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TEXAS ROLLING PLAINS COTTON TRIALS | 2024

TEXAS A&M AGRILIFE EXTENSION

R.A.C.E.
Replicated Agronomic Cotton Evaluation

cotton

TEXAS ROLLING PLAINS COTTON TRIALS | 2024

CONTRIBUTING AUTHORS

Emi Kimura	Extension Agronomist	AgriLife Extension, Vernon, TX
TJ Payne	Extension Farm Demonstration Assistant	AgriLife Extension, Vernon, TX
Dane Leija	Technical Assistant II	AgriLife Extension, Vernon, TX
Paul DeLaune	Environmental Soil Scientist	AgriLife Research, Vernon, TX

COUNTY EXTENSION AGENT COOPERATORS

Kenny Patterson	County Extension Agent	AgriLife Extension, Collingsworth Co., TX
Langdon Reagan	County Extension Agent	AgriLife Extension, Wilbarger Co., TX
Nick Dickson	County Extension Agent	AgriLife Extension, Fisher Co., TX

ACKNOWLEDGEMENTS

Appreciation is expressed to **the producer cooperators** who provided their land, equipment, and time to assist in preparation, planting, field management, and harvesting of the plots throughout the year. All cooperators are listed in Table 3. We would like to extend our appreciation to **Cotton Incorporated** through the **Texas State Support Committee**, **Deltapine, Stoneville/FiberMax, NexGen and Phytogen Cottonseed** for their partial funding of these trials.

2024 HIGHLIGHT

Variety selection is the most important decision made during the year. Unlike herbicide or insecticide decisions that can be changed during the season to address specific conditions and pests, variety selection is made only once, and variety selection dictates the management of a field for the entire season. Variety decisions should be based on genetics first and transgenic technology second. Attention should be focused on agronomic characteristics such as yield, maturity, and fiber quality when selecting varieties. Total planted and failed acres for the Texas Rolling Plains were 341,097 acres. The 2024 season started with slightly better soil moisture conditions as compared to the 2023 planting window. We received rainfall through the first week of July; however, no significant rain events were observed after the July 4th week. Dryland cotton started to show water and heat stress. The year 2024 was not as dry as the previous two years; however, it was not an ideal year as far as the total amount of precipitation and frequency of rainfall events.

To assist Texas cotton producers in remaining competitive in the Rolling Plains, the Texas A&M AgriLife Extension Service Agronomy program has conducted, large plot, on-farm, replicated variety trials since 2012. This approach provides a reliable source of information to assist farmers with the variety selection process. Two replicated agronomic cotton evaluation (RACE) trials, one Phytogen Innovation trial, and two BASF APT trials were planted in 2024. We were able to harvest two RACE trial, one phytogen innovation trials, and two BASF ATP trials. Mean irrigated location yields for the 2024 cotton variety trials ranged from 1721 lb/ac for the Fisher County irrigated trial to 225 lb/ac for the Wilbarger County dryland trial site.

Lint samples from all trials were ginned with conventional gin. The statistical analysis quantifies the variability of the test site conditions, such as soil type, harvesting, insect damage, etc. A CV (coefficient of variation) of 15% or less is generally considered acceptable and means the data are dependable. Non-statistical significance is represented as “NS” and indicates no differences among the varieties within the data column at a 90% confidence level.

Resources for Texas cotton production

- General cotton production information for new cotton growers: http://cotton.tamu.edu/index.html
- Cotton variety trial results: http://varietytesting.tamu.edu/cotton/
- Cotton trial update in the Rolling Plains of Texas: Rolng Plains Agronomy Program Blog (https://agriliferollingplainsagronomy.org/category/cotton/)
- Rolling Plains Agronomy Program YouTube channel (https://www.youtube.com/@texasamagrilifevernon-exte8929)

TEXAS A&M AGRILIFE EXTENSION

Table 1. Variety characteristics/Highlights

Below are the cotton varieties entered in the 2024 Texas Rolling Plains Cotton Trials.

