

2021 TEXAS HIGH PLAINS REPLICATED AGRONOMIC COTTON EVALUATION (RACE) TRIAL REPORT

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2021 Southern High Plains
Replicated Agronomic Cotton Evaluation (RACE) Trial Results



Replicated Agronomic Cotton Evaluation (RACE) Trial in Borden County. Cooperator: Chad Beaver

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Season Highlights

The 2021 season had its own set of challenges, as we have come to expect. From weather delays to chemical availability and labor shortages, it will be yet another one to remember. We often struggle early in the season due to the lack of appropriate moisture for planting, but this year May and June brought 5+ inches of rainfall in some cases.

While surely there are not many that complained about the moisture, it certainly created a delay in planting operations across much of the region as farmers were forced to plant around the weather. This delay generated concerns about crop maturity and fiber quality as a significant number of acres went in the ground much closer to the insurance deadlines than we are accustomed to seeing. Despite the planting delays, however, crop establishment was better than average and abandonment low due to ample moisture in many cases. Our attention then turned to ensuring inputs were timely and that we managed the crop for earliness. On that same note, the cooler weather through the summer months did not really help the feeling that we were behind (maturity wise) most of the season. Thankfully, however, mother nature was kind and allowed us a long fall with no early freezes to speak of, which allowed much of the crop to mature as needed. In fact, as of January 7th, 2022, the USDA-AMS Lubbock Classing Office reports close to 2.4 million bales classed for the season. Average staple is 36.1 with 3.7 micronaire, 30.6 strength, and 80.2% uniformity. The Lamesa Classing office reports approximately 1.1 million bales classed as of the same date. Average staple is 35.6 with 3.9 micronaire, 30.4 strength, and 79.7% uniformity at Lamesa.

According to the USDA – Agricultural Marketing Service (AMS) farmers planted a total of 11.2 million acres of cotton in 2021 across the Nation. The average yield per harvested acre was 850 lb/A for all cotton acres. The World Agricultural Supply and Demand Estimates (WASDE) January 2022 report indicates an estimated production of 17.6 million bales due to a 660,000-bale decline attributed to the Texas crop. The same report indicates the upland season-average price received by U.S. farmers is projected at 90 cents per pound, compared to 68 cents in 2020. Prices for the 2021 crop look good, and overall input prices will be the one to watch in 2022.

LIST of TABLES

Table 1. Agronomic characteristics of varieties included in the 2021 Replicated Agronomic Cotton Evaluation (RACE) trials in the Southern High Plains of Texas.	5
Table 2. Location, cooperator, and remarks for the 2021 Southern High Plains Replicated Agronomic Cotton Evaluation (RACE) trials.	6
Table 3. Weather summary and in-season precipitation for 2021 RACE trial locations. Data provided by the National Weather Service for the closest available weather station for reference.	7
Table 4. Final plant population by variety for Replicated Agronomic Cotton Evaluation (RACE) Trial locations in 2021. Values expressed as a percentage of the seeding rate.	8
Table 5. Borden County dryland RACE trial. Seeding rate (26,000 seed/A). Planted: 06/09/21. Harvested: 10/29/21. Cooperator Chad Beaver. Ranked by highest to lowest lint yield values.	9
Table 6. Floyd County dryland RACE trial. Seeding rate (26,000 seed/A). Planted: 05/29/21. Harvested: 11/15/21. Cooperator Austin Campbell. Ranked by highest to lowest lint yield values.	10
Table 7. Dawson County dryland RACE trial. Seeding rate (30,000 seed/A). Planted: 06/14/21. Harvested: 12/20/21. Cooperator Will Cozart. Ranked by highest to lowest lint yield values.	11
Table 8. Lubbock County dryland RACE trial. Seeding rate (39,000 seed/A). Planted: 05/21/21. Harvested: 10/13/21. Cooperator Texas A&M AgriLife. Ranked by highest to lowest lint yield values.	12
Table 9. Lamb County dryland RACE trial. Seeding rate (~26,000 seed/A), see table 2. Planted: 05/27/21. Harvested: 11/20/21. Cooperator Billy Tiller. Ranked by highest to lowest lint yield values.	13
Table 10. Lynn County dryland RACE trial. Seeding rate (23,500 seed/A). Planted: 06/12/21. Harvested: 12/11/21. Cooperator Whitney Williams. Ranked by highest to lowest lint yield values.	14

Table 11. Martin County dryland RACE trial. Seeding rate (24,000 seed/A). Planted: 06/05/21. Harvested: 11/22/21. Cooperator Justin Cave. Ranked by highest to lowest lint yield values.15

Table 12. Lubbock County dryland RACE trial. Seeding rate (39,000 seed/A). Planted: 05/21/21. Harvested: 10/26/21. Cooperator Texas A&M AgriLife. Ranked by highest to lowest lint yield values.....16

Table 13. Hale County irrigated RACE trial. Center pivot. Seeding rate (47,000 seed/A). Planted: 05/20/21. Harvested: 11/16/21. Cooperator Texas A&M AgriLife. Ranked by highest to lowest lint yield values.....17

Table 14. Yoakum County irrigated RACE trial. Center pivot. Seeding rate (38,000 seed/A). Planted: 05/20/21. Harvested: 11/12/21. Cooperator Shannon Patton. Ranked by highest to lowest lint yield values.....18



2021 VARIETY LINEUP CHARACTERISTICS

Table 1. Agronomic characteristics of varieties included in the 2021 Replicated Agronomic Cotton Evaluation (RACE) trials in the Southern High Plains of Texas.

Variety	Trial**	Maturity	Herbicide Package	Leaf Type	Plant Height	MIC	Verticillium	Bacterial Blight	Storm Tolerance***
Armor 9442 XF	I	Early-med	Glufos, Glyphos, and Dicamba	Semi-Smooth	Medium-tall	4	Mod. Resistance	Susceptible	4
DeltaPine 1820 B2XF	I	Early-med	Glufos, Glyphos, and Dicamba	Semi-Smooth	Medium-tall	3.5	Mod. Susceptibility	Resistant	4
NexGen 3930 B3XF	I + D	Early-med	Glufos, Glyphos, and Dicamba	Semi-Smooth	Medium-tall	4.1 - 4.5	Good	Resistant	6.8
Stoneville 4993 B3XF	I	Early-med	Glufos, Glyphos, and Dicamba	Semi-Smooth	Medium	4.6	Fair	Resistant	7
FiberMax 2398 GLTP	I	Medium	Glufos, Glyphos	Semi-Smooth	Medium-tall	4.6	Very Good	Resistant	5
NexGen 4050 XF	I + D	Medium	Glufos, Glyphos, and Dicamba	Semi-Smooth	Medium	4.4 - 4.8	Good	Resistant	6.8
NexGen 4098 B3XF	I + D	Medium	Glufos, Glyphos, and Dicamba	Semi-Smooth	Medium-tall	4.3 - 4.5	Good	Resistant	8.8
NexGen 4190 B3XF	I + D	Medium	Glufos, Glyphos, and Dicamba	Smooth	Medium-tall	4.3 - 4.6	Fair	Susceptible	5.8
Armor 9512 B3XF	I	Medium	Glufos, Glyphos, and Dicamba	Semi-Smooth	Medium	4	Mod. Resistance	Resistant	5
DeltaPine 1646 B2XF	I + D	Med-full	Glufos, Glyphos, and Dicamba	Smooth	Medium-tall	4.1	Mod. Susceptibility	Mod. Resistant	5
DeltaPine 2044 B3XF	D	Med-full	Glufos, Glyphos, and Dicamba	Semi-Smooth	Medium	3.6	Mod. Susceptibility	Resistant	4.5
Stoneville 5600 B2XF	D	Med-full	Glufos, Glyphos, and Dicamba	Semi-Smooth	Tall	4.8	Good	Susceptible	5
Stoneville 5707 B2XF	D	Med-full	Glufos, Glyphos, and Dicamba	Semi-Smooth	Tall	4.6	Fair	Resistant	5

Glufosinate (Glufos), Glyphosate (Glyphos).

