Lynn Counties, Extension Agronomist-Cotton, Extension Program Specialist-Cotton, and Extension Assistant-Cotton

Dawson County

Summary: Significant differences were noted for most parameters measured. Lint turnout ranged from 29.9% for Stoneville NexGen 3969R to 36.4% for Americot 821R. Lint yields varied from a low of 576 lb/acre (Beltwide Cotton Genetics 245) to a high of 715 lb/acre (Americot 821R). Lint loan values ranged from a low of $0.5342/lb to a high of $0.5672/lb for Paymaster 2326RR and FiberMax 958, respectively. After adding lint and seed value, total value/acre ranged from a low of $357.18 for Beltwide Cotton Genetics 245, to a high of $441.68 for FiberMax 958. When subtracting ginning costs and seed and technology fees, the net value/acre among varieties ranged from a high of $344.99 (FiberMax 958) to a low of $260.19 (Paymaster 2326RR), a difference of $84.80. Micronaire values ranged from a low of 3.3 for Stoneville NexGen 3639R to a high of 4.2 for Paymaster 2326RR. Staple length averaged 34.5 across all varieties with a low of 33.6 (Paymaster 2326RR) and a high of 35.1 (FiberMax 958, Deltapine 393, and All-Tex Patriot RR).

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

Materials and Methods:

Varieties:	AFD 3602R, All-Tex Patriot RR, Americot 821R, Americot 8120, Beltwide Cotton Genetics 24R, Beltwide Cotton Genetics 245, Deltapine 393, FiberMax 958, Paymaster 2326RR, Stoneville NexGen 3969R
Experimental design:	Randomized complete block with 3 replications
Seeding rate:	3.4 seed/row-ft in solid planted 40-inch row spacing (John Deere Max Emerge vacuum planter)

Plot size:	4 rows by length of field (~850 ft)
Planting date:	2-June
Weed management:	Trifluralin was applied preplant incorporated at 1.25 pt/acre across all varieties on 14-April. Roundup Original MAX was applied over-the-top to Roundup Ready varieties on 22-June at 22 oz/acre with ammonium sulfate (17 lb/100 gallons of spray mix) followed by a post-directed application on 30-August at 24 oz/acre with ammonium sulfate (17 lb/100 gallons of spray mix). All conventional varieties were cultivated one time on 22-June followed by a blanket cultivation on 13-July. Hand hoeing of conventional varieties was conducted on 29-June followed by a blanket hoeing across all varieties on 29-July by project personnel.

Rainfall:

April:	0.20"	July:	0.00"
May:	2.00"	August:	3.10"
June:	1.20"	September:	0.00"

Total rainfall: 6.50"

Insecticides:	Temik was applied at planting at 3.5 lb/acre. Denim insecticide at 8.0 oz/acre for Beet armyworms plus 4.0 oz/acre Ammo for bollworms were applied on 29-July. This location is in an active boll weevil eradication zone, but no applications were made by the Texas Boll Weevil Eradication Program.
Fertilizer management:	No fertilizers were applied at this site.
Harvest aids:	Gramoxone Max was ground applied at 10 oz/acre on 11-October.
Harvest:	Plots were harvested on 7-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 Research and Extension Center at Lubbock to determine gin turnouts.
Fiber analysis:	Lint samples were submitted to the International Textile Center at Texas Tech University for HVI analysis, and USDA Commodity Credit Corporation (CCC) Loan values were determined for each variety by plot.
Ginning cost and seed values:	Ginning costs were based on $2.45 per cwt. of bur cotton and seed value/acre was based on $100/ton. Ginning costs did not include checkoff.

Seed and technology fees: Seed and technology fees were determined by variety on a per acre basis using the manufacturer's suggested retail price for seed and appropriate technology fees for Roundup Ready based on 3.4 seed/row-ft.

Results and Discussion:

Weed pressure at this site would generally be considered light and consisted mainly of silverleaf nightshade, pigweed, and morningglory species "escapes". Significant differences were noted for most parameters measured (Tables 1 and 2). Lint turnout ranged from 29.9% for Stoneville NexGen 3969R to 36.4% for Americot 821R. Lint yields varied from a low of 576 lb/acre (Beltwide Cotton Genetics 245) to a high of 715 lb/acre (Americot 821R). Lint loan values ranged from a low of $0.5342/lb to a high of $0.5672/lb for Paymaster 2326RR and FiberMax 958, respectively. After adding lint and seed value, total value/acre ranged from a low of $357.18 for Beltwide Cotton Genetics 245, to a high of $441.68 for FiberMax 958. When subtracting ginning costs and seed and technology fees, the net value/acre among varieties ranged from a high of $344.99 (FiberMax 958) to a low of $260.19 (Paymaster 2326RR), a difference of $84.80. Micronaire values ranged from a low of 3.3 for Stoneville NexGen 3639R to a high of 4.2 for Paymaster 2326RR. Staple length averaged 34.5 across all varieties with a low of 33.6 (Paymaster 2326RR) and a high of 35.1 (FiberMax 958, Deltapine 393, and All-Tex Patriot RR). Percent uniformity ranged from a low of 79.8 (AFD 3602R) to a high of 81.7 (Deltapine 393). Significant differences were observed among varieties for elongation (%), leaf grade, strength, 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. 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 and to Dr. John Gannaway - TAES, Lubbock, for his cooperation.

Disclaimer Clause:

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

Table 1. Harvest results from the replicated dryland cotton systems variety demonstration, AG-CARES, Lamesa, TX, 2005.

Variety	Lint turnout	Seed turnout	Bur cotton yield	Lint yield	Seed yield	Lint loan value	Lint value	Seed value	Total value	Ginning cost	Systems cost	Net value	
	%	%	lb/acre	lb/acre	lb/acre	$/lb	$/acre	$/acre	$/acre	$/acre	$/acre	$/acre	
FiberMax 958	33.1	46.0	2093	694	963	0.5672	393.50	48.18	441.68	51.29	45.40	344.99	a
Americot 821R	36.4	53.5	1964	715	1050	0.5460	388.47	52.50	440.98	48.11	49.11	343.76	a
Deltapine 393	33.2	46.5	2046	680	951	0.5625	382.43	47.53	429.96	50.13	47.65	332.18	ab
All-Tex Patriot RR	33.5	51.1	1921	643	982	0.5627	363.26	49.11	412.38	47.07	51.82	313.49	abc
Americot 8120	33.9	53.0	1798	610	952	0.5383	327.82	47.62	375.44	44.06	34.98	296.41	abcd
Beltwide Cotton Genetics 24R	34.4	49.9	1860	640	927	0.5397	346.09	46.37	392.46	45.56	57.28	289.62	bcd
Beltwide Cotton Genetics 245	32.9	47.1	1754	576	827	0.5485	315.86	41.33	357.18	42.97	37.97	276.24	cd
AFD 3602R	30.0	46.1	2033	610	937	0.5450	334.67	46.87	381.54	49.82	55.74	275.99	cd
Stoneville NexGen 3969R	29.9	47.9	1968	588	944	0.5447	320.15	47.17	367.31	48.22	55.40	263.69	cd
Paymaster 2326RR	32.3	52.2	1801	581	940	0.5342	310.39	47.02	357.41	44.12	53.10	260.19	d
Test average	33.0	49.3	1924	634	947	0.5489	348.26	47.37	395.63	47.13	48.85	299.66	
CV, %	2.5	3.1	8.1	8.5	8.4	2.5	8.4	8.4	8.4	8.1	--	9.8	
OSL	<0.0001	<0.0001	0.1670	0.0450	0.2496	0.0956	0.0117	0.2470	0.0213	0.1659	--	0.0100	
LSD 0.05	1.4	2.6	NS	92	NS	NS	50.22	NS	56.77	NS	--	50.39	

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

Assumes:
$2.45/cwt ginning cost.
$100/ton for seed.
Value for lint based on CCC loan value from grab samples and ITC HVI results.

Table 2. HVI fiber property results from the replicated dryland cotton systems variety demonstration, AG-CARES, Lamesa, TX, 2005.

Variety	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32^{nds} inches	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
FiberMax 958	3.9	35.1	80.3	28.3	3.8	1.3	80.9	7.2	2.7	1.0
Americot 821R	3.9	34.2	80.1	26.1	6.4	1.3	78.9	8.0	2.7	1.0
Deltapine 393	3.9	35.1	81.7	28.2	6.6	1.7	78.8	7.6	3.0	1.0
All-Tex Patriot RR	3.5	35.1	79.9	27.0	5.5	1.0	80.9	7.6	2.0	1.0
Americot 8120	3.9	34.1	80.1	25.8	6.1	1.3	79.8	7.6	3.0	1.0
Beltwide Cotton Genetics 24R	3.7	33.7	81.1	28.7	6.2	1.0	81.3	7.5	2.0	1.0
Beltwide Cotton Genetics 245	3.4	34.9	80.1	29.1	3.8	1.7	80.6	6.7	3.0	1.0
AFD 3602R	3.9	33.9	79.8	28.2	4.9	1.0	80.1	8.1	2.0	1.0
Stoneville NexGen 3969R	3.3	35.0	81.0	28.6	5.6	1.0	81.6	7.5	2.0	1.0
Paymaster 2326RR	4.2	33.6	81.6	28.4	5.0	2.3	77.2	8.0	3.0	1.0
Test average	3.8	34.5	80.6	27.8	5.4	1.4	80.0	7.6	2.5	1.0
CV, %	2.6	1.6	0.7	2.5	7.6	32.4	0.6	2.1	--	--
OSL	<0.0001	0.0063	0.0031	0.0001	<0.0001	0.0296	<0.0001	<0.0001	--	--
LSD 0.05	0.2	0.9	1.0	1.2	0.7	0.8	0.8	0.3	--	--

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

Table 3. Seed and technology expenses* for the replicated dryland cotton systems variety demonstration, AG-CARES, Lamesa, TX, 2005.

Variety	Seed/lb	Seed/bag	Acres planted /bag	Seed fee $/bag	Tech fee $/bag	Total seed and tech fee $/bag	Seed and tech fee $/acre
AFD 3602R	4538	226,900	5.15	64.40	65.80	130.20	25.26
All-Tex Patriot RR	4931	246,550	5.60	48.00	71.50	119.50	21.34
Americot 821R	5100	255,000	5.79	35.00	72.90	107.90	18.63
Beltwide Cotton Genetics 24R	5094	254,700	5.79	68.50	86.60	155.10	26.80
Paymaster 2326RR	--	250,000	5.68	56.95	71.50	128.45	22.62
Stoneville NexGen 3969R	--	230,000	5.23	64.40	65.80	130.20	24.92
Americot 8120	5000	250,000	5.68	28.00	0.00	28.00	4.93
Beltwide Cotton Genetics 245	5000	250,000	5.68	45.00	0.00	45.00	7.92
Deltapine 393	--	250,000	5.68	99.95	0.00	99.95	17.60
FiberMax 958	4472	223,600	5.08	77.95	0.00	77.95	15.35

***Trial was planted at 44,018 seed/acre in 40-inch rows.**

Table 4. Expenses incurred for the replicated dryland cotton systems variety demonstration, AG-CARES, Lamesa, TX, 2005.

	Variety	Seed cost/bag	Tech fees/bag	Total cost/bag	Seed & tech fee/ac	Herb apps	Herb app cost/ac	Roundup Orginal MAX cost/ac	Cultivation cost/ac	Hoe cost/ac	Systems cost/ac
1	AFD 3602R	64.40	65.80	130.20	25.26	2	9.00	11.08	--	10.40	55.74
2	All-Tex Patriot RR	48.00	71.50	119.50	21.34	2	9.00	11.08	--	10.40	51.82
3	Americot 821R	107.90	72.92	180.82	18.63	2	9.00	11.08	--	10.40	49.11
4	BCG 24R	68.50	86.60	155.10	26.80	2	9.00	11.08	--	10.40	57.28
5	PM 2326RR	56.95	71.50	128.45	22.62	2	9.00	11.08	--	10.40	53.10
6	ST NG 3969R	64.40	65.80	130.20	24.92	2	9.00	11.08	--	10.40	55.40
7	Americot 8120	28.00	0.00	28.00	4.93	0	0.00	--	6.00	24.05	34.98
8	BCG 245	45.00	0.00	45.00	7.92	0	0.00	--	6.00	24.05	37.97
9	DP 393	99.95	0.00	99.95	17.60	0	0.00	--	6.00	24.05	47.65
10	FM 958	77.95	0.00	77.95	15.35	0	0.00	--	6.00	24.05	45.40
					40" rows 3.4 seed/row-ft 44,018 seed/ac		4.50/ac	June 22 over-the-top 22oz/a Roundup Original MAX to Roundup Ready varieties 28.50/gal includes AMS at 0.42/ac	June 22 cultivated conventionals	June 29 spent 4 hrs and July 29 spent 7.4 hrs hoeing 3.1 acres of conventionals 3.7 hrs/a at 6.50/hr	
	Base weed control program		chem cost	app cost	total cost			Aug 30 post-direct 24oz/a Roundup Original MAX to Roundup Ready varieties 28.50/gal includes AMS at 0.42/ac		July 29 spent 6.8 hrs hoeing 4.3 acres of Roundup Ready varieties 1.6 hrs/a at 6.50/hr	
14-Apr	1.25 pt/acre trifluralin PPI		2.23	4.50	6.73						
13-Jul	Blanket cultivation			6.00	6.00						
	Total blanket weed control program				12.73						
	Insecticide program										
2-Jun	3.5 lb/acre Temik at planting		11.48		11.48						
29-Jul	8.0 oz/acre Denim for Beet armyworms		12.46	4.50	16.96						
	4.0 oz/acre Ammo for bollworms		2.73		2.76						
	2.0 oz/acre non-ionic surfactant		0.16		0.16						
	Harvest aid Program										
11-Oct	6 oz/acre Gramoxone Max		1.73	4.50	6.23						
	Total blanket input cost ($/acre)				50.32						

Replicated Irrigated Roundup Ready Cotton Variety Demonstration, Dumas, TX - 2005

Cooperator: Keith Watson

Tim Trimble, Randy Boman, Mark Kelley, and Mark Stelter
County Extension Agent-Agriculture, Moore County,
Extension Agronomist-Cotton, Extension Program Specialist I-Cotton,
and Extension Assistant-Cotton

Moore County

Summary: Significant differences were observed for most parameters measured. Lint turnout ranged from a low of 26.8% to 29.9% for Paymaster 2280BG/RR and Stoneville NexGen 1553R, respectively. Lint yields varied with a low of 722 lb/acre (Deltapine 434RR) and a high of 1047 lb/acre (Stoneville NexGen 2448R). Lint loan values ranged from a low of $0.4248/lb (Deltapine 434RR) to a high of $0.5222/lb (Paymaster 2326RR). After adding lint and seed value, total value/acre for varieties ranged from a low of $360.26 for Deltapine 434RR to a high of $597.11 for Stoneville NexGen 2448R. When subtracting ginning, seed and technology fee costs, the net value/acre among varieties ranged from a high of $472.88 (Stoneville NexGen 2448R) to a low of $252.92 (Deltapine 434RR), a difference of $219.96. Micronaire values ranged from a low of 2.6 for Stoneville NexGen 3969R to a high of 3.4 for Paymaster 2326RR. Staple length averaged 34.8 across all varieties with a low of 34.0 for Paymaster 2326RR and a high of 35.6 for Stoneville NexGen 1553R. Significant differences were observed among varieties for strength, elongation, uniformity, reflectance (Rd) and yellowness (+b). These data indicate that substantial differences can be obtained in terms of net value/acre due to variety and technology selection.

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

Materials and Methods:

Varieties: AFD 3511R, Deltapine 434RR, Paymaster 2266RR, Paymaster 2326RR, Paymaster 2280BG/RR, Stoneville NexGen 1553R, Stoneville NexGen 2448R, and Stoneville NexGen 3969R

Experimental design:	Randomized complete block with 3 replications
Seeding rate:	3.7 seed/row-ft in 30-inch row spacing (John Deere 7200 Max Emerge)
Plot size:	6 rows by variable length of circular pivot (~1000 ft long)
Planting date:	5-May
Weed management:	At planting, Diuron plus Caparol herbicides were applied in a band. Roundup Original Max was applied over-the-top on 1-July at a rate of 22 oz/acre with ammonium sulfate (17 lb/100 gallons of spray mix).
Rainfall and Irrigation:	9.2 inches of irrigation were applied during the growing season. Two hail events occurred on 22-May and 6-June which slightly damaged the project.
Insecticides:	Temik was applied in-furrow at planting at 4.0 lb/acre. Mustang Max (plus crop oil) was applied on 1-September for bollworms at the recommend rate.
Fertilizer management:	90 lb nitrogen/acre using 32-0-0 liquid fertilizer were applied in increments during the season via fertigation.
Plant growth regulators:	Pix was applied at a rate of 12 oz/acre on 7-July, and another application of 24 oz/acre was made on 30-July.
Harvest aids:	Prep at 1 qt/acre was applied on 10-October.
Harvest:	Plots were harvested on 18-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 Research and Extension Center at Lubbock to determine gin turnouts.
Fiber analysis:	Lint samples were submitted to the International Textile Center at Texas Tech University for HVI analysis and USDA loan values were determined for each variety by plot.
Ginning costs and seed values:	Ginning costs were based on $2.45 per cwt. of bur cotton and seed value/acre was based on $100/ton. Ginning costs did not include checkoff.

Seed and technology fees: Seed and technology fees were determined by variety per acre using manufacturer's suggested retail price for seed and appropriate technology fee for Bollgard, Bollgard II and Roundup Ready based on 3.7 seed/row-ft.