Maturity\Technology	XtendFlex	Enlist	Axant™ Flex	GLT/GLTP
Early	DP2012B3XF			
	DP 2317 B3TXF			
	ST4993B3XF			
Early mid	DP1820B3XF	PHY350W3FE		FM1730GLTP
	NG 4409 B3XF			
	ST4990B3XF	PHY394W3FE		FM1830GLT
	DP2020B3XF	PHY332W3FE		FM1953GLTP
	ST4595B3XF			
	NG 3195 B3XF			
Mid	DP2038B3XF	PHY400W3FE	FM 868 AXTP	FM2498GLT
	DP 2335 B3XF		FM 823 AXTP	
	NG4936B3XF	PHY480W3FE		FM2398GLTP
	NG4098B3XF	PHY443W3FE		
	NG4190B3XF	PHY411W3FE		
	DP 2333 B3XF	PHY 415 W3FE		
	DP 2239 B3XF			
Mid to Full	DP1948B3XF	PHY500W3FE		
	ST5707B2XF	PHY545W3FE		
	NG5150B3XF	PHY 475 W3FE		
	ST5600B2XF			
	DP1845B3XF			
Full	NG 5430 B3XF	PHY580W3FE		

Table 2. FIBER EVALUATION

Parameters	Definition	Range
Micronaire (Mic)	Micronaire is a measurement of both fiber fineness and maturity.	Premium range: 3.7-4.2 Base range: 3.5-3.6 or 4.3-4.9 Discount range: 0-3.4 or >5.0
Fiber length	The average length of the longer half of the fibers.	Extra-long: >1.26 Long: 1.11-1.26 Medium: 0.99-1.10 Short: <0.99
Fiber strength	Fiber strength as measured on the High Volume Instrument is the force (in grams) required to break a bundle of fibers one - tex unit in mass.	Very strong: > 31 Strong: 29-30 Average: 26-28 Intermediate: 24-25 Weak: < 23
Length uniformity (unif)	Length uniformity index is the ratio between the "mean length" of the fibers and the "upper half mean length".	Very high: >85 High: 83-85 Intermediate: 80-82 Low: 77-79 Very low: <77

Source: "Classification of Upland Cotton" Adapted from Cotton Incorporated website (https://www.cottoninc.com/wp-content/uploads/2017/02/Classification-of-Cotton.pdf)

TABLE 3. BACKGROUND INFORMATION

County	Producer cooperators	County Extension Agent	Irri/dry	Planting date	Harvest date	Rows x spacing	Seeding rate	Plot size
RACE trial - Mixed technologies								
Collingsworth	Rex Henard	Kenny Patterson	Irrigated	5/15/2024	10/31/2024	6 by 40"	40000	0.92
Wilbarger	Donald Shoppa	Langdon Reagan	Dryland	6/17/2024	1/30/2025	8 by 40"	24100	0.0008
Phytogen Innovation Trial - Enlist technology only								
Fisher	Joe Posey	Nick Dickson	Irrigated	5/9/2024	10/23/2024	6 by 30"	40000	1.3
BASF APT Trial - AXTP								
Haskell	Jason Key	-	Dryland	6/24/2024	12/28/2024	6 by 40"	24000	0.67
Wilbarger	Donald Shoppa	Langdon Reagan	Dryland	6/17/2024	1/30/2025	8 by 40"	24100	0.0008

Table 4. Mean stand count for 2024 cotton trials in Texas Rolling Plains.