* Information available on official company websites. Please refer to each individually for additional variety information.

** Variety present in dryland (D) or irrigated (I) trial(s).

*** Please refer to individual company website for scale.

2021 TRIAL LOCATION DETAILS

Table 2. Location, cooperators, and remarks for the 2021 Southern High Plains Replicated Agronomic Cotton Evaluation (RACE) trials.

	Location	Irrigation	Cooperator	Planting Date	Harvest Date	Seeding Rate (seeds/a)	Remarks
1	Borden	-	Chad Beaver	6/9/21	10/29/21	26,000	
2	Dawson	-	Will Cozart	6/14/21	12/20/21	30,000	Late Planting
3	Dawson	-	AG-CARES	5/25/21	-	35,000	Hailed out 6/26/2021
4	Floyd	-	Austin Campbell	5/29/21	11/15/21	26,000	
						DP 2044 B3XF - 25,726	
						DP 1646 B2XF - 26,686	
						NG 3930 B3XF - 27,039	
						NG 4050 XF - 27,196	
5	Lamb	-	Billy Tiller	5/27/21	11/20/21	NG 4098 B3XF - 26,569	Skip Row, 2 in 1 out. Seeding rate adjusted by producer based on seed size. Wind/sand damage.
						NG 4190 B3XF - 26,862	
						ST 5600 B2XF - 26,364	
						ST 5707 B2XF - 26,364	
6	Lubbock	-	Glover-AREC	5/21/21	10/13/21	39,000	Hail damage
7	Lubbock	-	Lubbock-AREC	5/21/21	10/26/21	39,000	Hail damage
8	Lynn	-	Whitney Williams	6/12/21	12/11/21	23,500	
9	Martin	-	Justin Cave	6/5/21	11/22/21	24,000	
10	Dawson	I	AG-CARES	5/25/21	-	45,000	Hailed out 6/26/2021
11	Hale	I	Halfway-AREC	5/20/21	11/16/21	47,000	Hail damage
12	Yoakum	I	Shannon Patton	5/20/21	11/12/21	38,000	

HEAT UNIT ACCUMULATION AND IN-SEASON PRECIPITATION

Table 3. Weather summary and in-season precipitation for 2021 RACE trial locations. Data provided by the National Weather Service for the closest available weather station for reference.

Gail (June 6th - October 29th)					Lamesa (June 14th - December 20th)					Lubbock (May 21st - October 13th)					Tahoka (June 12th - December 12th)										
	Precip. (in.)		Temp (°F)		DD60	# of 100 °F days		Precip. (in.)		Temp (°F)		DD60	# of 100 °F days		Precip. (in.)		Temp (°F)		DD60	# of 100 °F days					
	Min	Max	Min	Max				Min	Max	Min	Max				Min	Max									
May	-	-	-	-	-	-	May	-	-	-	-	-	-	May	3.9	52	86	123	-	May	-	-	-	-	-
June	8.7	62	104	267	2	June	2.5	64	102	332	1	June	2.5	55	108	583	5	June	2.3	62	106	383	2		
July	2.5	64	97	568	-	July	1.8	61	97	585	-	July	3.0	62	96	595	-	July	3.4	61	98	550	-		
Aug.	1.5	61	99	517	-	Aug.	2.1	59	100	579	1	Aug.	3.6	57	100	604	1	Aug.	2.9	58	99	570	-		
Sept.	0.5	60	101	541	1	Sept.	0.0	46	100	456	1	Sept.	0.6	50	99	476	-	Sept.	0.4	51	99	483	-		
Oct.	0.4	39	97	257	-	Oct.	0.0	36	99	141	-	Oct.	0.6	42	96	116	-	Oct.	0.5	41	93	204	-		
Nov.	-	-	-	-	-	Nov.	-	28	86	-	-							Nov.	-	28	86	-	-		
Dec.	-	-	-	-	-	Dec.	-	23	82	-	2							Dec.	-	27	82	-	-		
	13.5		2150		3		6.4		2091		5		14.3		2496		6		9.5		2189		2		

Floydada (May 29th - November 15th)					Littlefield (May 27th - November 20th)					Big Spring (June 5th - November 22nd)					Plainview (May 20th - November 16th)								
	Precip. (in.)		Temp (°F)		DD60	# of 100 °F days		Precip. (in.)		Temp (°F)		DD60	# of 100 °F days		Precip. (in.)		Temp (°F)		DD60	# of 100 °F days			
	Min	Max	Min	Max				Min	Max	Min	Max				Min	Max							
May	0.6	59	76	20	-	May	2.1	53	91	56	-	May	-	-	-	-	-	May	2.0	53	88	118	-
June	3.9	53	104	487	2	June	3.0	55	103	511	5	June	5.2	60	102	559	4	June	3.8	52	102	489	2
July	2.1	62	96	538	-	July	2.4	59	96	513	-	July	2.3	64	99	619	-	July	2.4	63	96	523	-
Aug.	4.2	63	98	554	-	Aug.	2.0	55	98	517	-	Aug.	2.3	61	100	647	2	Aug.	4.3	58	98	522	-
Sept.	0.1	47	96	450	-	Sept.	0.8	43	96	381	-	Sept.	2.1	49	101	543	1	Sept.	0.5	45	98	418	-
Oct.	0.7	40	94	104	-	Oct.	1.0	32	90	68	-	Oct.	0.0	38	98	173	-	Oct.	0.6	35	90	77	-
Nov.	-	36	81	-	-	Nov.	-	85	23	-	-	Nov.	-	28	85	-	-	Nov.	-	27	84	-	-
	11.6		2153		2		11.2		2045		5		12.0		2540		7		13.7		2145		2

Plains (May 20th - November 12th)						
	Precip. (in.)		Temp (°F)		DD60	# of 100 °F days
	Min	Max	Min	Max		
May	1.1	52	93	144	-	
June	2.6	51	105	532	6	
July	1.3	60	97	520	-	
Aug.	2.9	62	100	536	1	
Sept.	0.9	47	96	429	-	
Oct.	1.7	35	93	138	-	
Nov.	-	26	82	-	-	
	10.5		2298		7	

PLANT POPULATION BY VARIETY

Table 4. Final plant population by variety for Replicated Agronomic Cotton Evaluation (RACE) Trial locations in 2021. Values expressed as a percentage of the seeding rate.