Results and Discussion: Significant differences were observed for most parameters measured (Tables 1 and 2). Lint turnout ranged from a low of 26.8% to 29.9% for Paymaster 2280BG/RR and Stoneville NexGen 1553R, respectively. Lint yields varied with a low of 722 lb/acre (Deltapine 434RR) and a high of 1047 lb/acre (Stoneville NexGen 2448R). Lint loan values ranged from a low of $0.4248/lb (Deltapine 434RR) to a high of $0.5222/lb (Paymaster 2326RR). After adding lint and seed value, total value/acre for varieties ranged from a low of $360.26 for Deltapine 434RR to a high of $597.11 for Stoneville NexGen 2448R. When subtracting ginning, seed and technology fee costs, the net value/acre among varieties ranged from a high of $472.88 (Stoneville NexGen 2448R) to a low of $252.92 (Deltapine 434RR), a difference of $219.96. Micronaire values ranged from a low of 2.6 for Stoneville NexGen 3969R to a high of 3.4 for Paymaster 2326RR. Staple length averaged 34.8 across all varieties with a low of 34.0 for Paymaster 2326RR and a high of 35.6 for Stoneville NexGen 1553R. Significant differences were observed among varieties for strength, elongation, uniformity, reflectance (Rd) and yellowness (+b). These data indicate that substantial differences can be obtained in terms of net value/acre due to variety and technology selection. 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.

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, Keith Watson Farm, Dumas, TX, 2005.

Variety	Lint turnout	Seed turnout	Bur cotton yield	Lint yield	Seed yield	Lint loan value	Lint value	Seed value	Total value	Ginning cost	Seed/Tech cost	Net value	
	%	%	lb/acre	lb/acre	lb/acre	$/lb	$/acre	$/acre	$/acre	$/acre	$/acre	$/acre	
Stoneville NexGen 2448R	29.3	47.5	3569	1047	1694	0.4895	512.41	84.70	597.11	87.43	36.80	472.88	a
Stoneville NexGen 1553R	29.9	52.6	2922	874	1537	0.4945	432.50	76.86	509.36	71.59	36.80	400.97	b
Paymaster 2266RR	28.5	50.3	2983	852	1500	0.4683	398.66	75.01	473.67	73.09	33.40	367.18	bc
Paymaster 2326RR	28.1	50.0	2694	756	1348	0.5222	394.39	67.38	461.77	66.02	33.40	362.36	bc
Paymaster 2280BG/RR	26.8	50.0	2956	791	1477	0.5028	397.38	73.84	471.23	72.42	47.31	351.49	bc
AFD 3511RR	26.9	51.8	2794	751	1448	0.5032	377.21	72.41	449.63	68.45	33.33	347.85	c
Stoneville NexGen 3969R	28.5	48.6	2549	727	1238	0.4382	318.27	61.93	380.19	62.44	36.80	280.95	d
Deltapine 434RR	29.8	44.2	2420	722	1071	0.4248	306.73	53.53	360.26	59.28	48.06	252.92	d
Test average	28.5	49.4	2861	815	1414	0.4804	392.19	70.71	462.90	70.09	38.24	354.58	
CV, %	6.9	5.3	8.4	8.1	8.5	4.0	7.5	8.5	7.5	8.4	--	8.3	
OSL	0.4126	0.0346	0.0017	0.0005	0.0006	0.0002	<0.0001	0.0007	<0.0001	0.0016	--	<0.0001	
LSD 0.05	NS	4.6	419	116	210	0.0334	51.39	10.52	60.75	10.26		51.64	

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

Assumes:
$2.45/cwt ginning cost.
$100/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, 2005.

Variety	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32^{nds} inches	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
Stoneville NexGen 2448R	2.8	34.6	81.8	30.4	6.0	1.7	76.9	9.6	2.3	1.3
Stoneville NexGen 1553R	2.7	35.6	80.6	29.6	6.5	1.0	77.4	9.8	1.7	1.3
Paymaster 2266RR	3.0	34.1	81.2	28.5	6.8	2.3	71.3	10.0	3.7	1.7
Paymaster 2326RR	3.4	34.0	82.3	30.3	6.3	2.0	75.4	9.8	2.3	1.3
Paymaster 2280BG/RR	2.8	35.2	81.4	30.0	5.9	2.0	75.5	9.6	2.7	1.0
AFD 3511RR	3.1	34.7	80.8	29.5	5.9	2.0	74.2	10.7	2.0	2.0
Stoneville NexGen 3969R	2.6	34.7	79.7	30.2	6.6	1.3	74.8	11.0	1.7	2.3
Deltapine 434RR	2.8	35.2	79.0	27.4	6.9	1.7	72.2	12.3	1.7	3.0
Test average	2.9	34.8	80.9	29.5	6.4	1.8	74.7	10.3	2.3	1.7
CV, %	3.3	1.0	0.7	3.4	5.2	29.2	1.9	5.5	--	--
OSL	<0.0001	0.0007	<0.0001	0.0290	0.0069	0.1138	0.0014	0.0006	--	--
LSD 0.05	0.2	0.6	1.0	1.7	0.6	NS	2.5	1.0	--	--

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

Table 3. Seed and technology expenses* for the irrigated replicated transgenic cotton variety demonstration, Keith Watson Farm, Dumas, TX, 2005.

Variety	Seed/lb	Seed/bag	Acres planted /bag	Seed fee $/bag	Tech fee $/bag	Total seed and tech fee $/bag	Seed and tech fee $/acre
AFD 3511RR	4,434	221,724	3.41	49.40	64.30	113.70	33.33
Deltapine 434RR	--	250,000	3.85	99.95	84.90	184.85	48.06
Paymaster 2266RR	--	250,000	3.85	56.95	71.50	128.45	33.40
PM 2280BG/RR	--	250,000	3.85	56.95	125.00	181.95	47.31
Paymaster 2326RR	--	250,000	3.85	56.95	71.50	128.45	33.40
Stoneville NexGen 1553R	--	230,000	3.54	64.40	65.80	130.20	36.80
Stoneville NexGen 2448R	--	230,000	3.54	64.40	65.80	130.20	36.80
Stoneville NexGen 3969R	--	230,000	3.54	64.40	65.80	130.20	36.80

***Trial was planted at 65,000 seed/acre in 30-inch rows.**

Replicated Irrigated Roundup Ready Cotton Variety Demonstration, Sunray, TX - 2005

Cooperator: Kerry Cartrite

Leslie Neve, Randy Boman, Mark Kelley, and Mark Stelter
County Extension Agent-Agriculture, Moore County,
Extension Agronomist-Cotton, Extension Program Specialist I-Cotton,
and Extension Assistant-Cotton

Sherman County

Summary: Significant differences were observed for most parameters measured (Tables 1 and 2). Lint turnout ranged from a low of 25.9% to 31.4% for AFD 3511R and Paymaster 2167RR, respectively. Lint yields varied with a low of 1249 lb/acre (Paymaster 2280BG/RR) and a high of 1461 lb/acre (Paymaster 2326RR). Lint loan values ranged from a low of $0.4620/lb (Paymaster 2145RR) to a high of $0.5437/lb (Paymaster 2326RR). After adding lint and seed value, total value/acre for varieties ranged from a low of $749.33 for Paymaster 2280BG/RR to a high of $917.81 for Paymaster 2326RR. When subtracting ginning, seed and technology fee costs, the net value/acre among varieties ranged from a high of $755.96 (Paymaster 2326RR) to a low of $582.03 (Paymaster 2280BG/RR), a difference of $173.93. Micronaire values ranged from a low of 2.9 for Stoneville NexGen 2448R and Paymaster 2280BG/RR to a high of 4.0 for Paymaster 2326RR. Staple length averaged 34.0 across all varieties with a low of 32.2 for Paymaster 2167RR and a high of 35.1 for Stoneville NexGen 2448R and Paymaster 2280BG/RR. Significant differences were observed among varieties for strength, elongation, uniformity, leaf grade, and reflectance (Rd). 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: AFD 3511RR, Paymaster 2145RR, Paymaster 2326RR, Paymaster 2167RR, Paymaster 2280BG/RR, Stoneville NexGen 2448R

Experimental design: Randomized complete block with 3 replications

Seeding rate:	4.6 seed/row-ft in 30-inch row spacing
Plot size:	8 rows by variable length of field (~800 ft long).
Planting date:	14-May
Weed management:	Prowl was applied preplant incorporated at 3.6 pt/acre. Glyphosate herbicide was applied over-the-top on 1-June and 18-June at a rate of 32 oz/acre with ammonium sulfate (17 lb/100 gallons of spray mix). Dual Magnum at a rate of 1.3 pt/acre was applied with the glyphostate application on 18-June. Assure at a rate of 10 oz/acre was applied on 18-July.
Rainfall and Irrigation:	According to personal correspondence with cooperator, 1.5 inches of rainfall fell during the summer and 10 inches of irrigation were applied during the growing season for a total of 11.5 inches.
Insecticides:	Temik was applied at in-furrow at planting at 4.0 lb/acre. Orthene was applied at a rate of 6 oz/acre on 18-June with glyphosate and Dual Magnum application. A second application of Orthene at a rate of 6oz/acre was applied on 1-July.
Fertilizer management:	100 lb/acre of 11-52-0 dry fertilizer were applied pre-plant on 3-April.
Plant growth regulators:	Pix was applied at a rate of 4 oz/acre on 1-July with the Orthene application and again at a rate of 8 oz/acre on 18-July with the Assure application.
Harvest aids:	Ethephon 6 at 1.5 qt/acre with Def 6 at 1.25 pt/acre was applied on 10-October.
Harvest:	Plots were harvested on 17-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 Research and Extension Center at Lubbock to determine gin turnouts.
Fiber analysis:	Lint samples were submitted to the International Textile Center at Texas Tech University for HVI analysis and USDA loan values were determined for each variety by plot.
Ginning costs and seed values:	Ginning costs were based on $2.45 per cwt. of bur cotton and seed value/acre was based on $100/ton. Ginning costs did not include checkoff.

Seed and technology fees: Seed and technology fees were determined by variety per acre using manufacturer's suggested retail price for seed and appropriate technology fee for Bollgard and/or Roundup Ready based on 4.6 seed/row-ft.

Results and Discussion: Significant differences were observed for most parameters measured (Tables 1 and 2). Lint turnout ranged from a low of 25.9% to 31.4% for AFD 3511R and Paymaster 2167RR, respectively. Lint yields varied with a low of 1249 lb/acre (Paymaster 2280BG/RR) and a high of 1461 lb/acre (Paymaster 2326RR). Lint loan values ranged from a low of $0.4620/lb (Paymaster 2145RR) to a high of $0.5437/lb (Paymaster 2326RR). After adding lint and seed value, total value/acre for varieties ranged from a low of $749.33 for Paymaster 2280BG/RR to a high of $917.81 for Paymaster 2326RR. When subtracting ginning, seed and technology fee costs, the net value/acre among varieties ranged from a high of $755.96 (Paymaster 2326RR) to a low of $582.03 (Paymaster 2280BG/RR), a difference of $173.93. Micronaire values ranged from a low of 2.9 for Stoneville NexGen 2448R and Paymaster 2280BG/RR to a high of 4.0 for Paymaster 2326RR. Staple length averaged 34.0 across all varieties with a low of 32.2 for Paymaster 2167RR and a high of 35.1 for Stoneville NexGen 2448R and Paymaster 2280BG/RR. Significant differences were observed among varieties for strength, elongation, uniformity, leaf grade, or and reflectance (Rd). 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.

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, Kerry Cartrite Farm, Sunray, TX, 2005.

Variety	Lint turnout	Seed turnout	Bur cotton yield	Lint yield	Seed yield	Lint loan value	Lint value	Seed value	Total value	Ginning cost	Seed/Tech cost	Net value	
	%	%	lb/acre	lb/acre	lb/acre	$/lb	$/acre	$/acre	$/acre	$/acre	$/acre	$/acre	
Paymaster 2326RR	29.6	50.2	4929	1461	2474	0.5437	794.09	123.72	917.81	120.76	41.10	755.96	a
Stoneville NexGen 2448R	29.8	50.0	4827	1437	2413	0.5115	735.14	120.65	855.78	118.25	45.29	692.24	b
AFD 3511R	25.9	50.4	4999	1293	2520	0.5368	694.53	126.02	820.54	122.47	41.02	657.04	b
Paymaster 2167RR	31.4	49.7	4568	1437	2270	0.4828	693.98	113.47	807.45	111.93	41.10	654.42	b
Paymaster 2145RR	30.7	51.1	4548	1395	2323	0.4620	644.44	116.15	760.60	111.43	41.10	608.06	c
Paymaster 2280BG/RR	28.1	51.8	4452	1249	2307	0.5072	633.97	115.35	749.33	109.08	58.22	582.03	c
Test average	29.3	50.5	4721	1379	2384	0.5073	699.36	119.23	818.59	115.65	44.64	658.29	
CV, %	3.6	2.5	2.1	2.0	2.1	2.3	3.2	2.1	3.0	2.1	---	3.4	
OSL	0.0009	0.4067	0.0002	<0.0001	0.0006	<0.0001	<0.0001	0.0006	<0.0001	0.0002	---	<0.0001	
LSD 0.05	1.9	NS	181	50	92	0.0208	41.00	4.60	44.47	4.43	---	41.14	

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.
$100/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, 2005.

Variety	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32^{nds} inches	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
Paymaster 2326RR	4.0	34.0	82.5	29.2	7.0	2.7	76.5	7.9	3.0	1.0
Stoneville NexGen 2448R	2.9	35.1	82.4	30.4	6.1	2.0	79.3	7.9	2.7	1.0
AFD 3511R	3.3	34.8	81.3	29.6	6.3	2.0	78.1	7.9	3.0	1.0
Paymaster 2167RR	3.5	32.2	80.5	27.9	7.1	2.3	77.1	7.9	3.0	1.0
Paymaster 2145RR	3.0	32.7	80.6	28.6	7.4	3.7	75.1	7.3	4.0	1.0
Paymaster 2280BG/RR	2.9	35.1	80.7	30.1	6.4	1.7	78.7	7.9	3.0	1.0
Test average	3.3	34.0	81.3	29.3	6.7	2.4	77.5	7.8	3.1	1.0
CV, %	6.2	0.8	0.8	2.9	4.4	19.7	1.5	3.8	--	--
OSL	0.0004	<0.0001	0.0119	0.0448	0.0020	0.0051	0.0144	0.1135	--	--
LSD 0.05	0.4	0.5	1.2	1.6	0.5	0.9	2.2	NS	--	--

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

Table 3. Seed and technology expenses* for the irrigated replicated transgenic cotton variety demonstration, Kerry Cartrite Farm, Sunray, TX, 2005.

Variety	Seed/lb	Seed/bag	Acres planted /bag	Seed fee $/bag	Tech fee $/bag	Total seed and tech fee $/bag	Total fee $/acre
AFD 3511R	4,434	221,724	2.77	49.40	64.30	113.70	41.02
Stoneville NexGen 2448R	--	230,000	2.88	64.40	65.80	130.20	45.29
Paymaster 2145RR	--	250,000	3.13	56.95	71.50	128.45	41.10
Paymaster 2167RR	--	250,000	3.13	56.95	71.50	128.45	41.10
Paymaster 2280BG/RR	--	250,000	3.13	56.95	125.00	181.95	58.22
Paymaster 2326RR	--	250,000	3.13	56.95	71.50	128.45	41.10

*Trial was planted at 80,000 seed/acre in 30-inch rows.

Replicated Irrigated Roundup Ready Cotton Variety Demonstration, Morton, TX - 2005

Cooperator: Kevin Silhan

Jeff Wyatt, Kerry Siders, Randy Boman, Mark Kelley, and Mark Stelter
County Extension Agent-Agriculture, Cochran County,
Extension Agent-IPM, Cochran/Hockley Counties,
Extension Agronomist-Cotton, Extension Program Specialist I-Cotton,
and Extension Assistant-Cotton

Cochran County

Summary: Significant differences were observed for most parameters measured (Tables 1 and 2). Lint turnout ranged from a low of 25.5% to a high of 33.1% for All-Tex Xpress RR and Phytogen 310R, respectively. Lint yields varied with a low of 769 lb/acre (Beltwide Cotton Genetics 50R) and a high of 962 lb/acre (Stoneville 4892BR). Lint loan values ranged from a low of $0.4777/lb (Paymaster 2145RR) to a high of $0.5533/lb (AFD 3511R). After adding lint and seed value, total value/acre for varieties ranged from a low of $466.77 for Beltwide Cotton Genetics 50R to a high of $570.96 for Stoneville 4892BR. When subtracting ginning, seed and technology fee costs, the net value/acre among varieties ranged from a high of $456.02 (Stoneville 4892BR) to a low of $372.92 (Beltwide Cotton Genetics 50R), a difference of $83.10. Micronaire values ranged from a low of 2.9 for FiberMax 960B2R and Stoneville 4646B2R to a high of 3.6 for AFD 3511R. Staple length averaged 34.4 across all varieties with a low of 32.9 for Paymaster 2145RR and a high of 36.0 for FiberMax 960B2R. Significant differences were observed among varieties for strength, elongation, uniformity, reflectance (Rd) or 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: AFD 3511R, Beltwide Cotton Genetics 50R, Deltapine 434RR, FiberMax 960B2R, Paymaster 2145RR, Paymaster 2280BG/RR, PhytoGen 310R, Stoneville NexGen 2448R, Stoneville 4646B2R, Stoneville 4892BR, and All-Tex Xpress RR

Experimental design:	Randomized complete block with 3 replications
Seeding rate:	3.6 seed/row-ft in 40-inch row spacing (John Deere 1700 Max Emerge)
Plot size:	10 rows by variable length of field (~1700 ft long)
Planting date:	26-May
Weed management:	Trifluralin was impregnated on dry fertilizer and applied at a rate of 1.3 pt/acre on 15-March. At planting, Staple at a rate of 0.25 oz/acre and diuron at a rate of 8 oz/acre were applied on a 10 inch band. Roundup Weather Max herbicide was applied over-the-top on 20-June at a rate of 22 oz/acre with Staple at a rate of 0.50 oz/acre with ammonium sulfate (17 lb/100 gallons of spray mix). Blanket cultivations were conducted on 14-July and 30-July.
Rainfall and Irrigation:	5 inches of irrigation were applied during the growing season with approximately 16 inches of rainfall, according to personal correspondence with cooperator, for a total of 21 inches.
Insecticides:	Temik was applied in-furrow at planting at 3.0 lb/acre. No other insecticides were applied at this site.
Fertilizer management:	200 lb/acre of 66-0-0-24 dry fertilizer were applied pre-plant on 15-March.
Plant growth regulators:	Pix was applied at a rate of 12 oz/acre on 20-July and another application of 10 oz/acre was made on 10-August.
Harvest aids:	Prep at 1.5 pt/acre plus ET at 1.0 oz/acre was applied on 25-October.
Harvest:	Plots were harvested on 18-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 Research and Extension Center at Lubbock to determine gin turnouts.