	RACE trial		Phytogen Innovation trial	BASF APT trial	
	Irrigated	Dryland	Irrigated	Dryland	
	Collingsworth	Wilbarger	Fisher	Wilbarger	Haskell
Planting dates	5/15	6/17	5/9	6/17	6/24
Stand count (DAP)	28	24	15	24	23
DP 1820 B3XF	2.3	-	-	-	-
DP 2317 B3TXF	2.7	-	-	-	-
DP 2335 B3XF	2.6	2.2	-	-	-
FM 868AXTP	2.7	1.9	-	1.9	2.2
FM823AXTP	2.8	1.8	-	2.1	2.4
NG 4409 B3XF	2.2	-	-	-	-
NG5430 B3XF	2.5	-	-	-	-
PHY 332 W3FE	2.7	2.2	1.7	-	-
PHY 411 W3FE	2.8	-	1.6	-	-
PHY 415 W3FE	3.2	2.2	1.6	-	-
ST6000AXTP	2.7	1.9	-	1.8	2.3
DP 2123 B3XF	-	2.2	-	-	-
DP 2239 B3XF	-	2.3	-	-	-
PHY 480 W3FE	-	2.2	-	-	-
PHY 443 W3FE	-	-	1.6	-	-
PHY390W3FE	-	-	1.6	-	-
PHY400W3FE	-	-	1.6	-	-
Experimental 1	-	-	-	1.6	2.1
Experimental 2	-	-	-	1.8	2.0
Experimental 3	-	-	-	1.3	2.2
Experimental 4	-	-	-	1.8	2.4
Experimental 5	-	-	-	1.4	2.2
Experimental 6	-	-	-	2.2	2.7
Experimental 7	-	-	-	1.6	2.5
Experimental 8	-	-	-	1.6	2.4
Mean	**2.6**	**2.1**	**1.6**	**1.7**	**2.3**

2024 Texas Rolling Plains Cotton Trials

RACE trial agronomic information

County	Collingsworth			
Cooperator	Rex Henard			
Technologies	Mixed			
Irrigation	Irrigated			
Plant	5/15/2024			
Harvest	10/31/2024			
GDD	169	days		
Population	40000			
Rows and width	6 by 40"			
Plot size	0.92	ac		

Precipitation

Month	Precip. (in)
April	1.37
May	2.12
June	3.22
July	0.87
August	0.55
September	0.94
October	0.00
Total	9.07

Variety	Lint (Lbs/ac)	Gin turnout (%)	Micronaire	Fiber Length (inch)	Strength (g/tex)	Unif	Loan Value (cents/lb)	Lint Value ($/acre)
ST6000AXTP	1638	**43.6**	4.1	1.220	32.8	83.4	57.3	**939**
DP 2335 B3XF	1496	42.4	4.0	1.193	31.5	81.8	**57.4**	859
NG 4409 B3XF	1465	40.9	**4.5**	1.197	29.9	83.8	56.9	833
DP 1820 B3XF	1455	40.9	4.3	**1.233**	**33.3**	82.9	57.0	829
PHY 415 W3FE	1456	40.0	3.9	1.197	33.0	83.5	56.9	829
PHY 411 W3FE	1458	40.6	4.1	1.130	32.4	82.9	56.8	828
FM 868AXTP	1429	40.4	4.2	1.200	32.4	84.0	57.3	820
FM823AXTP	1385	39.4	4.3	1.203	33.1	**83.9**	56.9	789
DP 2317 B3TXF	1363	39.7	4.0	1.207	29.8	82.8	57.2	780
NG5430 B3XF	1337	40.6	4.3	1.200	31.8	83.1	57.2	764
PHY 332 W3FE	1268	39.0	4.0	1.213	32.4	83.7	56.0	708
Mean	**1432**	**40.7**	**4.2**	**1.20**	**32.0**	**83.3**	**57.0**	**816**
CV %	**9.9**	**1.3**	**8.2**	**1.6**	**3.5**	**0.8**	**1.8**	**9.8**
P>F	**NS**	**<.0001**	**NS**	**0.0008**	**0.0074**	**0.0252**	**NS**	**NS**
STD DEV	**96**	**1.3**	**0.2**	**0.03**	**1.2**	**0.7**	**0.4**	**58**

Notes:

Highlighted values are significantly same as the highest value at P<0.1

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RACE trial agronomic information

County	Wilbarger			
Cooperator	Donald Shoppa			
Technologies	Mixed			
Irrigation	Dryland			
Plant	6/17/2024			
Harvest	1/30/2025			
GDD	227	days		
Population	24100			
Rows and width	8 by 40"			
Plot size	0.0008	ac		

Precipitation

Month	Precip. (in)
April	1.71
May	5.36
June	1.67
July	1.29
August	0.04
September	1.21
October	0
Total	11.28

The trial was hand harvested.