VARIETY	HALE	YOAKUM	BORDEN	DAWSON	FLOYD	GLOVER	LAMB	LYNN	MARTIN	LUBBOCK
ARMOR 9442 XF	44%	88%	X	X	X	X	X	X	X	X
ARMOR 9512 B3XF	66%	94%	X	X	X	X	X	X	X	X
DP 1646 B2XF	45%	93%	96%	79%	65%	28%	59%	88%	86%	35%
DP 1820 B2XF	35%	81%	X	X	X	X	X	X	X	X
FM 2398 GLTP	46%	82%	X	X	X	X	X	X	X	X
NG 3930 B3XF	48%	92%	87%	80%	68%	38%	62%	90%	86%	42%
NG 4050 XF	58%	92%	81%	78%	69%	30%	42%	80%	65%	34%
NG 4098 B3XF	35%	90%	92%	98%	67%	32%	48%	87%	75%	36%
NG 4190 B3XF	55%	86%	89%	65%	63%	21%	33%	78%	66%	28%
ST 4993 B3XF	41%	90%	X	X	X	X	X	X	X	X
DP 2044 B3XF	X	X	93%	91%	70%	37%	60%	93%	83%	37%
ST 5600 B2XF	X	X	86%	88%	68%	26%	49%	88%	74%	36%
ST 5707 B2XF	X	X	90%	92%	72%	26%	53%	88%	80%	39%
Location Average	47%	89%	89%	84%	68%	30%	51%	86%	77%	36%
DAP**	63	29	31	51	52	30	55	39	14	30

*Lubbock (Research Station), Hale (Halfway), Glover Farm (Lubbock), and Lamb locations were affected by weather (hail/wind).

**Days after planting when data was collected (DAP)

Variety not present (X)

Table 5. Borden County dryland RACE trial. Seeding rate (26,000 seed/A). Planted: 06/09/21. Harvested: 10/29/21. Cooperator Chad Beaver. Ranked by highest to lowest lint yield values.

BORDEN	DRY								
Variety	Lint Yield lb/a	Turnout %	MIC	Length in.	Uniformity %	Strength g/tex	Seed Yield lb/a	Loan Value* cents/lb	Lint Value \$/a
DP 1646 B2XF	587	45	4.6	1.10	81.3	28.4	829	56	328
NG 4098 B3XF	574	46	4.9	1.10	81.4	29.9	811	54	312
DP 2044 B3XF	573	45	4.3	1.14	80.6	29.0	808	57	326
ST 5600 B2XF	571	46	4.8	1.10	81.4	29.3	807	54	308
NG 3930 B3XF	555	45	4.4	1.13	80.0	29.3	784	56	313
NG 4050 XF	554	46	4.8	1.10	81.5	29.4	782	55	305
NG 4190 B3XF	538	46	4.8	1.08	80.6	27.4	759	53	289
ST 5707 B2XF	511	42	4.8	1.09	82.5	30.3	722	56	284
Mean	558	45	4.7	1.11	81.1	29.1	788	55	308
STDEV	41	2	0.3	0.03	1.3	1.2	57	2	26
CV, %	7	4	7	3	2	4	7	4	8
p-value	0.4030	0.0139	0.2131	0.2507	0.4447	0.0853	0.4056	0.3592	0.3810
LSD	n.s.	2	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.

Loan value calculated using the Cotton Incorporated (2021) Upland Loan Calculator Program (\$52.0 cents/lb base for 41 color, 4 leaf, 34 staple)

STDEV (standard deviation), CV (coefficient of variation. Target is 15% or less), LSD (least significant difference, p <0.05), n.s. (no statistical significance).

*Samples ginned with no lint cleaner. Color and leaf were standardized to 21 color, 2 leaf.

Table 6. Floyd County dryland RACE trial. Seeding rate (26,000 seed/A). Planted: 05/29/21. Harvested: 11/15/21. Cooperator Austin Campbell. Ranked by highest to lowest lint yield values.

FLOYD	DRY								
Variety	Lint Yield lb/a	Turnout %	MIC	Length in.	Uniformity %	Strength g/tex	Seed Yield lb/a	Loan Value cents/lb	Lint Value \$/a
NG 4050 XF	792	41	4.2	1.15	80.2	29.0	1118	55	431
ST 5600 B2XF	780	42	4.7	1.10	82.4	29.7	1101	55	426
ST 5707 B2XF	770	39	4.0	1.11	81.9	31.3	1087	55	423
NG 4190 B3XF	754	42	4.0	1.11	80.8	26.2	1065	54	405
DP 1646 B2XF	749	39	4.0	1.15	80.2	27.5	1057	55	411
NG 3930 B3XF	716	36	3.7	1.13	81.2	27.4	1012	53	384
NG 4098 B3XF	712	36	4.3	1.14	79.9	29.1	1005	54	383
DP 2044 B3XF	645	35	3.3	1.14	79.0	28.8	911	46	298
Mean	740	39	4.0	1.13	80.7	28.6	1044	53	395
STDEV	74	3	0.5	0.03	1.4	1.8	105	4	54
CV, %	10	9	12	3	2	6	10	7	14
p-value	0.2812	0.0363	0.0035	0.4824	0.0371	0.0041	0.2821	0.0349	0.0237
LSD	n.s.	5	0.6	n.s.	1.1	2.1	n.s.	5	71

Loan value calculated using the Cotton Incorporated (2021) Upland Loan Calculator Program (\$52.0 cents/lb base for 41 color, 4 leaf, 34 staple)

STDEV (standard deviation), CV (coefficient of variation. Target is 15% or less), LSD (least significant difference, p <0.05), n.s. (no statistical significance).

Table 7. Dawson County dryland RACE trial. Seeding rate (30,000 seed/A). Planted: 06/14/21. Harvested: 12/20/21. Cooperator Will Cozart. Ranked by highest to lowest lint yield values.

DAWSON	DRY								
Variety	Lint Yield lb/a	Turnout %	MIC	Length in.	Uniformity %	Strength g/tex	Seed Yield lb/a	Loan Value cents/lb	Lint Value \$/a
ST 5600 B2XF	441	33	4.0	1.12	80.6	30.5	623	55	243
NG 4098 B3XF	438	32	3.4	1.16	80.0	32.0	619	50	219
NG 3930 B3XF	430	34	4.1	1.12	81.1	28.3	607	54	233
NG 4050 XF	403	36	3.4	1.13	81.0	29.9	569	50	202
ST 5707 B2XF	403	30	3.4	1.12	81.2	31.7	569	52	207
DP 1646 B2XF	397	34	3.8	1.16	80.7	28.6	560	55	218
NG 4190 B3XF	390	35	3.5	1.11	80.8	27.0	551	51	197
DP 2044 B3XF	384	32	3.2	1.14	79.1	30.4	542	49	188
Mean	411	33	3.6	1.13	80.6	29.8	580	52	213
STDEV	40	3	0.4	0.02	0.9	1.9	57	4	28
CV, %	10	8	11	2	1	6	10	7	13
p-value	0.5346	0.1008	0.0169	0.0330	0.0755	0.0009	0.5336	0.2232	0.2520
LSD	n.s.	n.s.	0.5	0.03	n.s.	2.0	n.s.	n.s.	n.s.

Loan value calculated using the Cotton Incorporated (2021) Upland Loan Calculator Program (\$52.0 cents/lb base for 41 color, 4 leaf, 34 staple)

STDEV (standard deviation), CV (coefficient of variation. Target is 15% or less), LSD (least significant difference, p <0.05), n.s. (no statistical significance).

Table 8. Lubbock County dryland RACE trial. Seeding rate (39,000 seed/A). Planted: 05/21/21. Harvested: 10/13/21. Cooperator Texas A&M AgriLife. Ranked by highest to lowest lint yield values.