Fiber analysis: Lint samples were submitted to the International Textile Center at Texas Tech University for HVI analysis and USDA loan values were determined for each variety by plot.

Ginning costs and seed values: Ginning costs were based on $2.45 per cwt. of bur cotton and seed value/acre was based on $100/ton. Ginning costs did not include checkoff.

Seed and technology fees: Seed and technology fees were determined by variety per acre using manufacturer's suggested retail price for seed and appropriate technology fee for Bollgard or Bollgard II and/or Roundup Ready based on 3.6 seed/row-ft.

Results and Discussion: Significant differences were observed for most parameters measured (Tables 1 and 2). Lint turnout ranged from a low of 25.5% to a high of 33.1% for All-Tex XpressRR and Phytogen 310R, respectively. Lint yields varied with a low of 769 lb/acre (Beltwide Cotton Genetics 50R) and a high of 962 lb/acre (Stoneville 4892BR). Lint loan values ranged from a low of $0.4777/lb (Paymaster 2145RR) to a high of $0.5533/lb (AFD 3511R). After adding lint and seed value, total value/acre for varieties ranged from a low of $466.77 for Beltwide Cotton Genetics 50R to a high of $570.96 for Stoneville 4892BR. When subtracting ginning, seed and technology fee costs, the net value/acre among varieties ranged from a high of $456.02 (Stoneville 4892BR) to a low of $372.92 (Beltwide Cotton Genetics 50R), a difference of $83.10. Micronaire values ranged from a low of 2.9 for FiberMax 960B2R and Stoneville 4646B2R to a high of 3.6 for AFD 3511R. Staple length averaged 34.4 across all varieties with a low of 32.9 for Paymaster 2145RR and a high of 36.0 for FiberMax 960B2R. Significant differences were observed among varieties for strength, elongation, uniformity, reflectance (Rd) or yellowness (+b). 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.

Table 1. Harvest results from the irrigated replicated transgenic cotton variety demonstration, Kevin Silhan Farm, Morton, TX, 2005

Variety	Lint turnout	Seed turnout	Bur cotton yield	Lint yield	Seed yield	Lint loan value	Lint value	Seed value	Total value	Ginning cost	Seed/Tech cost	Net value	
	%	%	lb/acre	lb/acre	lb/acre	$/lb	$/acre	$/acre	$/acre	$/acre	$/acre	$/acre	
Stoneville 4892BR	31.5	46.9	3052	962	1433	0.5195	499.31	71.64	570.96	74.78	40.16	456.02	a
FiberMax 960B2R	30.3	51.0	3091	937	1576	0.5088	477.18	78.79	555.96	75.74	40.76	439.47	ab
PhytoGen 310R	33.1	47.0	2693	890	1265	0.5330	474.11	63.24	537.35	65.97	35.56	435.82	ab
AFD 3511R	26.8	52.0	3059	820	1589	0.5533	453.91	79.47	533.38	74.95	24.23	434.20	ab
Paymaster 2280BG/RR	26.7	52.3	3313	885	1732	0.5233	463.10	86.60	549.70	81.17	34.39	434.14	ab
Deltapine 434RR	32.3	48.7	2732	881	1329	0.5302	466.99	66.47	533.47	66.93	34.94	431.60	ab
Paymaster 2145RR	30.7	49.8	2990	919	1488	0.4777	439.30	74.42	513.72	73.24	24.28	416.19	bc
Stoneville NexGen 2448R	28.8	49.4	2897	833	1432	0.5248	436.94	71.60	508.53	70.98	26.75	410.80	bc
All-Tex XpressRR	25.5	52.5	3101	791	1628	0.5303	419.39	81.41	500.80	75.97	22.55	402.29	c
Stoneville 4646B2R	29.0	50.1	3145	913	1577	0.4792	437.46	78.84	516.30	77.06	43.47	395.77	cd
Beltwide Cotton Genetics 50R	28.2	52.2	2726	769	1422	0.5153	395.64	71.13	466.77	66.78	27.07	372.92	d
Test average	29.4	50.2	2982	873	1497	0.5178	451.21	74.87	526.09	73.05	32.20	420.84	
CV, %	4.0	5.5	2.8	2.8	2.8	2.8	3.7	2.8	3.5	2.8	---	4.0	
OSL	<0.0001	0.1666	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	---	0.0003	
LSD 0.05	2.0	NS	142	42	71	0.0244	28.62	3.57	31.15	3.48	---	28.71	

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.
$100/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, Kevin Silhan Farm, Morton, TX, 2005.

Variety	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32^{nds} inches	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
AFD 3511R	3.6	34.7	81.6	28.5	5.4	2.7	74.6	9.0	3.0	1.0
Beltwide Cotton Genetics 50R	3.2	34.3	80.9	28.4	5.8	2.7	76.7	8.9	3.0	1.0
Deltapine 434RR	3.2	35.2	79.4	26.2	6.8	2.3	77.3	8.4	3.0	1.0
FiberMax 960B2R	2.9	36.0	79.2	28.0	4.3	2.0	79.0	7.8	3.0	1.0
Stoneville NexGen 2448R	3.2	34.7	82.1	30.1	5.7	2.3	76.9	8.6	3.0	1.0
PhytoGen 310R	3.5	33.7	80.6	27.2	6.7	3.0	75.6	8.7	3.0	1.0
Paymaster 2145RR	3.3	32.9	80.4	28.4	6.3	3.7	74.0	8.4	4.0	1.0
Paymaster 2280BG/RR	3.1	35.0	80.9	28.7	6.1	2.3	76.2	8.4	3.0	1.0
Stoneville 4646B2R	2.9	34.1	78.6	26.6	6.4	2.7	75.6	8.7	3.0	1.0
Stoneville 4892BR	3.5	33.6	80.5	26.9	6.0	2.7	75.9	9.1	3.0	1.0
All-Tex Xpress RR	3.3	34.7	82.0	29.9	5.2	2.7	75.4	8.9	3.0	1.0
Test average	3.3	34.4	80.6	28.1	5.9	2.6	76.1	8.6	3.1	1.0
CV, %	4.0	1.2	0.9	3.0	7.0	24.0	0.9	2.4	--	--
OSL	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	0.2460	<0.0001	<0.0001	--	--
LSD 0.05	0.2	0.7	1.2	1.4	0.7	NS	1.2	0.4	--	--

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

Table 3. Seed and technology expenses* for the irrigated replicated transgenic cotton variety demonstration, Kevin Silhan Farm, Morton, TX, 2005.

Variety	Seed/lb	Seed/bag	Acres planted /bag	Seed fee $/bag	Tech fee $/bag	Total seed and tech fee $/bag	Seed and tech fee $/acre
AFD 3511R	4,434	221,724	4.69	49.40	64.30	113.70	24.23
Beltwide Cotton Genetics 50R	4,241	212,069	4.49	60.00	61.50	121.50	27.07
Deltapine 434RR	--	250,000	5.29	99.95	84.90	184.85	34.94
FiberMax 960B2R	4,300	215,000	4.55	77.95	107.50	185.45	40.76
Stoneville NexGen 2448R	--	230,000	4.87	64.40	65.80	130.20	26.75
PhytoGen 310R	--	230,000	4.87	95.00	78.10	173.10	35.56
Paymaster 2145RR	--	250,000	5.29	56.95	71.50	128.45	24.28
Paymaster 2280BG/RR	--	250,000	5.29	56.95	125.00	181.95	34.39
Stoneville 4646B2R	--	230,000	4.87	96.60	115.00	211.60	43.47
Stoneville 4892BR	--	230,000	4.87	80.50	115.00	195.50	40.16
All-Tex Xpress RR	4,538	226,897	4.80	42.50	65.80	108.30	22.55

*Trial was planted at 47,250 seed/acre in 40-inch rows.

Replicated Roundup Ready Flex Cotton Variety Demonstration Under LEPA Irrigation, AG-CARES, Lamesa, TX - 2005

Cooperators: Lamesa Cotton Growers/Texas Agricultural Experiment Station/Texas Cooperative Extension
Tommy Doederlein, Randy Boman, Mark Kelley, and Mark Stelter
EA-IPM Dawson/Lynn Counties, Extension Agronomist-Cotton, Extension Program Specialist-Cotton, and Extension Assistant-Cotton

Dawson County

Summary: Significant differences were noted for most parameters measured (Tables 1 and 2). Lint turnout ranged from 28.8% for Beltwide Cotton Genetics 9775B2RF, to 34.8% for Stoneville 4554B2RF. Lint yields varied from a low of 1428 lb/acre (Deltapine 117B2RF) to a high of 1708 lb/acre (Beltwide Cotton Genetics 9124B2RF). Lint loan values ranged from a low of $0.5651/lb to a high of $0.5813/lb for FiberMax 989B2R. Gross loan value ranged from a high of $983.19 (Beltwide Cotton Genetics 9124B2RF) to a low of $817.34 (Deltapine 143B2RF), a difference of $165.85. Micronaire ranged from a low of 3.5 for Deltapine 143B2RF to a high of 4.0 for Beltwide Cotton Genetics 9124B2RF and Stoneville 4554B2RF. Staple length averaged 36.8 across all varieties with a low of 35.2 (All-Tex Summit B2RF) and a high of 38.4 (Beltwide Cotton Genetics 9975B2RF). Percent uniformity ranged from a low of 80.7 (Dynagro 2242B2RF and Deltapine 143B2RF) to a high of 83.9 (Beltwide Cotton Genetics 9775B2RF). A test average strength of 28.9 g/tex was observed with Deltapine 434RR producing the lowest value (26.2), and FiberMax 960RR producing the highest (31.8).

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

Materials and Methods:

Varieties: All varieties were Bollgard II/Roundup Ready or Bollgard II/Roundup Ready Flex "Stacked." Those included All-Tex Apex B2RF, All-Tex Summit B2RF, Beltwide Cotton Genetics 9124B2RF, Beltwide Cotton Genetics 9775B2RF, Croplan Genetics 3020B2RF, Croplan Genetics 3520B2RF, Dyna-Gro 2242B2RF, Dyna-Gro 2520B2RF, Deltapine 143B2RF, Deltapine 117B2RF,, Stoneville 4554B2RF, Stoneville 6611B2RF, and FiberMax 989B2R ("standard Bollgard II/Roundup Ready).

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 (340-810 ft long).

Planting date: 10-May

Weed management: Trifluralin was applied preplant incorporated at 1.25 pt/acre across all varieties on 7-April. Two over-the-top applications of Mon 3539 at 22 oz/acre with ammonium sulfate (17 lb/100 gallons of spray mix) were applied to Roundup Ready Flex varieties and with one over-the-top application made to FiberMax 989B2R on 7-June, at 4th true leaf stage and 13-July, at early bloom stage. A post-direct application was also applied to the Roundup Ready variety FiberMax 989B2R at a rate of 22 oz/acre with ammonium sulfate (17 lb/100 gallons of spray mix) on 13-July, using MON 3539. Hoeing on 10-August, and 25-August, was done AG-CARES personnel. One blanket cultivation was made across all the varieties on 16-June.

Irrigation: LEPA irrigation

April:	1.50"	May:	1.20"
June:	1.76"	July:	3.08"
August:	2.64"	September:	0.88"

Total irrigation: 11.06"

Rainfall:

April:	0.20"	July:	0.00"
May:	2.00"	August:	3.10"
June:	1.20"	September:	0.00"

Total rainfall: 6.50"

Total moisture: 17.56"

Insecticides: Temik was applied at in-furrow at planting at 3.5 lb/acre. No other insecticides were applied at this site. This location is in an active boll weevil eradication zone, but no applications were made by the Texas Boll Weevil Eradication Program.

Fertilizer management: Preplant fertilizer consisting of 10-34-0 was applied at a rate of 110 lb/acre on 7-April. An additional 210 lb N/acre using 32-0-0 was fertigated in seven 30 lb N/acre increments during the growing season.

Harvest aids: Prep (6-lb ethephon/gal) at 1.5 pt/acre with Def at 1.0 pt/acre applied at 70 percent open bolls on 27-September, with a follow-up application of Gramoxone Max at 16 oz/acre on 12-October. Both harvest aid treatments were aerially applied.

Harvest: Plots were harvested on 22-October 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 Research and Extension Center at Lubbock to determine gin turnouts.

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

Results and Discussion:

Significant differences were noted for most parameters measured (Tables 1 and 2). Lint turnout ranged from 28.8% for Beltwide Cotton Genetics 9775B2RF, to 34.8% for Stoneville 4554B2RF. Lint yields varied from a low of 1428 lb/acre (Deltapine 117B2RF) to a high of 1708 lb/acre (Beltwide Cotton Genetics 9124B2RF). Lint loan values ranged from a low of $0.5651/lb to a high of $0.5813/lb for FiberMax 989B2R. Gross loan value ranged from a high of $983.19 (Beltwide Cotton Genetics 9124B2RF) to a low of $817.34 (Deltapine 143B2RF), a difference of $165.85. Micronaire ranged from a low of 3.5 for Deltapine 143B2RF to a high of 4.0 for Beltwide Cotton Genetics 9124B2RF and Stoneville 4554B2RF. Staple length averaged 36.8 across all varieties with a low of 35.2 (All-Tex Summit B2RF) and a high of 38.4 (Beltwide Cotton Genetics 9975B2RF). Percent uniformity ranged from a low of 80.7 (Dynagro 2242B2RF and Deltapine 143B2RF) to a high of 83.9 (Beltwide Cotton Genetics 9775B2RF). A test average strength of 28.9 g/tex was observed with Deltapine 434RR producing the lowest value (26.2), and FiberMax 960RR producing the highest (31.8). Elongation percent ranged from a high of 8.5% to a low of 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 and to Dr. John Gannaway - TAES, Lubbock, for his cooperation.

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 LEPA irrigated Roundup Ready Flex replicated cotton variety demonstration, AG-CARES, Lamesa, TX, 2005.

Variety	Lint turnout	Bur cotton yield	Lint yield	Lint loan value	Gross loan value	
	%	lb/acre	lb/acre	$/lb	$/acre	
Beltwide Cotton Genetics 9124B2RF	32.6	5240	1708	0.5755	983.19	a
Stoneville 4554B2RF	34.8	4715	1639	0.5748	942.64	ab
All-Tex Summit B2RF	32.1	5145	1652	0.5680	938.46	ab
Dyna-Gro 2520B2RF	33.0	4746	1565	0.5755	900.59	bc
Croplan Genetics 3020B2RF	31.7	4988	1583	0.5651	894.06	bc
All-Tex Apex B2RF	32.7	4720	1545	0.5755	889.09	bc
Croplan Genetics 3520B2RF	32.3	4667	1509	0.5748	867.60	cd
FiberMax 989B2R*	31.6	4646	1469	0.5813	853.99	cd
Dyna-Gro 2242B2RF	32.6	4546	1481	0.5731	848.58	cd
Beltwide Cotton Genetics 9775B2RF	28.8	4984	1436	0.5790	831.46	d
Deltapine 117B2RF	32.4	4405	1428	0.5805	829.05	d
Stoneville 6611B2RF	31.8	4511	1433	0.5780	828.25	d
Deltapine 143B2RF	32.7	4408	1440	0.5675	817.34	d
Test mean	32.2	4748	1530	0.5745	878.79	
CV, %	2.6	3.7	4.0	0.8	3.7	
OSL	<0.0001	<0.0001	<0.0001	0.0034	<0.0001	
LSD 0.05	1.4	293	103	0.0076	54.15	

*** Roundup Ready standard.**
For gross loan value, 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 data columns may reflect rounding error.

Value for lint based on CCC loan value from grab samples and ITC HVI results. Color grades set at 21 and leaf grades set at 3.

Table 2. HVI fiber property results from the LEPA irrigated Roundup Ready Flex replicated cotton variety demonstration, AG-CARES, Lamesa, TX, 2005.