Variety	Lint (Lbs/ac)	Gin turnout (%)	Micronaire	Fiber Length (inch)	Strength (g/tex)	Unif	Loan Value (cents/lb)	Lint Value ($/acre)
FM823AXTP	388.0	39.3	3.8	1.17	32.8	81.0	54.0	209.5
DP2335B3XF	369.7	41.7	4.2	1.10	28.7	79.1	52.4	193.7
ST6000AXTP	350.7	43.3	4.5	1.17	33.0	81.0	54.0	189.4
FM868AXTP	337.0	41.7	4.5	1.19	32.8	82.8	54.0	181.9
DP2239B3XF	308.0	41.3	4.4	1.17	29.0	79.8	53.5	164.7
PHY415W3FE	301.7	41.7	4.4	1.19	32.8	82.0	54.0	162.8
PHY332W3FE	297.7	38.3	4.5	1.18	31.6	82.1	53.9	160.5
PHY480W3FE	293.7	42.0	4.5	1.16	32.0	83.3	54.0	158.6
DP2123B3XF	213.3	37.3	4.3	1.18	31.0	81.0	53.9	114.8
Mean	**318**	**40.7**	**4.3**	**1.2**	**31.5**	**81.4**	**53.7**	**170.7**
CV %	**14.5**	**6.2**	**6.2**	**2.2**	**4.4**	**0.6**	**0.4**	**14.5**
P>F	**0.0093**	**NS**	**NS**	**0.00116**	**0.0050**	**<.0001**	**<.0001**	**0.0107**
STD DEV	**52**	**2.0**	**0.2**	**0.03**	**1.7**	**1.3**	**0.5**	**27.3**

Notes:

Highlighted values are significantly same as the highest value at P<0.1

2024 Texas Rolling Plains Cotton Trials

Phytogen Innovation trial agronomic information

County	Fisher			
Cooperator	Joe Posey			
Technologies	Enlist			
Irrigation	Irrigated			
Plant	5/9/2024			
Harvest	10/23/2024			
GDD	167	days		
Population	40000			
Rows and width	6 by 30"			
Plot size	1.3	ac		

Precipitation

Month	Precip. (in)
April	2.89
May	2.93
June	1.64
July	0.28
August	1.59
September	6.80
October	0.00
Total	16.13

Variety	Lint (Lbs/ac)	Gin turnout (%)	Micronaire	Fiber Length (inch)	Strength (g/tex)	Unif	Loan Value ($/lb)	Lint Value* ($/acre)
PX1125B234-04W3FE	**1721**	33.4	5.1	1.09	29.9	81.3	0.53	**$907**
PHY411W3FE	1660	34.7	4.5	1.07	30.7	80.4	0.54	$895
PHY415W3FE	1575	**35.2**	4.2	**1.14**	**31.5**	**81.9**	**0.54**	$857
PX1124B236-04W3FE	1536	32.2	**4.0**	1.10	30.7	80.6	0.52	$800
PHY475W3FE	1559	32.6	4.1	1.05	29.8	79.5	0.51	$795
PHY480W3FE	1496	33.1	3.9	1.09	29.4	80.7	0.52	$784
PHY332W3FE	1449	33.5	4.2	1.12	29.2	80.5	0.52	$757
PHY400W3FE	1428	34.8	4.1	1.08	28.3	79.1	0.52	$743
Mean	**1553**	**33.7**	**4.3**	**1.09**	**29.9**	**80.5**	**0.53**	**817**
CV %	-	-	-	-	-	-	-	-
P>F	-	-	-	-	-	-	-	-
STD DEV	-	-	-	-	-	-	-	-

Notes:

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APT trial agronomic information

County	Wilbarger			
Cooperator	Donald Shoppa			
Technologies	AXTP			
Irrigation	Dryland			
Plant	6/17/2024			
Harvest	1/30/2025			
GDD	227	days		
Population	24100			
Rows and width	8 by 40"			
Plot size	0.0008	ac		
	The trial was hand harvested.			