GLOVER	DRY								
Variety	Lint Yield lb/a	Turnout %	MIC	Length in.	Uniformity %	Strength g/tex	Seed Yield lb/a	Loan Value* cents/lb	Lint Value \$/a
DP 1646 B2XF	532	47	3.5	1.11	80.0	29.5	751	54	292
NG 4098 B3XF	493	43	3.3	1.13	80.0	31.1	697	51	248
ST 5600 B2XF	492	44	3.5	1.06	80.0	29.0	695	50	245
NG 3930 B3XF	476	42	2.9	1.08	80.5	28.5	672	46	218
DP 2044 B3XF	455	42	2.9	1.10	77.8	28.9	642	45	207
NG 4050 XF	419	45	3.2	1.06	80.0	29.5	591	47	196
ST 5707 B2XF	413	41	3.4	1.09	80.7	30.0	583	52	214
NG 4190 B3XF	402	44	3.3	1.09	80.3	28.7	567	49	198
Mean	459	44	3.3	1.09	79.9	29.3	648	49	226
STDEV	106	2	0.3	0.03	1.3	1.4	149	4	64
CV, %	23	5	9	3	2	5	23	8	28
p-value	0.8489	0.0023	0.0050	0.3202	0.1139	0.6068	0.8487	0.0213	0.6725
LSD	n.s.	2	0.3	n.s.	n.s.	n.s.	n.s.	5	n.s.

Loan value calculated using the Cotton Incorporated (2021) Upland Loan Calculator Program (\$52.0 cents/lb base for 41 color, 4 leaf, 34 staple)

STDEV (standard deviation), CV (coefficient of variation. Target is 15% or less), LSD (least significant difference, p <0.05), n.s. (no statistical significance).

*Samples ginned with no lint cleaner. Color and leaf were standardized to 21 color, 2 leaf.

Table 9. Lamb County dryland RACE trial. Seeding rate (~26,000 seed/A), see table 2. Planted: 05/27/21. Harvested: 11/20/21. Cooperator Billy Tiller. Ranked by highest to lowest lint yield values.

LAMB Variety	DRY								
	Lint Yield lb/a	Turnout %	MIC	Length in.	Uniformity %	Strength g/tex	Seed Yield lb/a	Loan Value cents/lb	Lint Value \$/a
DP 1646 B2XF	885	41	3.8	1.19	82.1	30.5	1249	57	500
DP 2044 B3XF	858	38	3.2	1.20	80.3	32.6	1212	49	421
NG 3930 B3XF	829	39	4.3	1.15	82.1	28.6	1170	55	459
ST 5707 B2XF	743	37	3.7	1.14	81.9	31.3	1049	54	402
ST 5600 B2XF	710	38	4.2	1.14	81.8	30.4	1003	55	389
NG 4190 B3XF	696	39	3.9	1.16	81.3	29.5	983	54	377
NG 4098 B3XF	678	36	3.3	1.18	81.2	32.4	957	48	327
NG 4050 XF	662	39	4.3	1.16	81.6	30.1	935	53	353
Mean	758	38	3.8	1.16	81.5	30.7	1070	53	403
STDEV	99	2	0.6	0.03	0.8	1.7	140	3	62
CV, %	13	6	14	3	1	6	13	6	15
p-value	0.0026	0.2092	0.0673	0.0079	0.0628	0.0300	0.0026	0.0019	0.0010
LSD	113	n.s.	n.s.	0.04	n.s.	2.3	159	4	66

Loan value calculated using the Cotton Incorporated (2021) Upland Loan Calculator Program (\$52.0 cents/lb base for 41 color, 4 leaf, 34 staple)

STDEV (standard deviation), CV (coefficient of variation. Target is 15% or less), LSD (least significant difference, p <0.05), n.s. (no statistical significance).

Table 10. Lynn County dryland RACE trial. Seeding rate (23,500 seed/A). Planted: 06/12/21. Harvested: 12/11/21. Cooperator Whitney Williams. Ranked by highest to lowest lint yield values.

LYNN Variety	DRY								
	Lint Yield lb/a	Turnout %	MIC	Length in.	Uniformity %	Strength g/tex	Seed Yield lb/a	Loan Value cents/lb	Lint Value \$/a
NG 4050 XF	539	48	5.1	1.05	78.8	27.0	761	48	256
NG 4098 B3XF	491	41	4.3	1.11	79.1	29.9	693	54	263
NG 4190 B3XF	474	45	4.7	1.08	80.4	25.9	669	51	240
DP 1646 B2XF	441	45	4.6	1.10	78.8	26.8	623	55	240
NG 3930 B3XF	441	41	4.2	1.06	80.4	26.0	622	50	221
ST 5707 B2XF	422	42	5.1	1.05	80.1	29.0	596	49	209
DP 2044 B3XF	416	41	3.8	1.12	77.6	28.5	587	53	219
ST 5600 B2XF	406	44	5.1	1.06	80.5	27.6	573	50	202
Mean	454	44	4.6	1.08	79.5	27.6	641	51	231
STDEV	64	3	0.5	0.04	1.2	1.6	90	3	33
CV, %	14	7	11	3	1	6	14	6	14
p-value	0.1330	0.0053	<.0001	0.0832	0.0014	0.0013	0.1350	0.0623	0.2089
LSD	n.s.	4	0.4	n.s.	1.3	1.7	n.s.	n.s.	n.s.

Loan value calculated using the Cotton Incorporated (2021) Upland Loan Calculator Program (\$52.0 cents/lb base for 41 color, 4 leaf, 34 staple)

STDEV (standard deviation), CV (coefficient of variation. Target is 15% or less), LSD (least significant difference, p <0.05), n.s. (no statistical significance).

Table 11. Martin County dryland RACE trial. Seeding rate (24,000 seed/A). Planted: 06/05/21. Harvested: 11/22/21. Cooperator Justin Cave. Ranked by highest to lowest lint yield values.

MARTIN	DRY								
Variety	Lint Yield lb/a	Turnout %	MIC	Length in.	Uniformity %	Strength g/tex	Seed Yield lb/a	Loan Value cents/lb	Lint Value \$/a
NG 3930 B3XF	746	40	4.6	1.14	82.1	27.8	1053	55	408
NG 4098 B3XF	741	40	4.5	1.16	79.7	30.4	1046	53	391
NG 4190 B3XF	722	44	4.5	1.13	81.1	28.1	1019	55	393
NG 4050 XF	692	44	4.7	1.14	80.5	28.8	977	54	370
ST 5600 B2XF	650	44	5.0	1.12	80.9	28.7	917	54	351
DP 2044 B3XF	641	42	4.1	1.19	79.1	30.5	906	52	333
DP 1646 B2XF	617	39	4.2	1.17	79.3	30.4	872	55	338
ST 5707 B2XF	606	41	5.0	1.10	81.1	30.0	856	53	318
Mean	677	42	4.6	1.14	80.5	29.3	956	54	363
STDEV	110	2	0.4	0.03	1.1	1.4	155	2	60
CV, %	16	6	9	2	1	5	16	3	17
p-value	0.6748	0.0051	0.0210	0.0001	0.0007	0.0331	0.6743	0.3078	0.5749
LSD	n.s.	3	0.6	0.02	1.2	1.9	n.s.	n.s.	n.s.

Loan value calculated using the Cotton Incorporated (2021) Upland Loan Calculator Program (\$52.0 cents/lb base for 41 color, 4 leaf, 34 staple)

STDEV (standard deviation), CV (coefficient of variation. Target is 15% or less), LSD (least significant difference, p <0.05), n.s. (no statistical significance).

Table 12. Lubbock County dryland RACE trial. Seeding rate (39,000 seed/A). Planted: 05/21/21. Harvested: 10/26/21. Cooperator Texas A&M AgriLife. Ranked by highest to lowest lint yield values.