Variety	Micronaire	Length	Staple	Uniformity	Strength	Elongation
	units	inches	32^{nds} inches	%	g/tex	%
All-Tex Summit B2RF	3.8	1.10	35.2	82.3	27.0	7.2
All-Tex Apex B2RF	3.8	1.16	37.2	81.7	27.3	6.2
Beltwide Cotton Genetics 9124B2RF	4.0	1.17	37.3	81.7	27.6	6.4
Beltwide Cotton Genetics 9775B2RF	3.9	1.20	38.4	83.9	28.6	6.6
Croplan Genetics 3020B2RF	3.7	1.11	35.5	82.7	26.3	7.3
Croplan Genetics 3520B2RF	3.9	1.13	36.3	82.4	27.2	7.1
Dyna-Gro 2242B2RF	3.8	1.13	36.2	80.7	27.3	7.3
Dyna-Gro 2520B2RF	3.8	1.17	37.3	80.8	27.3	6.5
Deltapine 143B2RF	3.5	1.17	37.5	80.7	29.4	5.7
Deltapine 117B2RF	3.8	1.16	37.1	81.8	32.1	5.0
FiberMax 989B2R*	3.7	1.16	37.0	82.7	32.1	5.0
Stoneville 4554B2RF	4.0	1.13	36.1	82.2	29.0	8.5
Stoneville 6611B2RF	3.8	1.17	37.3	82.4	29.5	5.0
Test mean	3.8	1.15	36.8	82.0	28.5	6.5
CV, %	3.3	1.0	1.0	0.7	2.5	4.1
OSL	0.0173	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
LSD 0.05	0.2	0.02	0.6	1.0	1.2	0.4

*** Roundup Ready standard.**
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 Dryland Cotton Seeding Rate and Planting Pattern Demonstration, AG-CARES, Lamesa, TX - 2005

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

Tommy Doederlein, Randy Boman, Mark Stelter, and Mark Kelley; EA-IPM Dawson/Lynn Counties, Extension Agronomist-Cotton, Extension Assistant-Cotton, and Extension Program Specialist-Cotton

Dawson County

Summary: No differences were observed for any of the yield or economic parameters measured with the exception of net value/acre. Lint yields (land-acre basis) varied from a low of 290 lb/acre (2 seed/row-ft solid planting) to a high of 373 lb/acre (2 seed/row-ft 2x1 planting). After adding lint and seed value, total value/acre ranged from a low of $182.71 (2 seed/row-ft solid planting) to a high of $237.11 (2 seed/row-ft 2x1 planting). When subtracting ginning cost and seed and technology fees, the net value/acre ranged from a low of $121.42 (6 seed/row-ft solid planting) to a high of $199.18 (2 seed/row-ft 2x1 planting), a difference of $77.76. No significant differences were observe for most of the fiber properties measured (Table 2). These data indicate that the only significant differences were obtained in terms of net value/acre due in most part to the differential costs associated with planting pattern (solid planting vs. 2x1 skip). A trend was observed for yield parameters with the 2, 4, and 6 seed/row-ft solid planting patterns yielding numerically less than their skip-row counterparts, however, these differences were not significant.

Objective: The objective of this project was to compare yields, gin turnout, fiber quality and economics of 2, 4, and 6 seed/row foot in a solid plating pattern and in a 2X1 planting pattern (plant 2 rows and skip 1).

Materials and Methods:

Variety: AFD 3511R

Experimental design: Randomized complete block with 3 replications

Seeding rate:	2, 4, and 6 seed/row-ft in 40-inch row spacing (John Deere Max Emerge vacuum planter)
Planting patterns:	Each seeding rate was planted in a solid pattern and in a plant 2 rows and skip 1 pattern. For ease of planting, all plots were seeded in a solid pattern and, after seedling emergence, cultivator sweeps were used to destroy seedling plants in the skip row.
Plot size:	16 rows by 260 ft long
Planting date:	2-June
Weed management:	Trifluralin was applied preplant incorporated at 1.25 pt/acre on 20-April. Roundup Original MAX was applied over-the-top on 22-June at 22 oz/acre with 17 lb/100 gallons of ammonium sulfate. Plots were cultivated one time on 7-July.

Rainfall:

April:	0.20"	July:	0.00"
May:	2.00"	August:	3.10"
June:	1.20"	September:	0.00"

Total rainfall: 6.50"

Insecticides:	Temik was applied 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, and one application was made by the Texas Boll Weevil Eradication Program.
Fertilizer management:	No fertilizers were applied at this site.
Harvest aids:	Gramoxone Max was applied at 6.0 oz/acre on 11-October.
Harvest:	Plots were harvested on 8-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 Research and Extension Center at Lubbock to determine gin turnouts.
Fiber analysis:	Lint samples were submitted to the International Textile Center at Texas Tech University for HVI analysis and USDA loan values were determined for each plot.

Ginning costs and seed values: Ginning costs were based on $2.45 per cwt. of bur cotton and seed value/acre was based on $100/ton. Ginning costs did not include checkoff.

Seed and technology fees: Seed and technology fees (Table 3) were based on the 2, 4, and 6 seed/row-ft and the 2 x 1 skip row pattern (66.6% of solid planting rate) and are reported on a land-acre basis.

Results and Discussion: No differences were observed for any of the yield or economic parameters measured with the exception of net value/acre (Table 1). Lint yields (land-acre basis) varied from a low of 290 lb/acre (2 seed/row-ft solid planting) to a high of 373 lb/acre (2 seed/row-ft 2x1 planting). After adding lint and seed value, total value/acre ranged from a low of $182.71 (2 seed/row-ft solid planting) to a high of $237.11 (2 seed/row-ft 2x1 planting). When subtracting ginning cost and seed and technology fees, the net value/acre ranged from a low of $121.42 (6 seed/row-ft solid planting) to a high of $199.18 (2 seed/row-ft 2x1 planting), a difference of $77.76. No significant differences were observed for most of the fiber properties measured (Table 2). These data indicate that the only significant differences were obtained in terms of net value/acre due in most part to the differential costs associated with planting pattern (solid planting vs. 2x1 skip). A trend was observed for yield parameters with the 2, 4, and 6 seed/row-ft solid planting patterns yielding numerically less than their skip-row counterparts, however, these differences were not significant. Additional multi-site and multi-year applied research is needed to evaluate seeding rates and planting patterns across a series of environments.

Acknowledgments: Appreciation is expressed to Danny Carmichael, Research Associate - AG-CARES, Lamesa; and John Everitt, Research Associate - Texas Agricultural Experiment Station (TAES), Lubbock, for their assistance with this project and to Dr. John Gannaway - TAES, Lubbock, for his cooperation.

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

Table 1. Harvest results from the replicated dryland cotton seeding rate and planting pattern demonstration, AG-CARES, Lamesa, TX, 2005.

Treatment	Lint turnout	Seed turnout	Bur cotton yield	Lint yield	Seed yield	Lint loan value	Lint value	Seed value	Total value	Ginning cost	Seed-tech fee	Net value	
	%	%	lb/acre*	lb/acre	lb/acre	$/lb	$/acre	$/acre	$/acre	$/acre	$/acre	$/acre	
2 seed/ft 2x1	31.5	54.6	1183	373	646	0.5480	204.82	32.29	237.11	28.99	8.94	199.18	a
4 seed/ft 2x1	30.8	52.8	1183	364	625	0.5363	195.15	31.24	226.39	28.99	17.87	179.53	ab
6 seed/ft 2x1	30.8	53.4	1162	358	621	0.5420	193.82	31.03	224.85	28.48	26.81	169.56	abc
2 seed/ft solid	30.7	52.3	942	290	493	0.5448	158.04	24.67	182.71	23.09	13.40	146.22	bc
4 seed/ft solid	30.6	52.3	995	305	520	0.5420	164.98	26.02	191.00	24.37	26.81	139.82	bc
6 seed/ft solid	30.5	52.0	995	303	517	0.5255	160.16	25.84	186.00	24.37	40.21	121.42	c
Test average	30.8	52.9	1077	332	570	0.5398	179.50	28.51	208.01	26.38	22.34	159.29	
CV, %	3.1	2.1	13.3	13.3	13.2	2.3	14.6	13.2	14.4	13.3	--	16.6	
OSL	0.8006	0.1300	0.2018	0.1526	0.1147	0.3623	0.1876	0.1159	0.1766	0.2015	--	0.0434	
LSD 0.05	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	48.17	

*All per acre values are based on land acres.

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

Assumes:
$2.45/cwt ginning cost.
$100/ton for seed.
Value for lint based on CCC loan value from grab samples and ITC HVI results.

Table 2. HVI fiber property results from the replicated dryland cotton seeding rate and planting pattern demonstration, AG-CARES, Lamesa, TX, 2005.

Treatment	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32^{nds} inches	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
2 seed/ft 2x1	4.2	34.2	81.3	27.7	5.0	1.3	75.9	8.7	3.0	1.0
4 seed/ft 2x1	4.1	34.2	80.9	28.6	5.0	2.3	74.4	8.2	3.7	1.0
6 seed/ft 2x1	3.9	34.0	81.0	28.5	5.1	1.0	75.2	8.6	3.0	1.0
2 seed/ft solid	4.1	34.2	80.5	28.2	4.7	1.0	75.0	8.6	3.3	1.0
4 seed/ft solid	4.0	33.8	80.7	28.2	5.0	1.7	74.9	8.7	3.0	1.0
6 seed/ft solid	3.7	33.6	80.9	29.3	5.4	1.7	74.7	8.7	3.3	1.0
Test average	4.0	34.0	80.9	28.4	5.0	1.5	75.0	8.6	3.2	1.0
CV, %	4.7	1.5	0.7	4.4	4.7	32.2	1.8	2.8	--	--
OSL	0.1298	0.5480	0.6763	0.7237	0.1079	0.0517	0.8172	0.2330	--	--
LSD 0.05	NS	NS	NS	NS	NS	0.9	NS	NS	--	--

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

Table 3. Seed and technology expenses* for the replicated dryland cotton seeding rate and planting pattern demonstration, AG-CARES, Lamesa, TX, 2005.

Treatment	Seeding rate seed/land acre	Seed/lb	Seed/bag	Acres planted /bag	Seed fee $/bag	Tech fee $/bag	Total seed and tech fee $/bag	Seed and tech fee $/land acre
2 seed/ft 2x1	17,425	4,434	221,700	12.72	49.40	64.30	113.70	8.94
2 seed/ft solid	26,136	4,434	221,700	8.48	49.40	64.30	113.70	13.40
4 seed/ft 2x1	34,850	4,434	221,700	6.36	49.40	64.30	113.70	17.87
4 seed/ft solid	52,272	4,434	221,700	4.24	49.40	64.30	113.70	26.81
6 seed/ft 2x1	52,272	4,434	221,700	4.24	49.40	64.30	113.70	26.81
6 seed/ft solid	78,408	4,434	221,700	2.83	49.40	64.30	113.70	40.21
		AFD 3511R 4434 seed/lb		13068 row-ft/acre for 40" rows				seed drop on 2x1 skip uses a 0.6666 factor to calculate $/land acre

Chaperone Replicated Demonstration

Chaperone Plant Growth Regulator Replicated Demonstration, AG-CARES, Lamesa, TX - 2005

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

Tommy Doederlein, Randy Boman, Mark Stelter, and Mark Kelley; EA-IPM Dawson/Lynn Counties, Extension Agronomist-Cotton, Extension Assistant-Cotton, and Extension Program Specialist-Cotton

Dawson County

Summary: Chaperone has been formerly marketed as Atonik and ARYSTA and contains the following active ingredients: sodium p-nitrophenolate, 0.30%; sodium o-nitrophenolate, 0.20%; sodium 5-nitroguaiacolate, 0.01%. It is believed that these phenolic compounds may play a central role in secondary metabolism, defense mechanisms, mechanical support, and allelopathy. No statistically significant increases in lint yields were observed due to Chaperone PGR application. The use of reverse osmosis (ROH2O) water did not provide any benefit when compared to the center pivot (PH2O) water source. Additionally, there was no yield benefit to application of NZn foliar fertilizer either by itself, or in combination with Chaperone with either water source. Likewise, no statistically significant differences were observed for lint turnout, HVI fiber properties, or CCC Loan value at this site.

Objective: The objective of this project was to evaluate the effects of Chaperone plant growth regulator on cotton yield and quality.

Materials and Methods:

Variety:	Stoneville 5599BR
Experimental design:	Randomized complete block with 4 replications
Plot size:	4 40-inch rows x 200ft
Planting date:	9-May
Treatment date:	21-July (early bloom)

Treatment method: A Lee Spider sprayer adjusted to apply 15 gallons/acre (gpa) of total spray volume was used to apply treatments.

Treatments: A single rate of Chaperone PGR (5 oz/acre) was used in various combinations of two different carrier water types. One source was from the Ag-CARES center pivot irrigation water and the other was reverse osmosis water obtained from the Texas A&M University Research and Extension Center greenhouse complex. Additional treatments included the use of NZn foliar fertilizer applied at 0.5 gallon/acre. An untreated control was also included.

Harvest: Plots were harvested on 24-October 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.

Harvest aids: Harvest aids included Prep (6-lb ethephon/gal) at 1.5 pt/acre with Def at 1.0 pt/acre applied at 70 percent open bolls on 27-September, with a follow-up application of Gramoxone Max at 16 oz/acre on 10-October. Both harvest aid treatments were aerially applied.

Gin turnout: Grab samples were taken by plot and ginned at the Texas A&M University Research and Extension Center at Lubbock to determine gin turnouts.

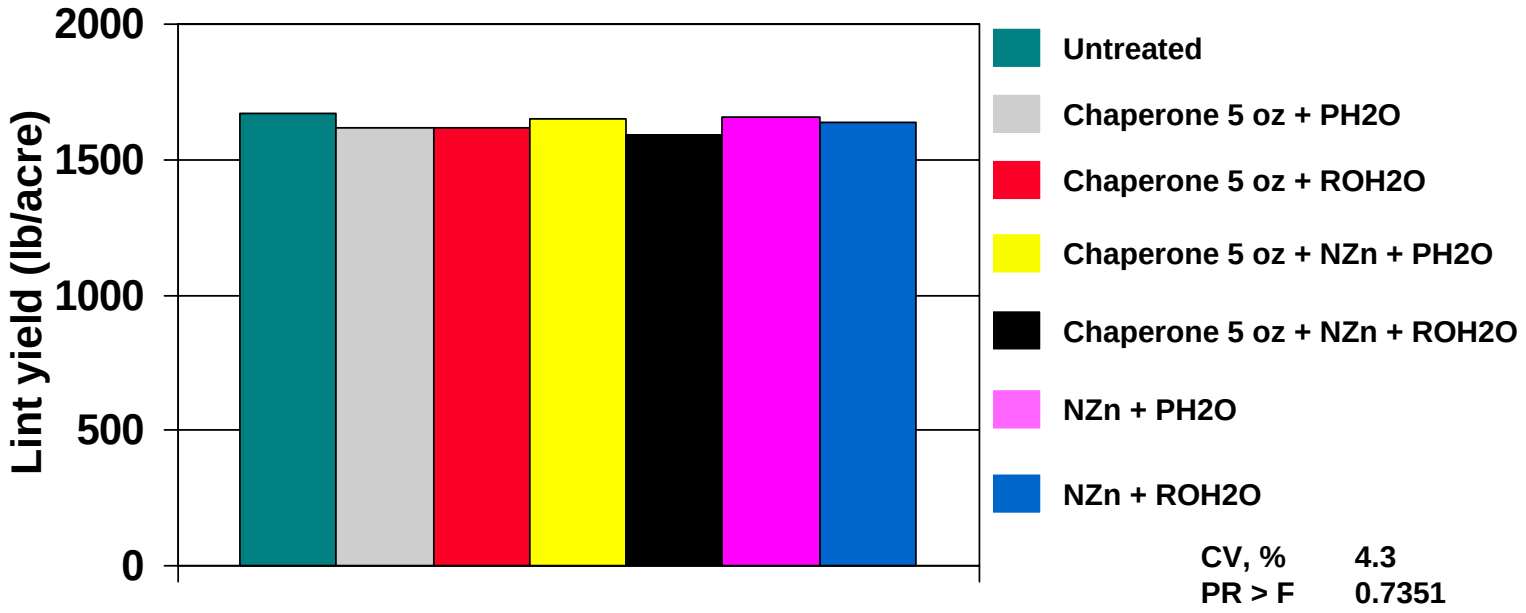
Results and Discussion:

Various papers published in the Beltwide Cotton Conference Proceedings have indicated that cotton lint yield responses have been obtained by researchers when investigating Chaperone PGR. Increased yields ranging from 9-16% (up to 274 lb/acre in certain trials) have been reported by Fernandez, Townsend, Oosterhuis, and Bynum. Chaperone has been formerly marketed as Atonik and ARYSTA and contains the following active ingredients: sodium p-nitrophenolate, 0.30%; sodium o-nitrophenolate, 0.20%; sodium 5-nitroguaiacolate, 0.01%. It is believed that these phenolic compounds may play a central role in secondary metabolism, defense mechanisms, mechanical support, and allelopathy. No statistically significant increases in lint yields were observed due to Chaperone PGR application (Figure 1). The use of reverse osmosis (ROH2O) water did not provide any benefit when compared to the center pivot (PH2O) water source. Additionally, there was no yield benefit to application of NZn foliar fertilizer either by itself, or in combination with Chaperone with either water source. Likewise, no statistically significant differences were observed for lint turnout, HVI fiber properties, or CCC Loan value at this site (data not presented).

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 and to Dr. John Gannaway - TAES, Lubbock, for his cooperation.

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.

Figure 1. Lint yield results from the 2005 Dawson County (AG-CARES) LEPA irrigated Chaperone replicated demonstration.