Precipitation

Month	Precip. (in)
April	1.71
May	5.36
June	1.67
July	1.29
August	0.04
September	1.21
October	0
Total	11.28

Variety	Lint (Lbs/ac)	Gin turnout (%)	Micronaire	Fiber Length (inch)	Strength (g/tex)	Unif	Loan Value ($/lb)	Lint Value* ($/acre)
BX2514AXTP	**372**	43	4.7	1.1	27.2	79.3	52.8	**196.2**
FM823AXTP	354	37	4.6	1.1	30.8	80.6	53.7	190.3
BX2556AXTP	349	40	4.4	1.1	30.3	78.9	52.9	184.4
BX2511AXTP	317	41	4.3	1.1	29.0	79.8	53.1	168.3
BX2555AXTP	305	44	4.3	1.2	31.8	79.6	53.4	163.1
BX2533AXTP	279	38	4.6	1.1	28.1	79.8	52.8	147.6
BX2531AXTP	274	41	4.4	1.2	30.6	80.3	53.7	147.0
BX2515AXTP	268	42	5.1	1.2	29.9	80.6	51.1	136.8
ST6000AXTP	256	41	4.2	1.1	28.8	79.5	52.9	135.6
BX2512AXTP	259	41	5.3	1.1	29.1	80.4	48.6	125.9
FM868AXTP	225	40	5.1	1.2	34.9	82.3	51.6	116.0
Mean	**296**	**41**	**4.6**	**1.1**	**30.0**	**80.1**	**52.4**	**155.5**
CV %	-	-	-	-	-	-	-	-
P>F	-	-	-	-	-	-	-	-
STD DEV	-	-	-	-	-	-	-	-

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AGRILIFE EXTENSION

APT trial agronomic information

County	Haskell			
Cooperator	Jason Key			
Technologies	AXTP			
Irrigation	Dryland			
Plant	6/24/2024			
Harvest	12/28/2024			
GDD	187	days		
Population	24000			
Rows	6	rows	40"	width
Plot size	0.7	ac		

Precipitation

Month	Precip. (in)
April	7.55
May	6.22
June	4.02
July	1.35
August	1.58
September	4.3
October	0
Total	25.02

Variety	Lint (Lbs/ac)	Gin turnout (%)	Micronaire	Fiber Length (inch)	Strength (g/tex)	Unif	Loan Value ($/lb)	Lint Value* ($/acre)
FM 823AXTP	436	27.5%	4.6	1.12	32.4	81.0	53.6	$234
ST 5855AXTP	478	28.8%	5.0	1.21	35.5	83.8	46.1	$220
ST 4833AXTP	399	27.7%	4.3	1.14	30.7	81.2	51.3	$204
ST 6000AXTP	377	28.5%	4.4	1.14	36.4	82.1	51.6	$194
FM 757AXTP	391	31.8%	5.3	1.11	32.3	80.3	46.8	$183
FM 814AXTP	371	30.2%	5.3	1.12	32.0	81.6	46.2	$172
ST 5931AXTP	325	24.9%	3.4	1.17	35.5	80.5	46.8	$152
FM 868AXTP	275	23.1%	2.8	1.08	33.0	79.2	41.9	$115
Mean	**381**	**0**	**4.4**	**1.13**	**33.5**	**81.2**	**48.0**	**184**
CV %	-	-	-	-	-	-	-	-
P>F	-	-	-	-	-	-	-	-
STD DEV	-	-	-	-	-	-	-	-

Notes:

The trial was not replicated.

http://cotton.tamu.edu/

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Department of Soil and Crop Sciences

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