LUBBOCK	DRY								
Variety	Lint Yield lb/a	Turnout %	MIC	Length in.	Uniformity %	Strength g/tex	Seed Yield lb/a	Loan Value* cents/lb	Lint Value \$/a
ST 5600 B2XF	480	46	4.0	1.08	81.4	30.7	678	55	264
NG 4098 B3XF	458	44	3.5	1.13	80.3	31.2	647	55	251
NG 3930 B3XF	425	43	3.2	1.10	80.0	28.1	599	47	201
ST 5707 B2XF	411	41	3.6	1.10	81.6	31.1	580	56	230
NG 4190 B3XF	392	46	3.8	1.11	80.5	28.3	554	56	220
DP 1646 B2XF	389	47	3.8	1.12	80.5	29.2	550	57	221
DP 2044 B3XF	387	44	3.2	1.14	80.0	30.6	547	50	194
NG 4050 XF	367	47	3.7	1.08	80.4	29.1	519	55	201
Mean	414	45	3.6	1.11	80.6	29.8	584	54	223
STDEV	53	2	0.3	0.03	0.9	1.6	74	4	31
CV, %	13	5	9	2	1	5	13	7	14
p-value	0.0892	<0.0001	0.0001	0.0023	0.3317	0.0183	0.0900	0.0009	0.0230
LSD	n.s.	1	0.3	0.03	n.s.	2.0	n.s.	4	41

Loan value calculated using the Cotton Incorporated (2021) Upland Loan Calculator Program (\$52.0 cents/lb base for 41 color, 4 leaf, 34 staple)

STDEV (standard deviation), CV (coefficient of variation. Target is 15% or less), LSD (least significant difference, p <0.05), n.s. (no statistical significance).

*Samples ginned with no lint cleaner. Color and leaf were standardized to 21 color, 2 leaf.

Table 13. Hale County irrigated RACE trial. Center pivot. Seeding rate (47,000 seed/A). Planted: 05/20/21. Harvested: 11/16/21. Cooperator Texas A&M AgriLife. Ranked by highest to lowest lint yield values.

HALE Variety	IRR								
	Lint Yield lb/a	Turnout %	MIC	Length in.	Uniformity %	Strength g/tex	Seed Yield lb/a	Loan Value cents/lb	Lint Value \$/a
ARMOR 9512 B3XF	968	41	4.0	1.08	80.8	29.6	1367	52	514
ARMOR 9442 XF	891	39	4.1	1.15	81.3	28.5	1259	55	492
NG 3930 B3XF	890	42	3.9	1.10	79.5	28.1	1256	52	460
NG 4190 B3XF	867	39	4.6	1.16	80.6	30.2	1224	50	429
NG 4050 XF	823	38	3.4	1.12	81.5	28.3	1162	48	389
FM 2398 GLTP	798	41	4.3	1.07	81.0	27.7	1126	54	431
DP 1820 B2XF	680	42	4.3	1.16	82.0	31.1	961	56	383
ST 4993 B3XF	676	40	4.7	1.09	82.7	29.9	954	55	372
DP 1646 B2XF	652	39	4.1	1.16	80.6	29.0	921	57	372
NG 4098 B3XF	593	41	3.9	1.10	81.5	27.4	838	55	326
Mean	784	40	4.1	1.12	81.2	29.0	1107	53	417
STDEV	241	3	0.5	0.04	1.1	1.4	340	3	126
CV, %	31	8	11	3	1	5	31	7	30
p-value	0.6626	0.8141	0.0114	<.0001	0.0230	0.0022	0.6633	0.0077	0.8039
LSD	n.s.	n.s.	0.6	0.03	1.6	1.5	n.s.	4	n.s.

Loan value calculated using the Cotton Incorporated (2021) Upland Loan Calculator Program (\$52.0 cents/lb base for 41 color, 4 leaf, 34 staple)

STDEV (standard deviation), CV (coefficient of variation. Target is 15% or less), LSD (least significant difference, p <0.05), n.s. (no statistical significance).

Table 14. Yoakum County irrigated RACE trial. Center pivot. Seeding rate (38,000 seed/A). Planted: 05/20/21. Harvested: 11/12/21. Cooperator Shannon Patton. Ranked by highest to lowest lint yield values.

YOAKUM Variety	IRR		MIC	Length in.	Uniformity %	Strength g/tex	Seed Yield lb/a	Loan Value* cents/lb	Lint Value \$/a
	Lint Yield lb/a	Turnout %							
NG 4098 B3XF	688	45	4.8	1.14	80.6	31.4	971	57	394
NG 3930 B3XF	595	43	3.7	1.11	81.6	29.8	840	54	320
NG 4050 XF	591	47	4.6	1.07	80.0	29.0	834	54	322
NG 4190 B3XF	586	46	4.5	1.09	80.4	26.4	827	54	315
DP 1646 B2XF	569	47	4.5	1.10	79.6	27.5	804	56	316
ARMOR 9442 XF	560	43	4.7	1.09	81.0	28.7	791	54	303
ARMOR 9512 B3XF	531	46	4.4	1.09	80.3	29.5	750	55	291
DP 1820 B2XF	514	46	4.6	1.10	80.5	29.4	726	56	287
ST 4993 B3XF	493	47	4.7	1.09	83.4	32.0	696	55	270
FM 2398 GLTP**	315	40	4.3	1.04	80.3	26.4	444	51	159
Mean	544	45	4.5	1.09	80.8	29.0	768	55	298
STDEV	127.1	2.9	0.5	0.04	1.3	2.1	179	2	75
CV, %	23	6	10	3	2	7	23	4	25
p-value	0.0351	0.0306	0.2061	0.0622	0.0122	0.0005	0.0352	0.0389	0.0197
LSD	177	4	1.7	n.s.	1.7	2.3	294	3	100

Loan value calculated using the Cotton Incorporated (2021) Upland Loan Calculator Program (\$52.0 cents/lb base for 41 color, 4 leaf, 34 staple)

STDEV (standard deviation), CV (coefficient of variation. Target is 15% or less), LSD (least significant difference, p <0.05), n.s. (no statistical significance).

*Samples ginned with no lint cleaner. Color and leaf were standardized to 21 color, 2 leaf.