Sites Planted But Lost Due to Weather

Appling Irrigated - 2005

overhang **N ^**

3 rows inside of track, 5 rows on outside

			CalcAnAcre acres/plot					CalcAnAcre acres/plot			
	Track Fill					**Track Fill**					
1	AFD 3602R		1.23		1	All Tex Patriot RR		1.12			1
2	All Tex Magnum RR		1.19		2	FM 989RR		1.09			2
3	BCG 50R		1.16		3	ST NG 2448R		1.06		span 8	3
4	DP 432RR		1.14		4	DP 434RR		1.04			4
5	FM 960RR		1.11		5	AFD 3602R		1.01			5
	Track Fill		**<=2.11=>**			**Track Fill**			**<==**		6
6	ST NG 2448R	Rep II	1.06		6	DP 432RR	Rep I	0.96			7
7	All Tex Patriot RR		1.07		7	ST NG 3969R		0.95			8
8	DP 434RR		1.03		8	All Tex Magnum RR		0.93		span 7	9
9	FM 989RR		1.00		9	FM 960RR		0.90			10
10	ST NG 3969R		0.97		10	BCG 50R		0.87			11
	Track Fill		**<=1.79=>**			**Track Fill**			**<==**		12
11	FM 958LL		0.91		11	BCG 245		0.83			13
12	**Bulk Fill**		0.89		12	BCG 295		0.80			14
13	BCG 245		0.86		13	FM 958		0.79		span 6	15
14	FM 958		0.83		14	**Bulk Fill**		0.76			16
15	BCG 295		0.81		15	FM 958LL		0.74			17
	Track Fill		**<=1.49=>**			**Track Fill**			**<==**		18
					1	FM 958		1.46			19
					2	BCG 245		1.43			20
					3	BCG 295		1.36		span 5	21
					4	**Bulk Fill**		1.34			22
					5	FM 958LL		1.27			23
						Track Fill		1.23	**<==**		24
					6	ST NG 3969R	Rep III	1.20			25
					7	FM 989RR		1.14			26
					8	All Tex Patriot RR		1.08		span 4	27
					9	DP 434RR		1.04			28
					10	All Tex Magnum RR		0.99			29
						Track Fill		0.94	**<==**		30
					11	ST NG 2448R		0.89			31
					12	BCG 50R		0.83			32
					13	FM 960RR		0.79		span 3	33
					14	DP 432RR		0.74			34
					15	AFD 3602R		0.69			35
						Track Fill					
						Bulk Fill					
						Bulk Fill					
							N-S turnrow				

	Variety	RR	LL	Conv.
1	AFD 3602R	1		
2	All Tex Magnum RR	2		
3	BCG 50R	3		
4	DP 432RR	4		
5	FM 960RR	5		
6	ST NG 2448R	6		
7	All Tex Patriot RR	7		
8	DP 434RR	8		
9	FM 989RR	9		
10	ST NG 3969R	10		
11	FM 958LL		1	
12	BCG 245			1
13	FM 958			2
14	BCG 295			3

Planting date	5/12/2005
Planting rate	45,650 seed/acre
Seed spacing	3.7"
Herbicides	1.0 qt/acre Treflan PPI
	1.0 qt/acre Direx at planting in 15" band behind press wheel
Irrigation (preplant)	1.0"
Fertilizers	100 lb/acre 11-52-0 (preplant)

	Tower Track		8 rows
Span 7	STX 4554 B2RF	Rep I	1A
	DG 2215 B2RF		1B
	DPLX 04X419 DF B2RF		2A
	DG 2100 B2RF		2B
	AT 45039 B2RF		3A
	DPLX 04V405 DF B2RF		3B
	FM 989B2R		4A
	STX 4664 RF		4B
	DPLX 04H205 DF B2RF		5A
	AT 55066 B2RF		5B
	DPLX 04Z503 DF B2RF		6A
	AT 55099 B2RF		6B
	DPLX 04Z600 DF B2RF		7A
	DP 434RR		7B
	Tower Track		8 rows
Span 6	NGX 3550 RF		8A
	XBCG 4575 RF		8B
	XBCG 4153 RF		9A
	CG 4020 B2RF		9B
	DPLX 04V405 DF B2RF	Rep II	3B
	AT 45039 B2RF		3A
	AT 55099 B2RF		6B
	DPLX 04Z503 DF B2RF		6A
	STX 4664 RF		4B
	FM 989B2R		4A
	DP 434RR		7B
	DPLX 04Z600 DF B2RF		7A
	DG 2215 B2RF		1B
	STX 4554 B2RF		1A
	Tower Track		8 rows
Span 5	CG 4020 B2RF		9B
	XBCG 4153 RF		9A
	AT 55066 B2RF		5B
	DPLX 04H205 DF B2RF		5A
	DG 2100 B2RF		2B
	DPLX 04X419 DF B2RF		2A
	XBCG 4575 RF		8B
	NGX 3550 RF		8A
	AT 45039 B2RF	Rep III	3A
	DPLX 04V405 DF B2RF		3B
	FM 989B2R		4A
	STX 4664 RF		4B
	DPLX 04Z503 DF B2RF		6A
	AT 55099 B2RF		6B
	Tower Track		8 rows
Span 4	DPLX 04X419 DF B2RF		2A
	DG 2100 B2RF		2B
	DPLX 04Z600 DF B2RF		7A
	DP 434RR		7B
	STX 4554 B2RF		1A
	DG 2215 B2RF		1B
	NGX 3550 RF		8A
	XBCG 4575 RF		8B
	DPLX 04H205 DF B2RF		5A
	AT 55066 B2RF		5B
	XBCG 4153 RF		9A
	CG 4020 B2RF		9B
	8 Rows Border		
	Tower Track		8 rows

Halfway/Helms Farm RR Flex Demo - 2005

Stoneville	STX 4554 B2RF
Dyna-Gro	DG 2215 B2RF
Deltapine	DPLX 04X419 DF B2RF
Dyna-Gro	DG 2100 B2RF
All-Tex	AT 45039 B2RF
Deltapine	DPLX 04V405 DF B2RF
FiberMax	FM 989B2R
Stoneville	STX 4664 RF
Deltapine	DPLX 04H205 DF B2RF
All-Tex	AT 55066 B2RF
Deltapine	DPLX 04Z503 DF B2RF
All-Tex	AT 55099 B2RF
Deltapine	DPLX 04Z600 DF B2RF
Deltapine	DP 434RR
Stoneville	NGX 3550 RF
Beltwide	XBCG 4575 RF
Beltwide	XBCG 4153 RF
Croplan	CG 4020 B2RF

Greg White
Lamb County

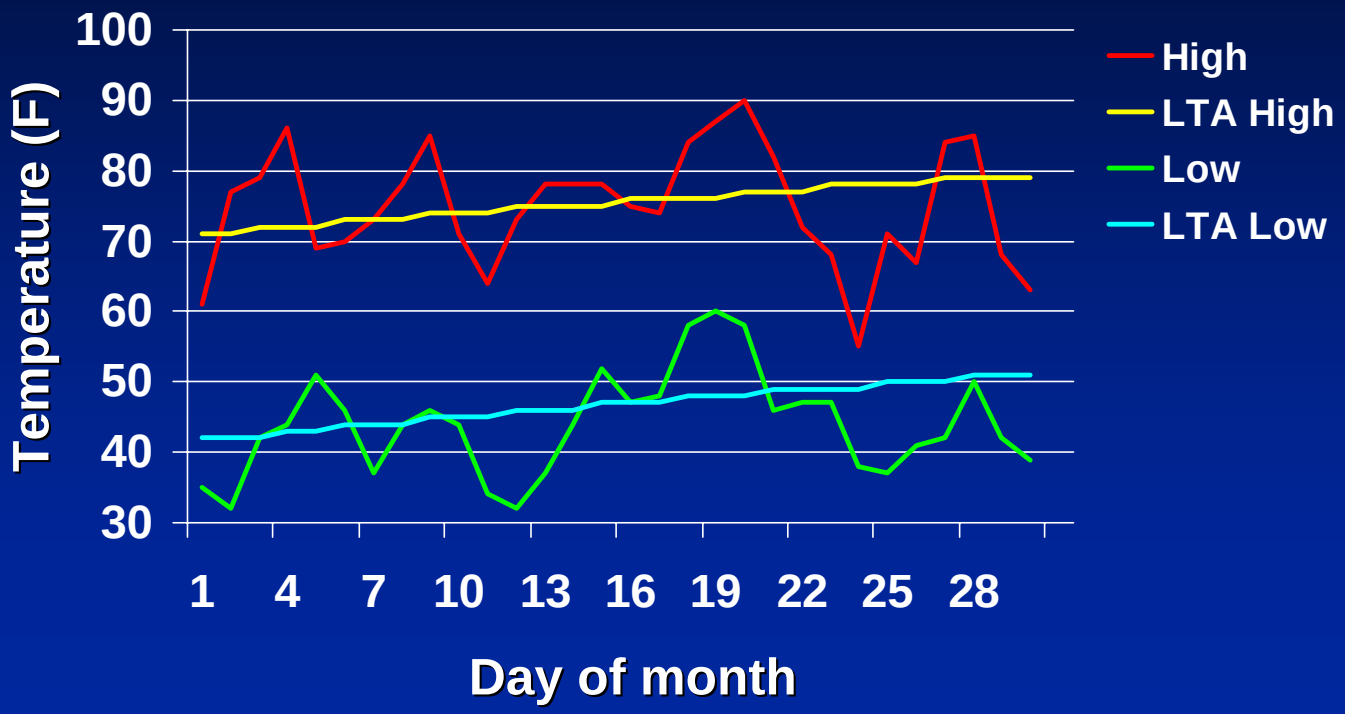
	EU #	North
	1	AFD 3511RR
	2	Atlas RR
	3	BCG 30R
	4	DP 434RR
Rep I	5	FM 960RR
	6	NG 2448R
	7	NG 3969R
	8	PM 2266RR
	9	FM 989RR
	10	ST 5303R
	11	NG 2448R
	12	FM 960RR
	13	Atlas RR
	14	NG 3969R
Rep II	15	DP 434RR
	16	FM 989RR
	17	ST 5303R
	18	BCG 30R
	19	AFD 3511RR
	20	PM 2266RR
	21	FM 960RR
	22	NG 2448R
	23	AFD 3511RR
	24	FM 989RR
Rep III	25	ST 5303R
	26	PM 2266RR
	27	NG 3969R
	28	BCG 30R
	29	Atlas RR
	30	DP 434RR

8 row plots
in a 8 x 1 skip pattern

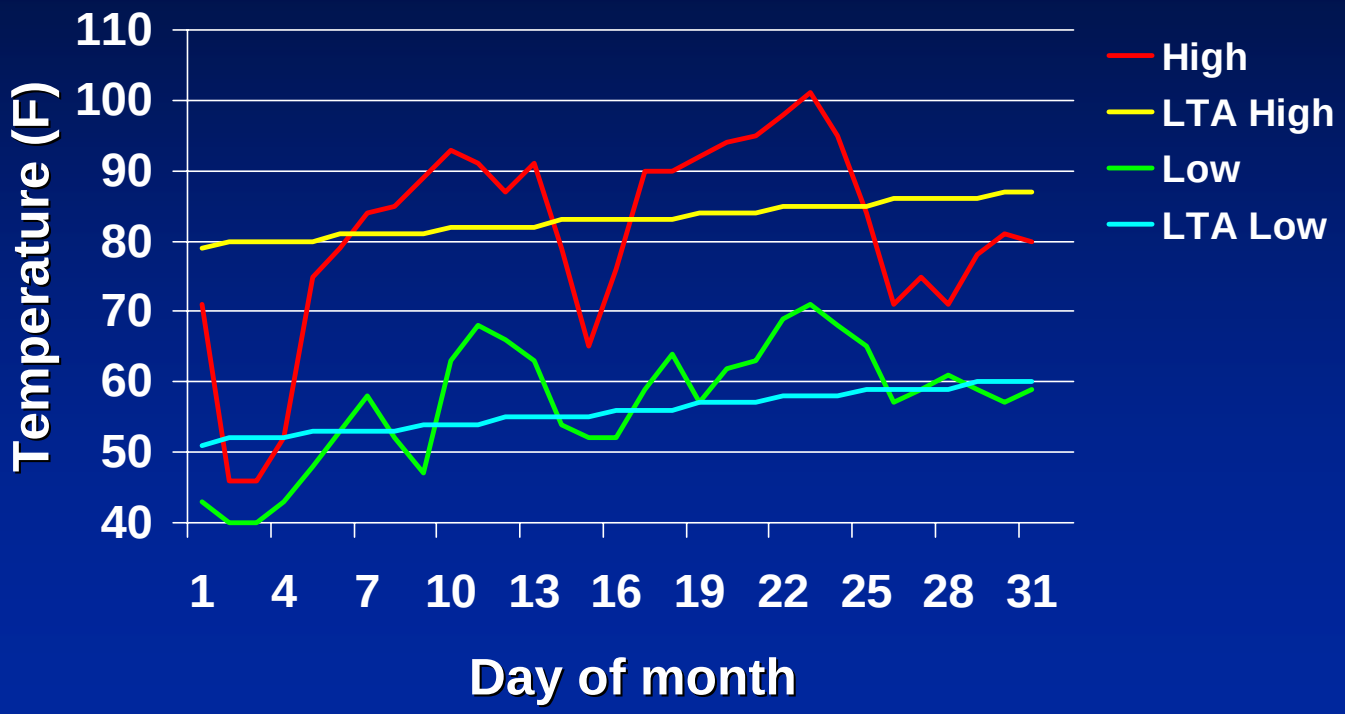
Planted on May 19 about 10 lb seed or 3.5 seed/ft

Lubbock 2005 Weather and Crop Information

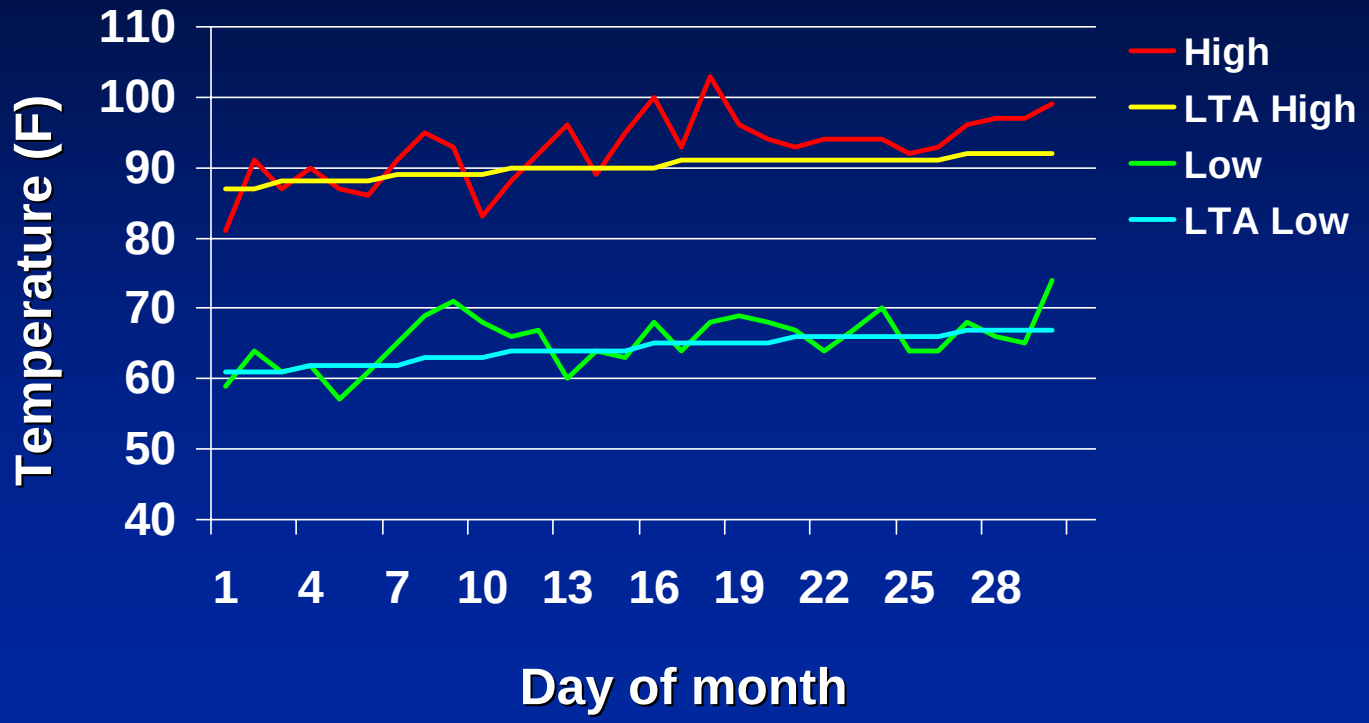
Lubbock Air Temperatures
April, 2005



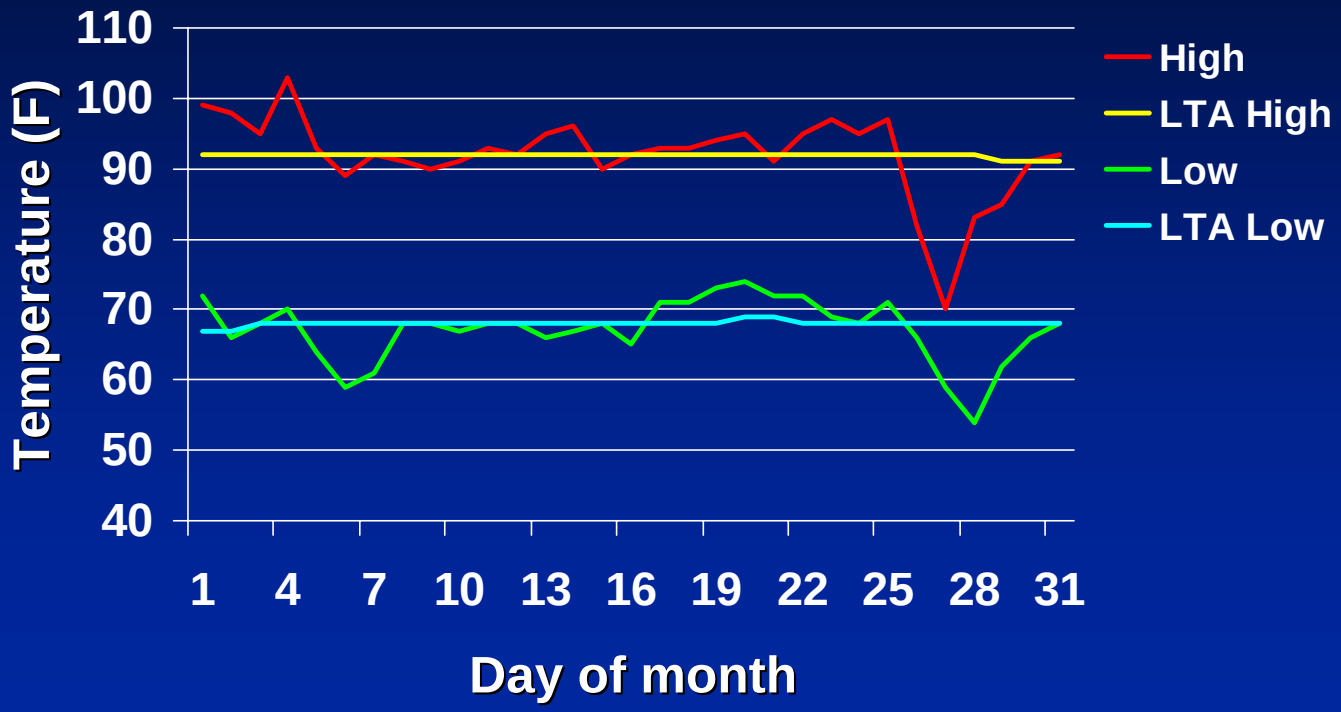
Lubbock Air Temperatures
May, 2005



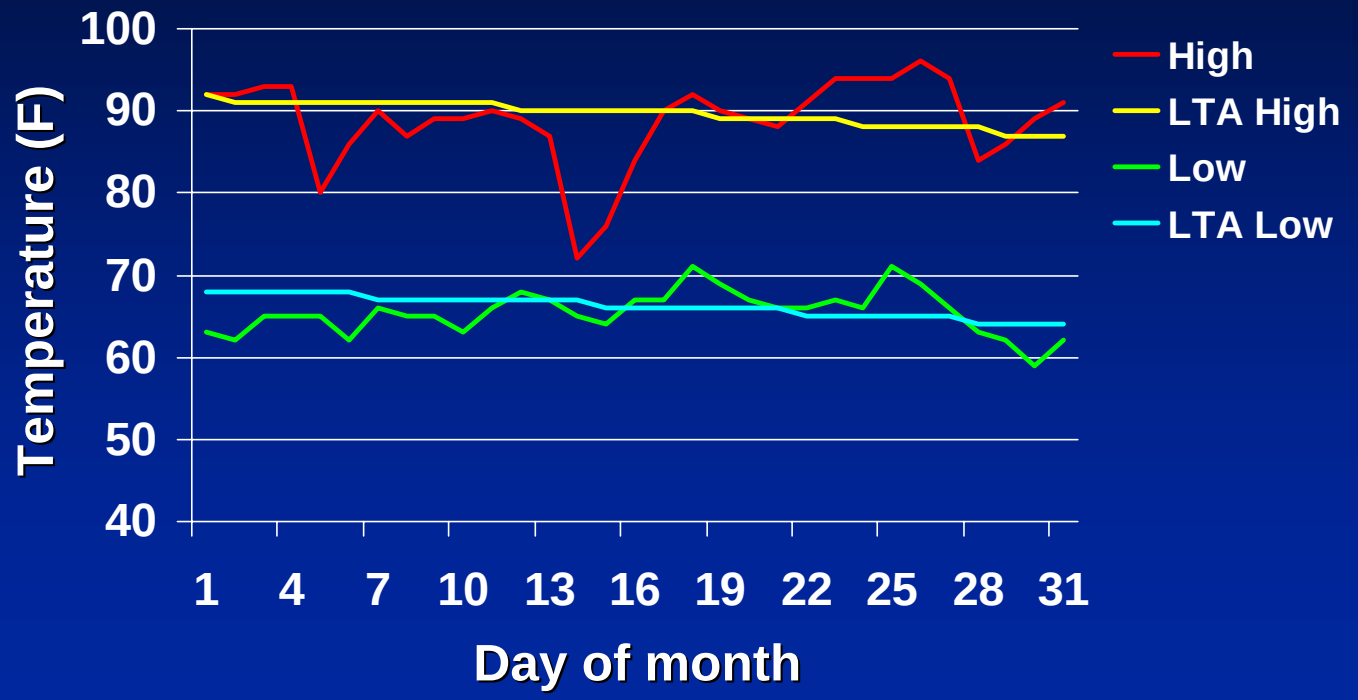
Lubbock Air Temperatures
June, 2005



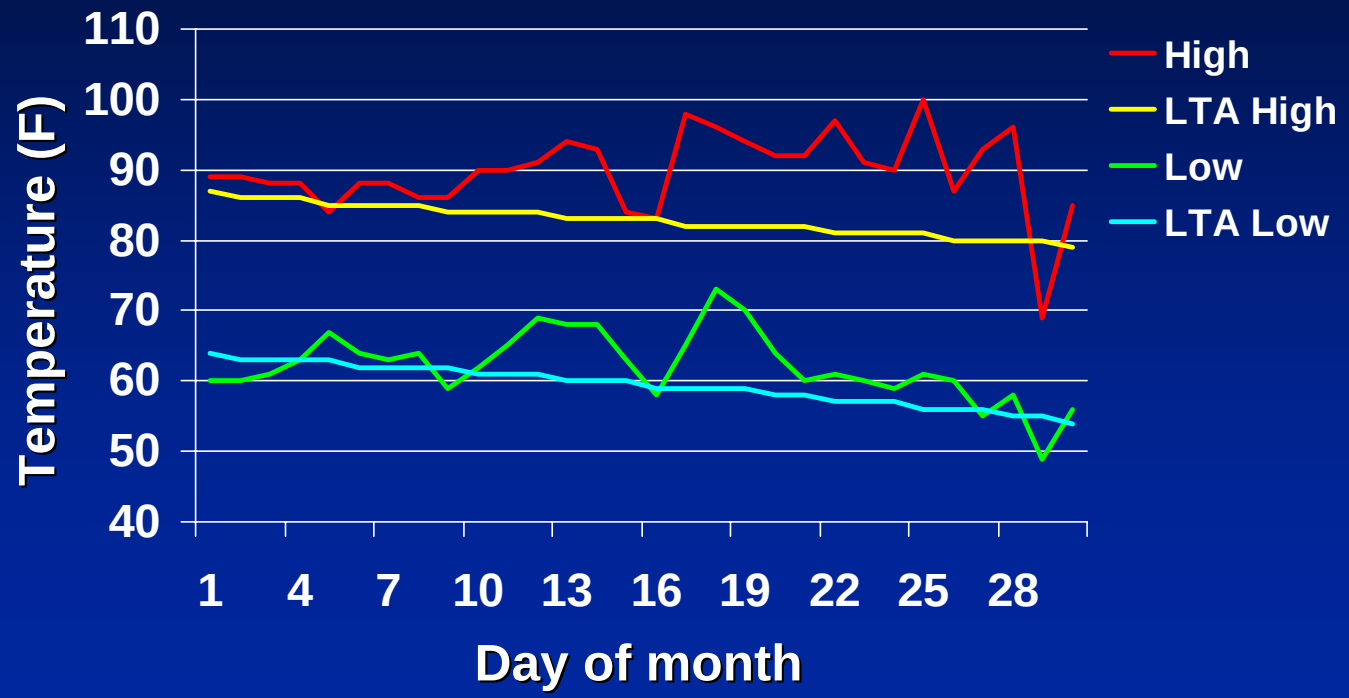
Lubbock Air Temperatures
July, 2005



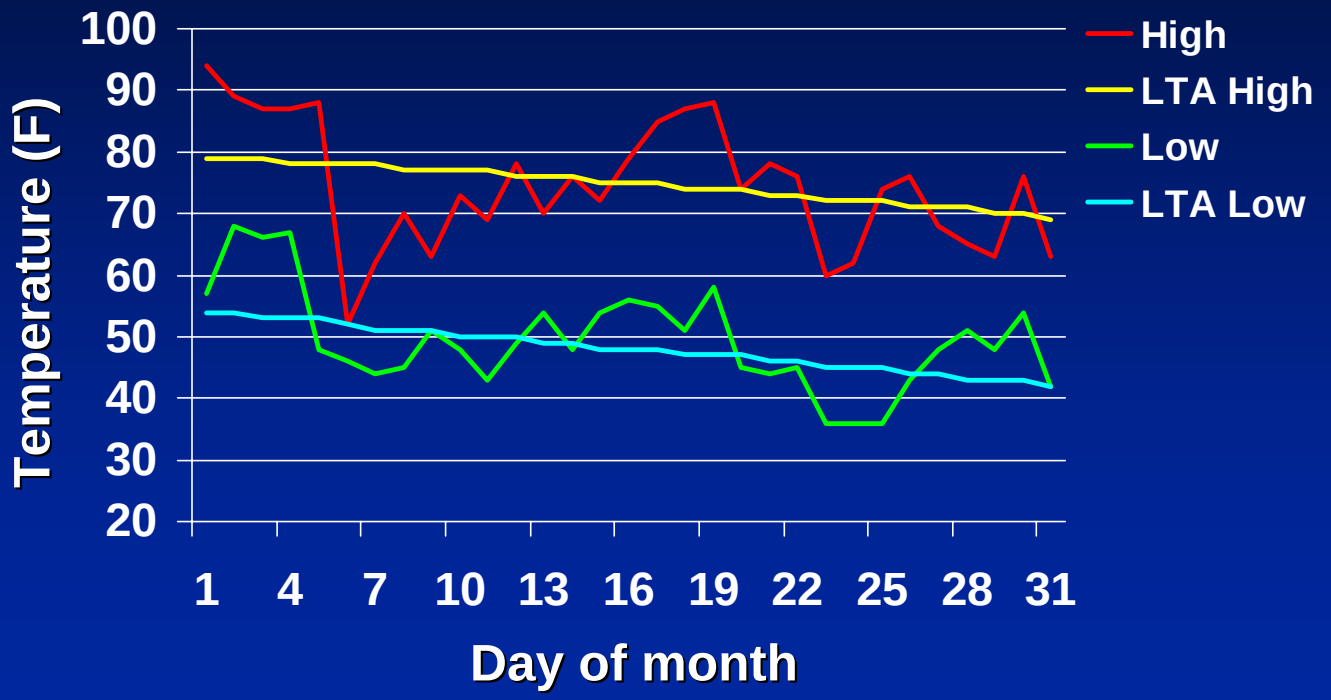
Lubbock Air Temperatures
August, 2005



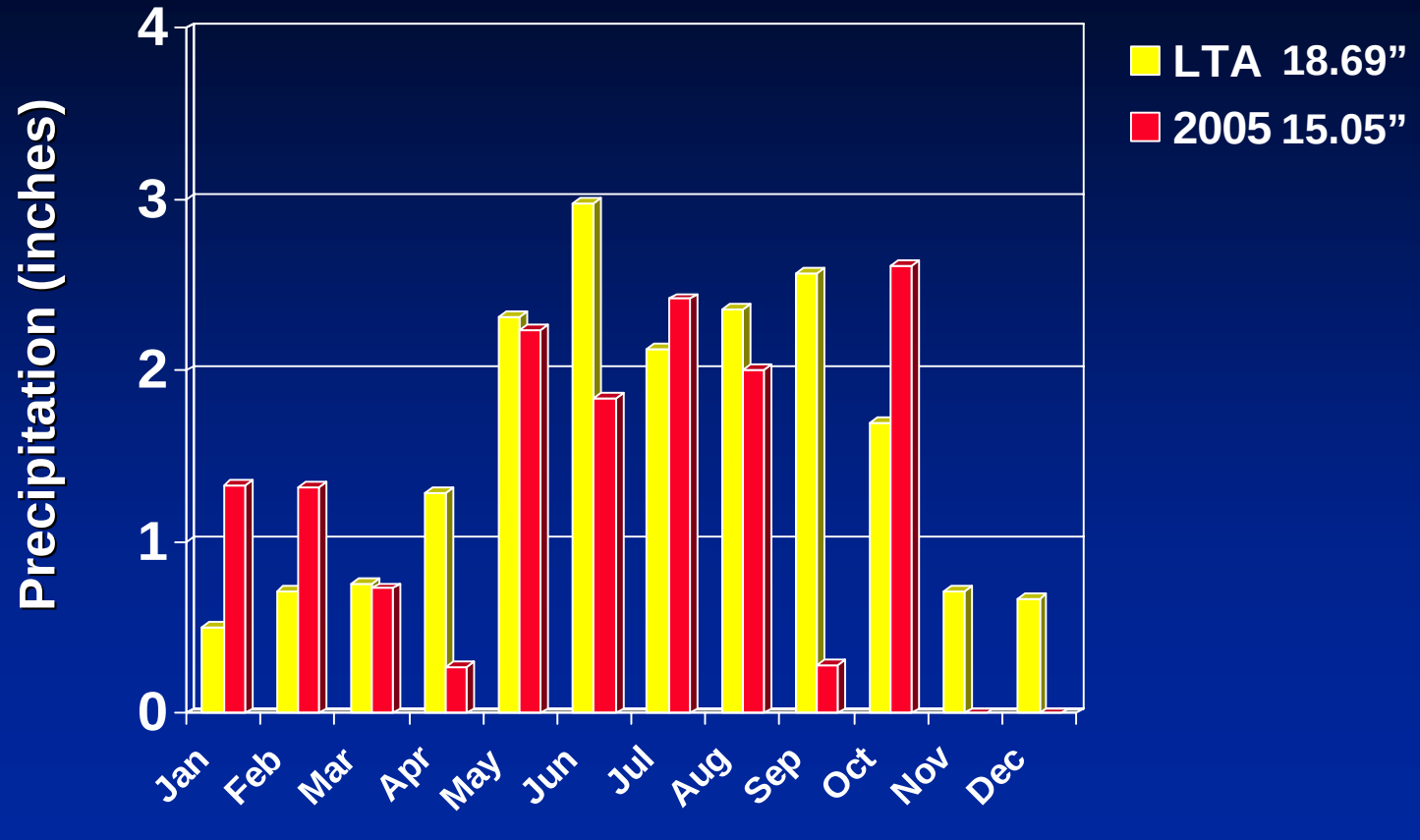
Lubbock Air Temperatures
September, 2005