**FM 2398 GLTP was affected by heavier weed pressure, as well as lack of stand uniformity due to planter issue.

AVERAGE LINT YIELD (LB/A) BY VARIETY FOR DRYLAND AND IRRIGATED TRIALS

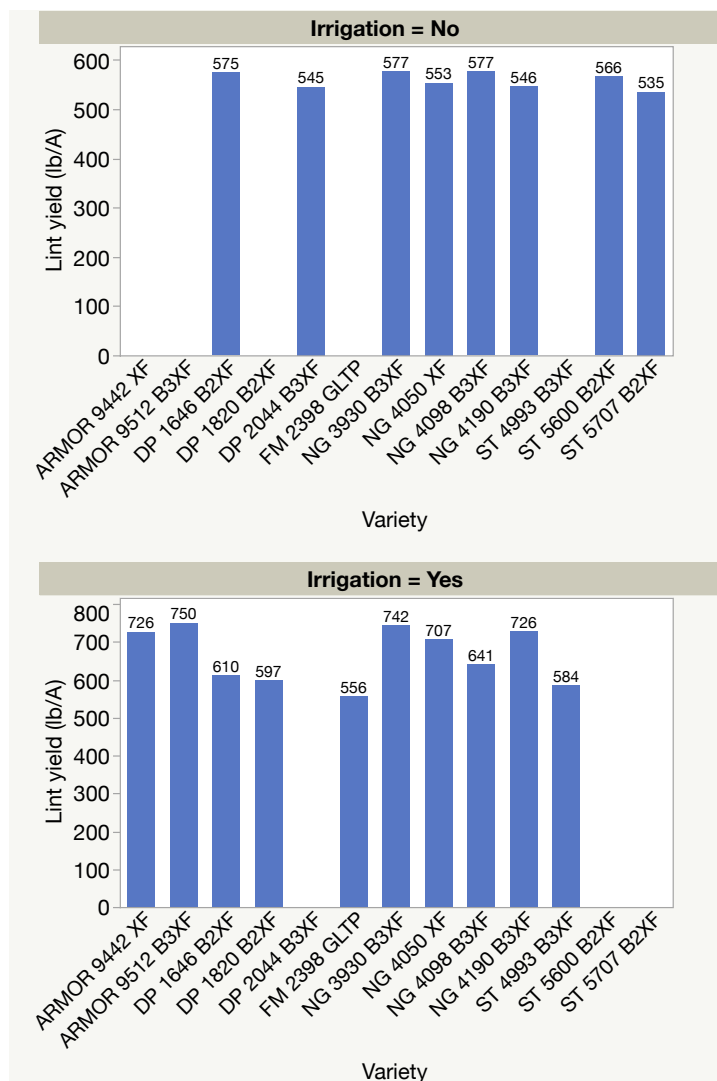


Figure 1. Mean Lint Yield (lb/A) by variety. Top graph (dryland, $n = 8$). Bottom graph (irrigated $n = 2$). Note: Locations affected by weather are also included (see table 2 for details).



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**2021 Texas Panhandle
Replicated Agronomic Cotton Evaluation (RACE)**



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**2021 Texas Panhandle
Replicated Agronomic Cotton Evaluation (RACE)**

List of Figures	Page
1. Distribution of growing degree days (GDD60) accumulated from planting through October.	6
2. Six-year average growing degree days (GDD60) accumulated at Texas A&M AgriLife Panhandle RACE trial locations by production month and total seasonal accumulation.....	7
3. Cumulative rainfall from planting at 2021 Panhandle RACE trial locations	8
4. Comparison of varieties in irrigated trials by highest to lowest 4-location average..	9

List of Tables

1. 2021 Agronomic information by location including irrigation, precipitation, and harvest date.....	4
2. Characteristics of varieties evaluated in 2021 Panhandle RACE trials.....	5
3. Four-week post planting stand counts by location.....	10
4. Four-week post planting stand counts as a fraction of the planted population	11
5. 2021 Lint yield, quality, and value results for the irrigated Texas A&M AgriLife RACE trial in Hansford County; Greg Slough Cooperator	12
6. 2021 Lint yield, quality, and loan value results for the irrigated Texas A&M AgriLife RACE trial in Hutchinson County line; Craig McCloy cooperador.....	13
7. 2021 Lint yield, quality, and loan value results for the irrigated Texas A&M AgriLife RACE trial located at the North Plains Groundwater Conservation District's Water Conservation Center; Stan Spain cooperador.....	14
8. 2021 Lint yield, quality, and loan value results for the dryland Texas A&M AgriLife RACE trial located in Moore County, Justin Garrett cooperador.....	15
9. 2021 Lint yield, quality, and loan value results for the irrigated Texas A&M AgriLife RACE trial in Sherman County; Tommy Cartrite cooperador	16
10. 2021 Lint yield, quality, and loan value results for the dryland Texas A&M AgriLife RACE trial in Swisher County; Jeremy Reed cooperador	17
11. 2021 Lint yield, quality, and loan value results for the irrigated Texas A&M AgriLife RACE trial in Swisher County; Jeremy Reed cooperador	18

2021 Texas Panhandle Highlights

The objective of the Texas Panhandle replicated agronomic cotton evaluations (RACE Trials) is to provide producers regional, on-farm comparisons of top cotton varieties marketed for Panhandle cotton production systems. The 2021 Texas Panhandle RACE trials were planted at eight locations under varying crop rotations, row spacings and populations (Table 1). Early to medium varieties were planted at each location as a seed company entry or cooperating producer entry (Table 2).

Regionally, below-average May temperatures and wet conditions either delayed cotton planting or resulted in slow early-season development and limited growing degree day (GDD) accumulation in May 2021 (Fig. 1), but the average 2021 cumulative GDD accumulation across all locations (2120) was comparable to the recent six-year average (2172) (Fig. 2). In-season precipitation averaged 12.4 inches with the greatest rainfall being recorded at the Swisher County trial (14.7 inches), and the lowest rainfall recorded at the Moore County dryland trial (9.6 inches). Most in-season precipitation was received in May and June except for the Moore County irrigated trial at North Plains Groundwater Conservation District's Water Conservation Center where approximately 5 inches of rain was received in August during the bloom and early boll fill period (Fig. 3). Hot-dry conditions in August increased crop water demands and stress at other locations, and to prevent boll shed, many northern irrigated producers continued irrigation well past cut-out.

Although early season climate conditions were wet and cool, seed zone soil temperatures at all locations exceeded 60°F at planting (Table 1). Because cotton germination and emergence can occur 2-weeks or later after planting in Panhandle conditions for most varieties, stand count data is collected 30-days after planting so that stand counts are more representative of final plant stands. The 2021 final plant stands were similar to stands observed in previous years. The average stand across all trials was less than 70% (Tables 3 and 4). The lowest stand as a percent of the planted seed was observed at the Bailey County trial, and the field was terminated in August using the boll-count method. The Swisher County dryland is an "established" dryland designed by Blayne Reed. The two Swisher trials were located on one center pivot with low well capacity. To improve irrigation water efficiency, in-season irrigation was concentrated on half the pivot (the irrigated trial), but to ensure more uniform stands under dryland conditions, the dryland half received a one-inch irrigation after planting to ensure crop establishment. The highest yielding irrigated variety in 2021 was FM2398GLTP at the Sherman County trial (1,334 lbs. lint/acre). However, averaging lint across the four irrigated locations, FM1621GL (1,169 lbs. lint/acre) yielded slightly higher although not statistically different than the second and third ranking varieties, and FM2398GLTP (1,131 lbs. lint/acre) and DP 1820 B3XF (1,082 lbs. lint/acre), respectively (Fig. 4).

Table 1. 2021 Agronomic information by location.