Lubbock Air Temperatures
October, 2005

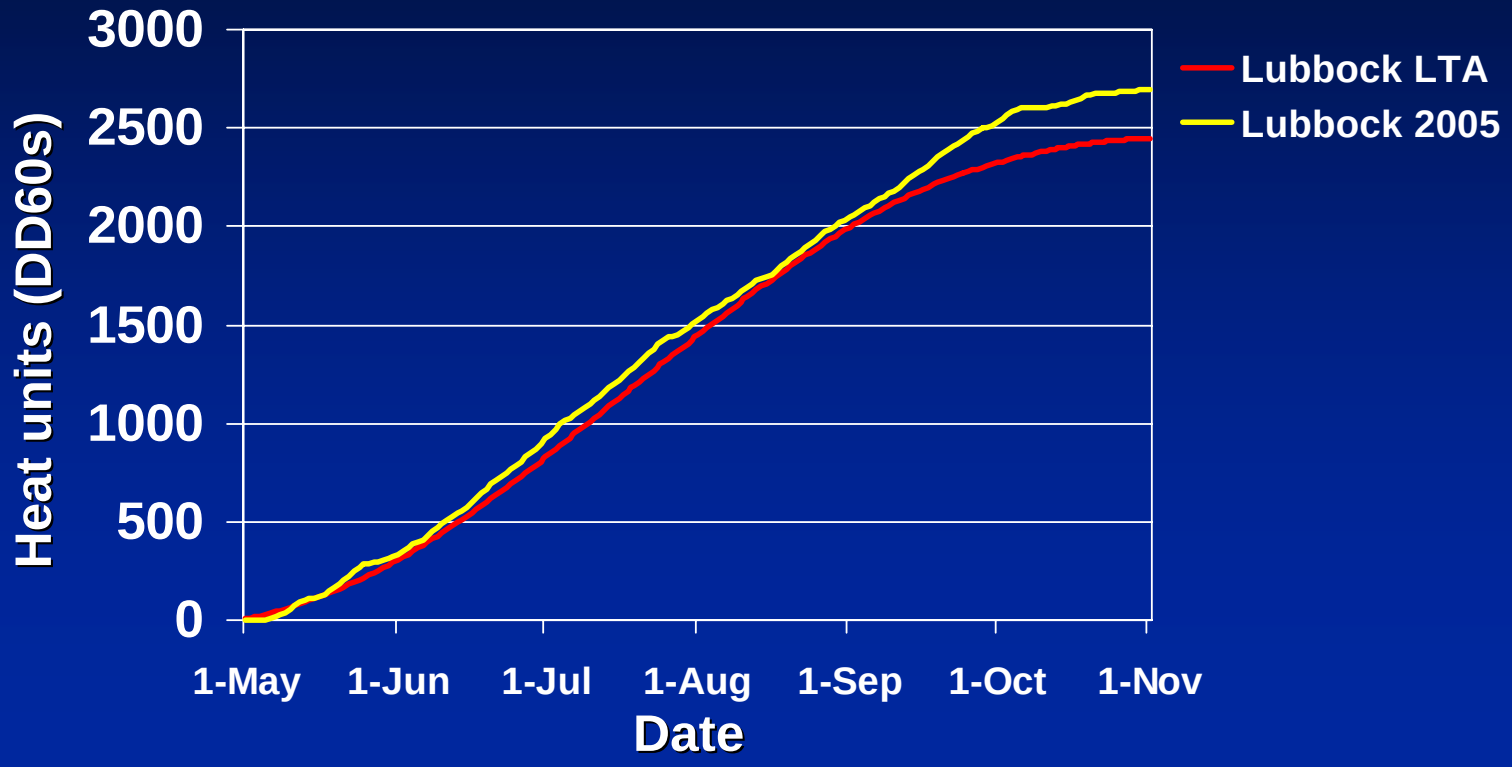


Lubbock LTA (1971-2000) vs. 2005 Rainfall

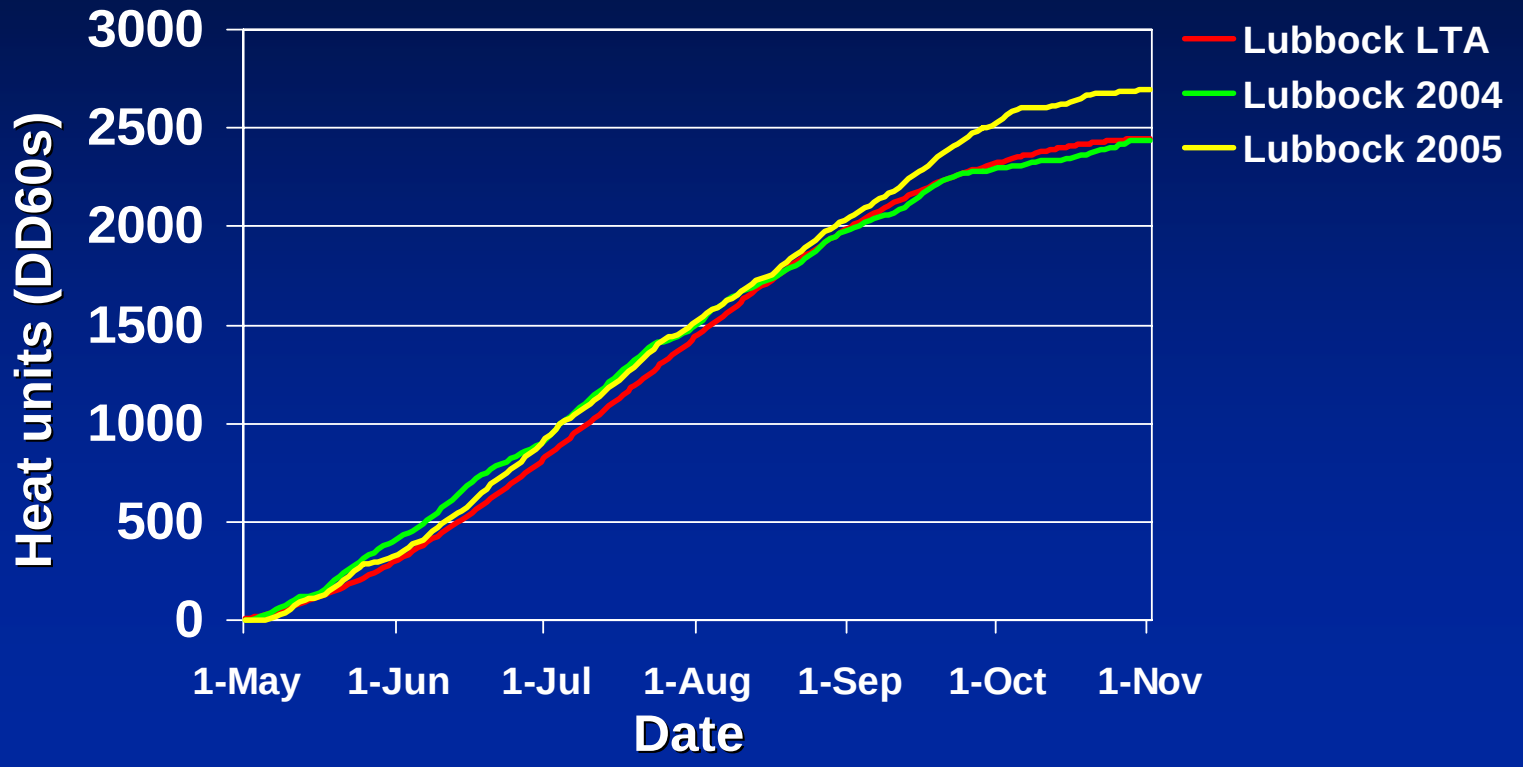


Source: http://www.srh.noaa.gov/lub/climate/monthlycli-f6.html

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



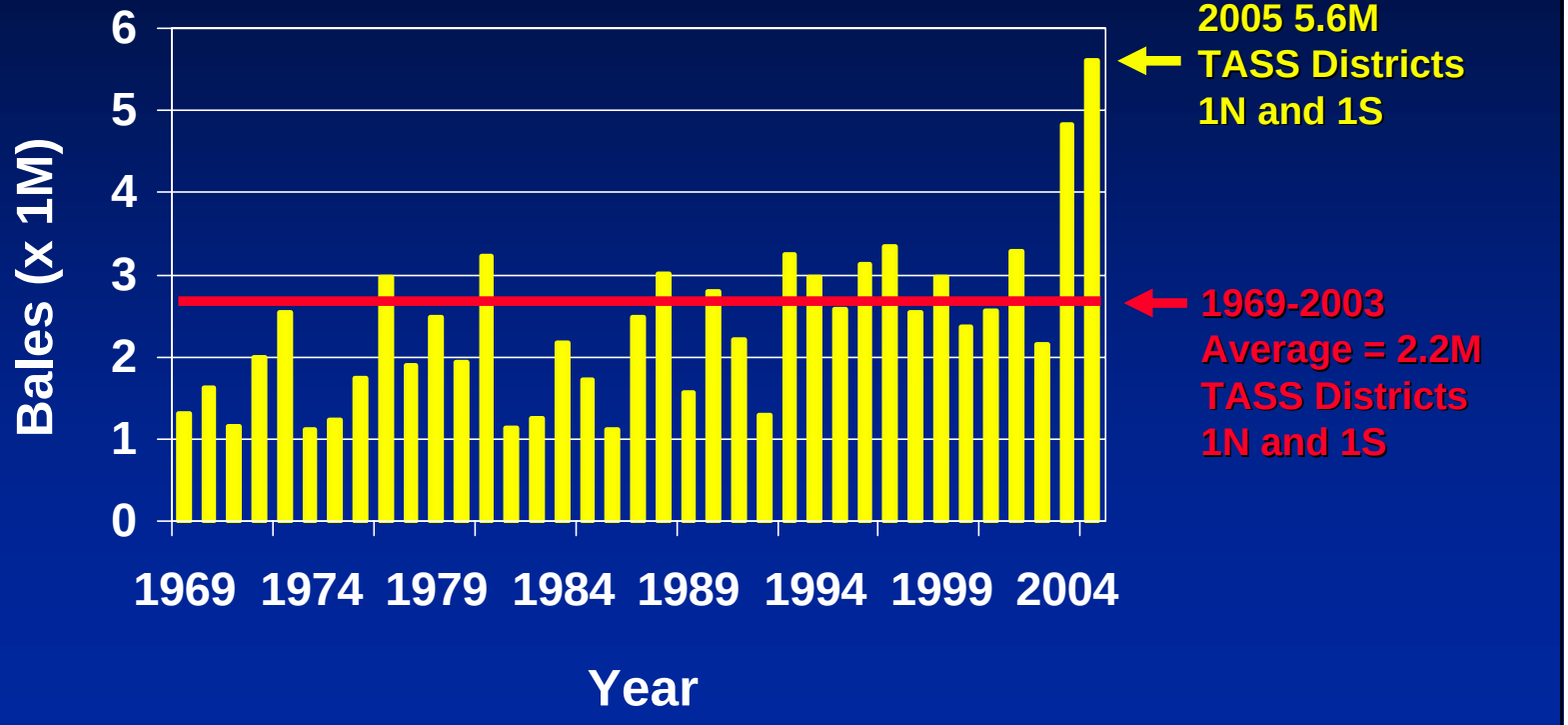
Lubbock 30-Yr Long Term Average (1971-2000) vs. 2004 and 2005 Cotton Heat Unit Accumulation



Cotton Production/Quality Records
2005 High Plains Crop

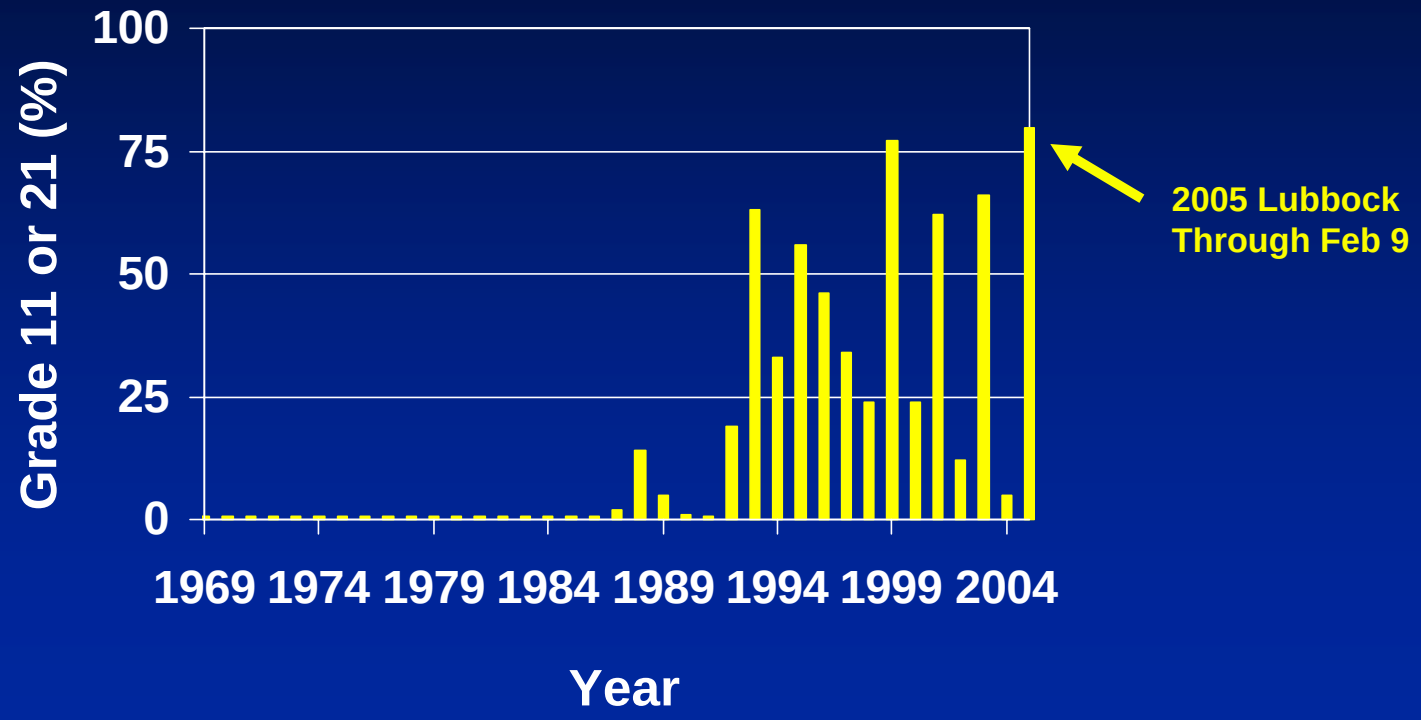
- #1 bale production
- Highest % 11 and 21 color
- Longest average staple
- Highest % of bales 34 staple or longer
- Highest % of bales 35 staple or longer
- Highest % of bales 36 staple or longer
- Among the lowest for Bark contamination