County	Bailey	Hansford	Hutchinson	Moore	Moore	Sherman	Swisher	Swisher
Location (Nearest Town)	Muleshoe	Gruver	Pringle	Etter	Dumas	Sunray	Kress	Kress
Cooperator	Cody Black	Greg Slough	Craig McCloy	NPGCD	Justin Garrett	Tommy Cartrite	Jeremy Reed	Jeremy Reed
County Agent(s)	Villalba	Slough	Slough	Coker & Fischbacher	Coker & Fischbacher	Coker & Fischbacher	Reed	Reed
Irrigation	Dryland	Irrigated	Irrigated	Irrigated	Dryland	Irrigated	Dryland	Irrigated
In-Season Precipitation (in.)	----	11.9	13.1	10.9	9.6	12.2	14.7	14.7
Herbicide Technologies	XF	Gly, Gluf, XF	Gly, Gluf, XF	Gly, Gluf, XF	XF	Gly, Gluf, XF, Enlist	Gly, Gluf, XF, Enlist	Gly, Gluf, XF, Enlist
Planting Date	5/28/2021	5/17/2021	5/7/2021	5/25/2021	5/24/2021	5/13/2021	5/24/2021	5/24/2021
Planting Pop (Seeds/ac)	40,000	50,000	80,000	75,000	40,000	65,000	32,000	52,000
Soil Temp. at Planting (°F)	76	66	62	66	66	59	67	67
Harvest Date	Failed	10/29/2021	10/29/2021	11/9/2021	11/1/2021	11/12/2021	11/11/2021	11/11/2021
Row Spacing (in.)	40	30	20	30	30	30	40	40
Varieties	----	Arm 9442XF	Arm 9442XF	Arm 9442XF	----	Arm 9442XF	----	Arm 9442XF
	----	DP1820B3XF	DP1820B3XF	DP1820B3XF	----	DP1820B3XF	----	DP1820B3XF
	DP1822XF	----	----	----	DP1822XF	----	DP1822XF	----
	DP1909B3XF	----	----	----	DP1909B3XF	----	DP1909B3XF	----
	----	DP2012B3XF	DP2012B3XF	DP2012B3XF	----	DP2012B3XF	----	DP2012B3XF
	----	FM1621GL	FM1621GL	----	----	FM1621GL	FM1621GL	FM1621GL
	----	FM1730GLTP	FM1730GLTP	----	----	FM1730GLTP	----	FM1730GLTP
	----	----	----	----	----	----	FM1888GL	----
	----	----	----	----	----	----	FM2202GL	----
	----	FM2398GLTP	FM2398GLTP	----	----	FM2398GLTP	----	FM2398GLTP
	ST4480B3XF	----	----	----	ST4480B3XF	----	ST4480B3XF	----
	----	ST4993B3XF	ST4993B3XF	ST4993B3XF	----	ST4993B3XF	----	ST4993B3XF
	NG3195B3XF	NG3195B3XF	NG3195B3XF	NG3195B3XF	NG3195B3XF	NG3195B3XF	NG3195B3XF	NG3195B3XF
	----	NG3729B2XF	NG3729B2XF	NG3729B2XF	----	NG3729B2XF	----	NG3729B2XF
	NG3930B3XF	NG3930B3XF	NG3930B3XF	NG3930B3XF	NG3930B3XF	NG3930B3XF	NG3930B3XF	NG3930B3XF
	----	NG3956B3XF	NG3956B3XF	NG3956B3XF	----	NG3956B3XF	----	NG3956B3XF
	NG4050XF	----	----	----	NG4050XF	----	NG4050XF	----
	NG4098B3XF	----	----	----	NG4098B3XF	----	NG4098B3XF	----
‡Farmer Entries	NG3500XF	DG 3317B3XF	FM1320GL	----	----	Phy205W3FE	----	----
	----	----	----	----	----	Phy210W3FE	----	----
	----	----	----	----	----	----	Phy300W3FE	----
	----	----	----	----	----	Phy332W3FE	Phy332W3FE	Phy332W3FE
	----	----	----	----	----	----	Phy350W3FE	Phy350W3FE

Table 2. Characteristics of varieties evaluated in 2021 Panhandle RACE trials. All variety characteristics are obtained from company variety descriptions. Varieties represented listed are entered by seed companies.

Variety	Maturity	Herbicide Package	Leaf Type	Storm Tolerance*	Plant Height	Mic	Vert.**	Bacterial Blight**
Armor 9442XF (21XW2XF)	Early-Med	Glyphos., Glufos., and Dicamba	Semi-Smooth	6	Med-Tall	4.1	Good	Susceptible
Deltapine 1820 B3XF	Early-Med	Glyphos., Glufos., and Dicamba	Semi-Smooth	3.5	Med-Tall	4.1	Moderate	Resistant
Deltapine 1822 XF	Early-Med	Glyphos., Glufos., and Dicamba	Semi-Smooth	3	Med-Tall	4.3	Moderate	Resistant
Deltapine 1909 B3XF	Very Early	Glyphos., Glufos., and Dicamba	Smooth	5	Med-Tall	3.6	Mod. Susceptible	Resistant
Deltapine 2012 B3XF	Early	Glyphos., Glufos., and Dicamba	Smooth	4	Med-Tall	4.3	Mod. Tolerance	Resistant
FiberMax 1621 GL	Early	Glyphosate and Glufosinate	Semi-Hairy	6	Medium	4.2	Fair	Resistant
FiberMax 1730 GLTP	Early-Med	Glyphosate and Glufosinate	Semi-Smooth	5	Short	4.2	Good	Resistant
FiberMax 1888 GL	Early-Med	Glyphosate and Glufosinate	Semi-Smooth	6	Medium	3.6	Fair	Resistant
FiberMax 2202 GL	Med	Glyphosate and Glufosinate	Semi-Smooth	5	Medium	4.6	Outstanding	Resistant
FiberMax 2398 GLTP	Med	Glyphosate and Glufosinate	Semi-Smooth	5	Med-Tall	4.4	Very Good	Resistant
Stoneville 4480 B3XF	Early-Med	Glyphos., Glufos., and Dicamba	Semi-Smooth	6	Medium	4.3	Fair	Resistant
Stoneville 4993 B3XF	Early-Med	Glyphos., Glufos., and Dicamba	Semi-Smooth	6	Medium	4.6	Fair	Fair
NexGen 3195 B3XF	Early	Glyphos., Glufos., and Dicamba	Semi-Smooth	9	Medium	4.0-4.2	Very Good	Very Tolerant
NexGen 3729 B2XF	Early-Med	Glyphos., Glufos., and Dicamba	Semi-Smooth	3	Tall	4.4-4.6	Fair	Fair
NexGen 3930 B3XF	Early-Med	Glyphos., Glufos., and Dicamba	Semi-Smooth	7	Med-Tall	4.1-4.5	Very Good	Very Tolerant
NexGen 3956 B3XF	Early-Med	Glyphos., Glufos., and Dicamba	Semi-Smooth	8	Med-Tall	4.3-4.7	Very Good	Very Tolerant
NexGen 4050 XF	Med	Glyphos., Glufos., and Dicamba	Semi-Smooth	3	Medium	4.4-4.8	Fair	Fair
NexGen 4098 B3XF	Med	Glyphos., Glufos., and Dicamba	Semi-Smooth	8	Med-Tall	4.3-4.6	Good	Good

*Storm Tolerance (1-9): 1=Loose Boll, 9=Tight Boll from Company Variety Descriptions.