High Plains Total Bale Production 1969-2005



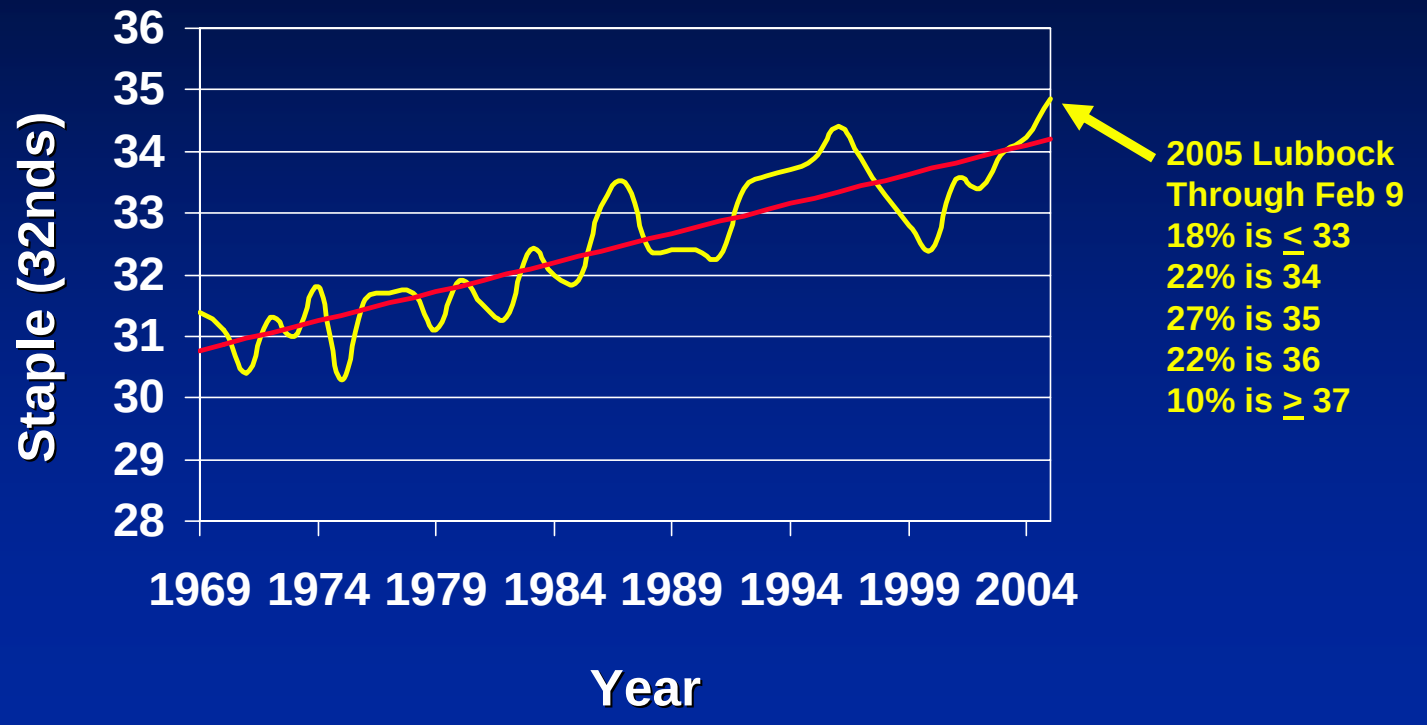
Source: USDA-AMS

High Plains Color Grades 11 or 21 1969-2005



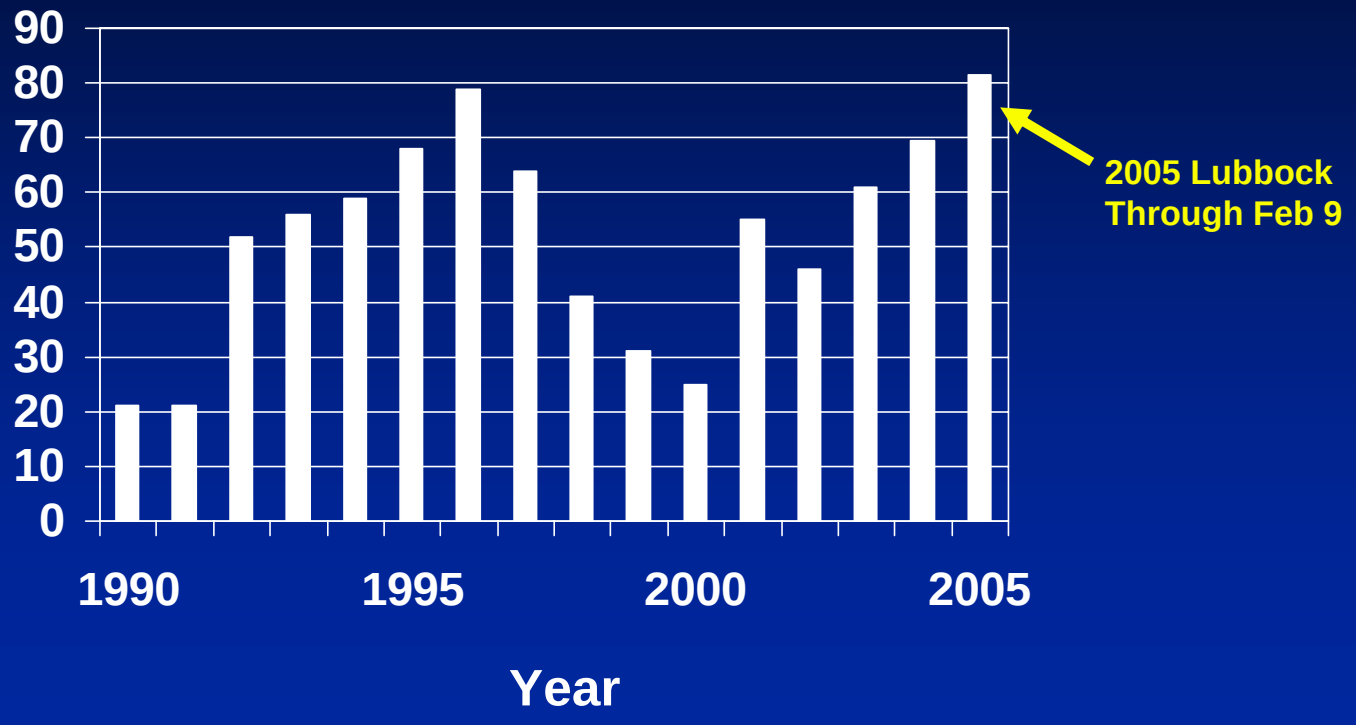
Source: USDA-AMS

High Plains Average Staple Length 1969-2005



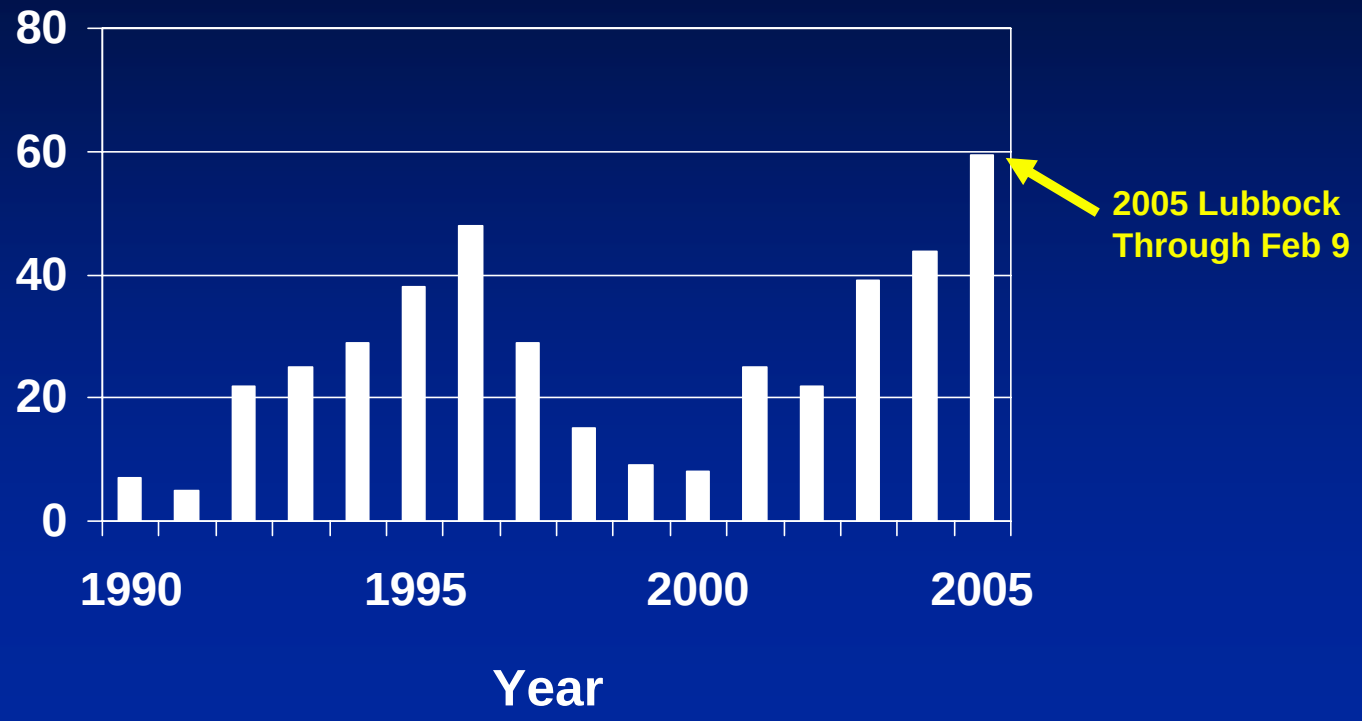
Source: USDA-AMS

Percent of High Plains Bales with ≥34 Staple 1990-2005



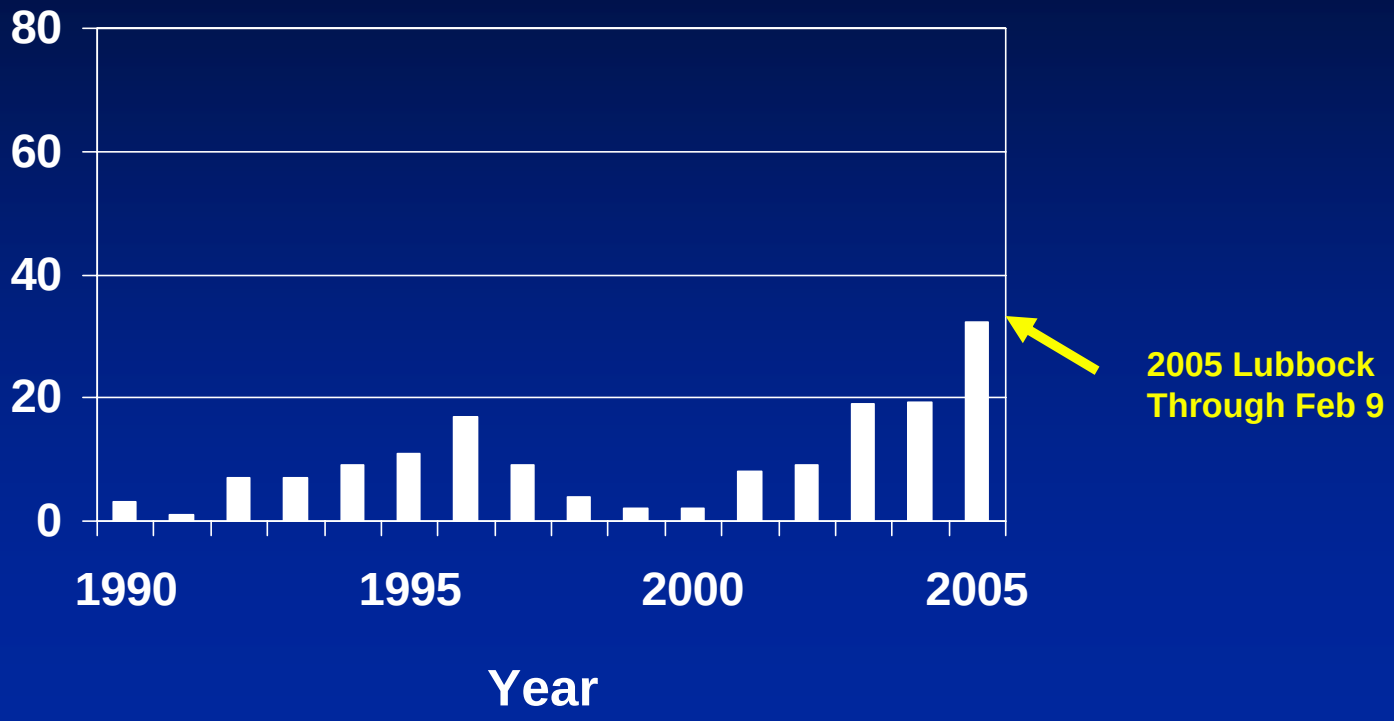
Source: USDA-AMS

Percent of High Plains Bales with ≥35 Staple 1990-2005



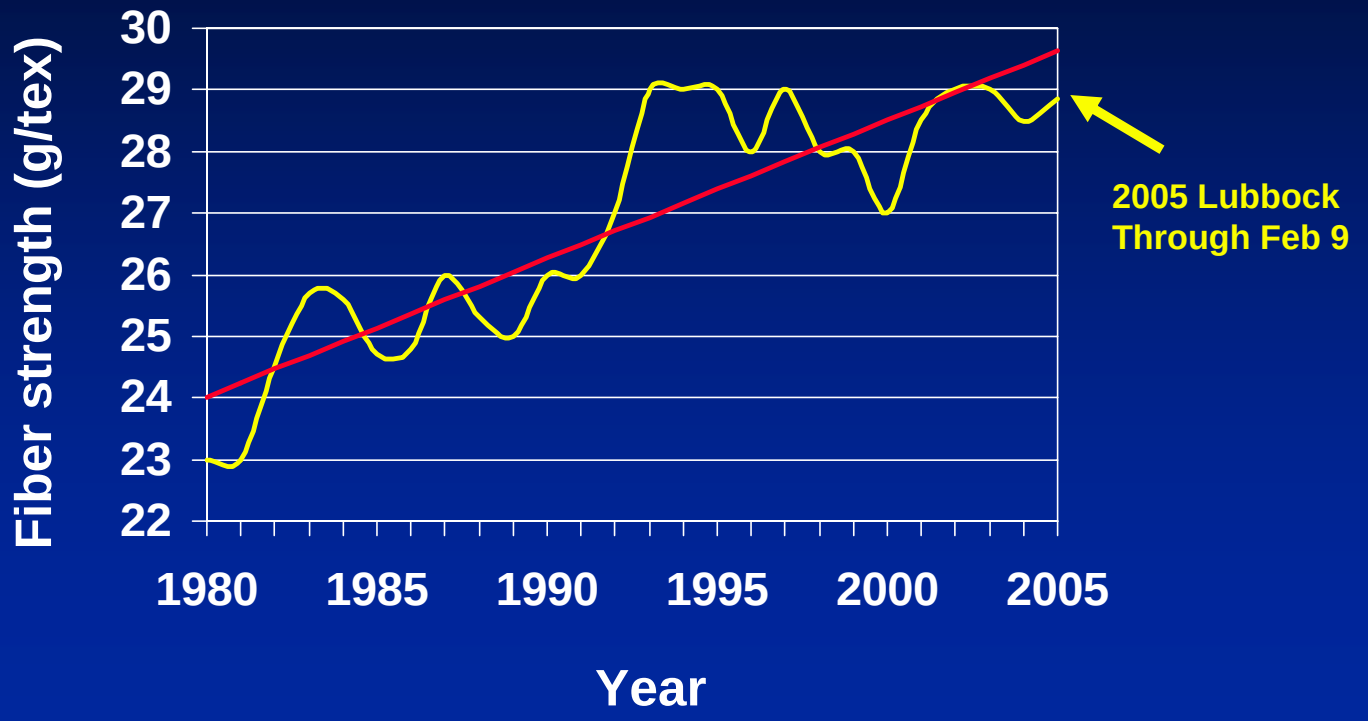
Source: USDA-AMS

Percent of High Plains Bales with ≥36 Staple 1990-2005



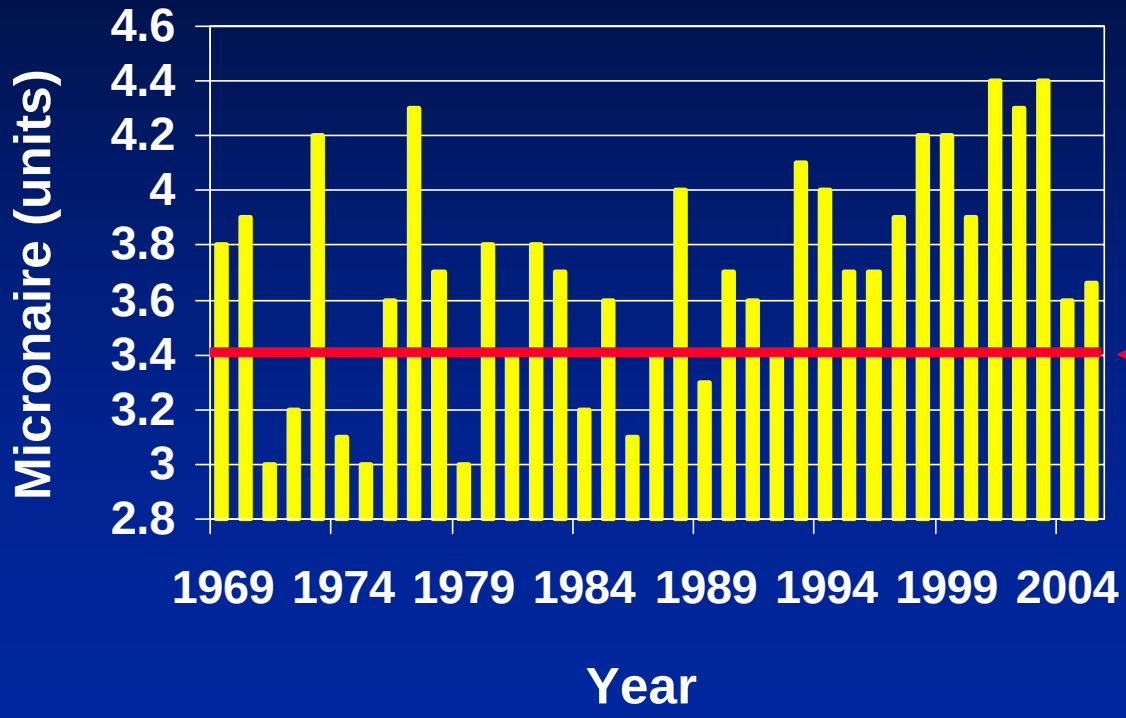
Source: USDA-AMS

High Plains Average Fiber Strength 1980-2005



Source: USDA-AMS

High Plains Micronaire 1969-2005



Number of Years	
≤ 3.4	11
≥ 4.0	10

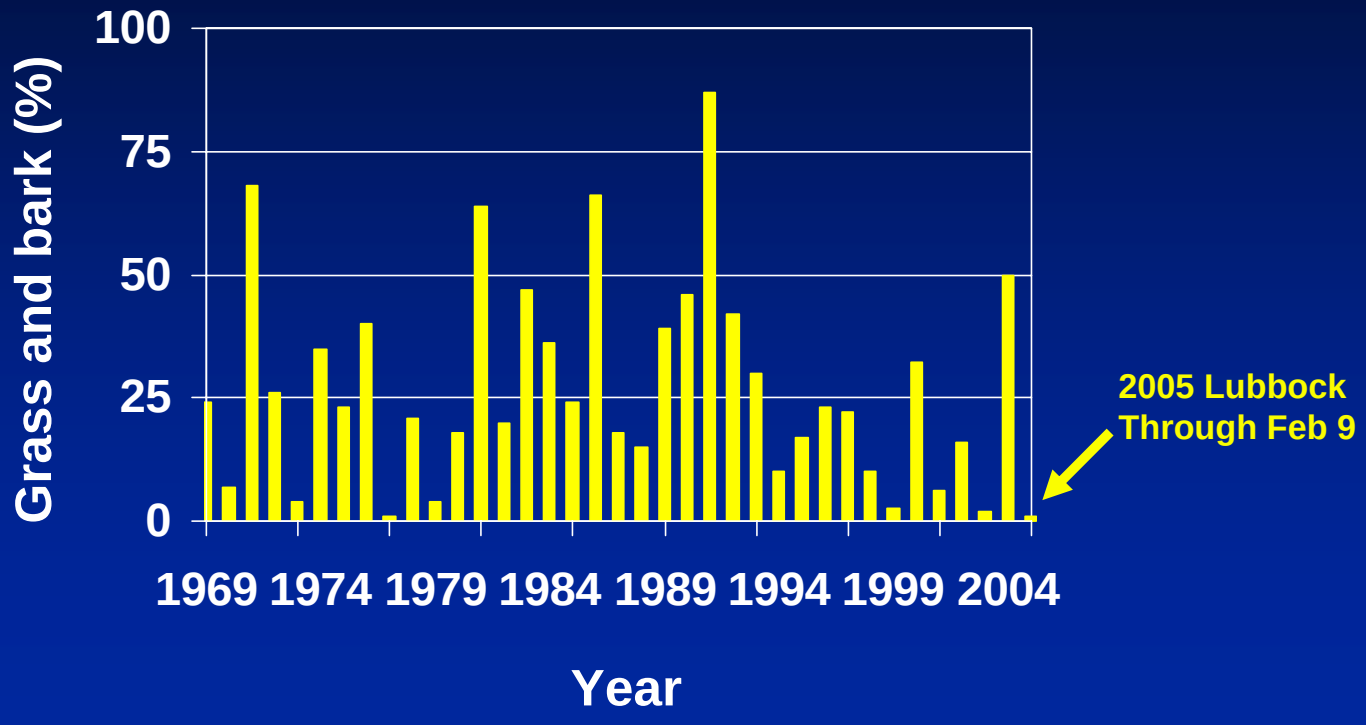
← Low mic discount

2005 Lubbock
Through Feb 9
~3.9M bales

34% is ≤3.4
21% is ≤ 3.2

Source: USDA-AMS

High Plains Grass and Bark 1969-2005



Source: USDA-AMS