All variety descriptions, rankings and characteristics provided by each seed company

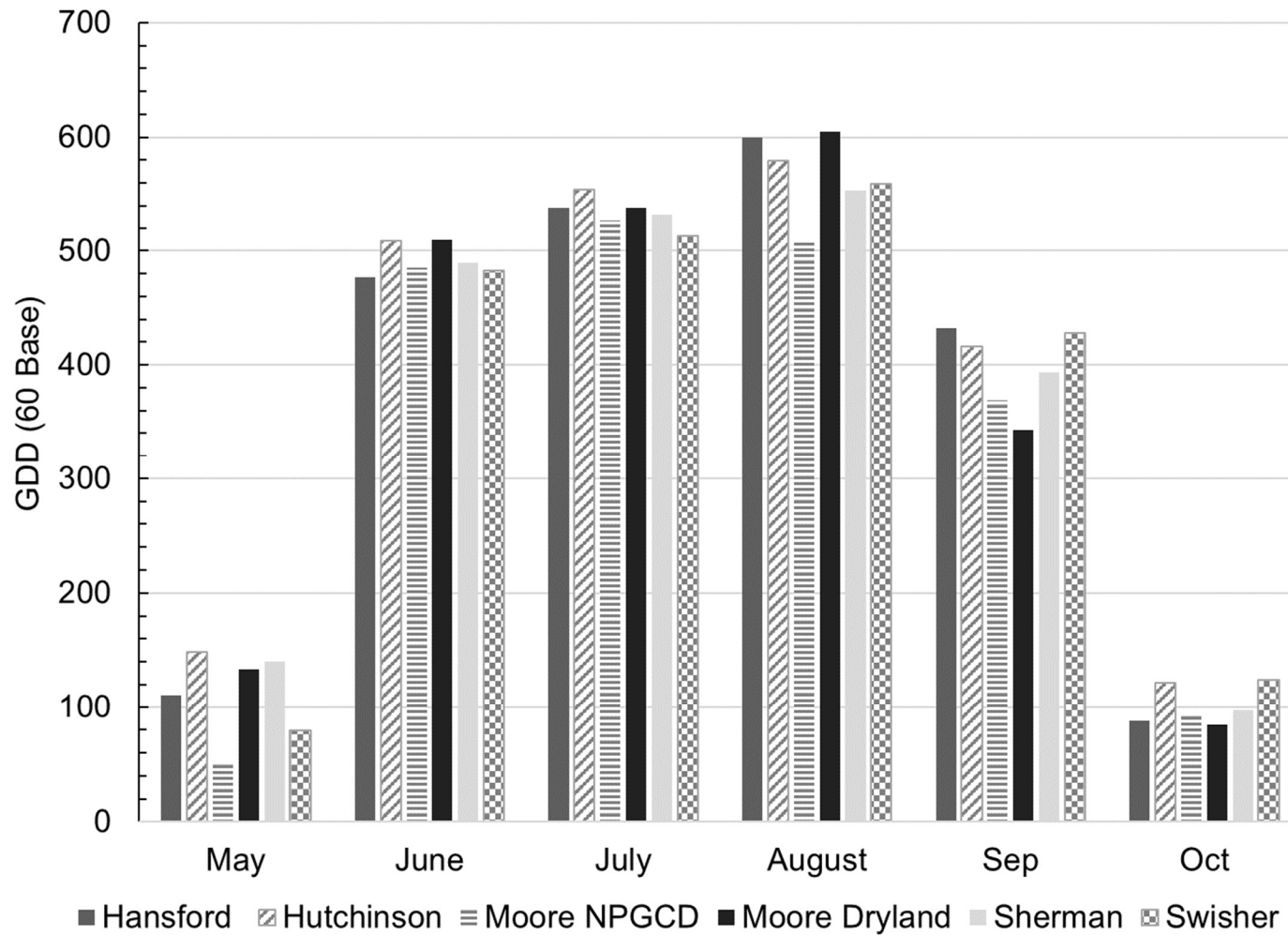


Figure 1. Distribution of growing degree days (GDD60) accumulated from planting through October. Negligible GDDs were accumulated in November. Temperature data at the Hutchinson County trial, Moore County irrigated and dryland trials, and Sherman County trial was collected from a Texas A&M AgriLife weather station located at the field site. Temperature data for the Hansford County trial was collected from a National Weather Service observation site in Gruver (<https://www.weather.gov/wrh/Climate?wfo=ama>), and temperature data for the Swisher County trial was collected from a NWS observation site at Tulia (<https://www.weather.gov/wrh/Climate?wfo=lub>).

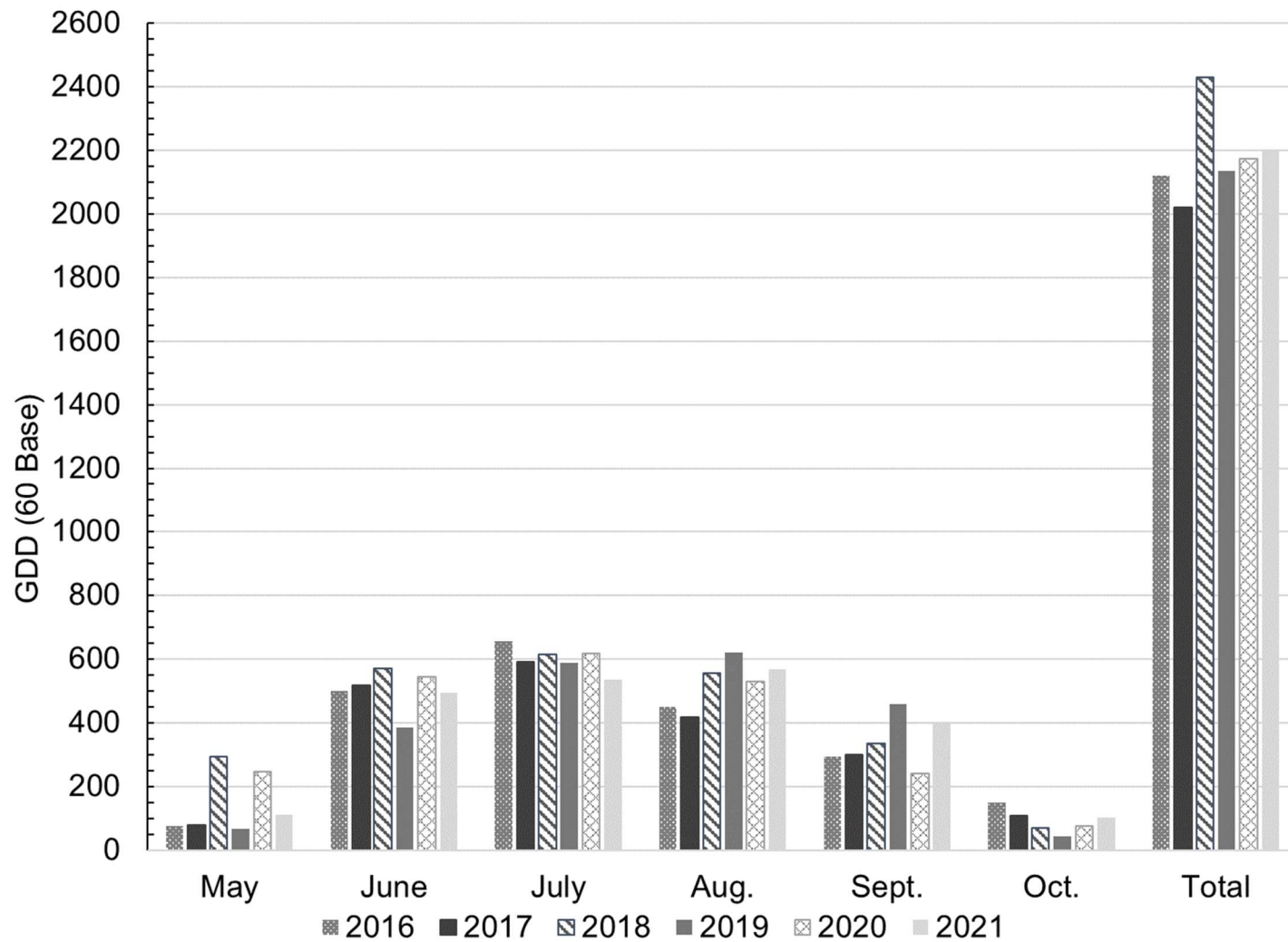


Figure 2. Six-year average growing degree days (GDD60) accumulated at Texas A&M AgriLife Panhandle RACE trial locations by production month and total seasonal accumulation.

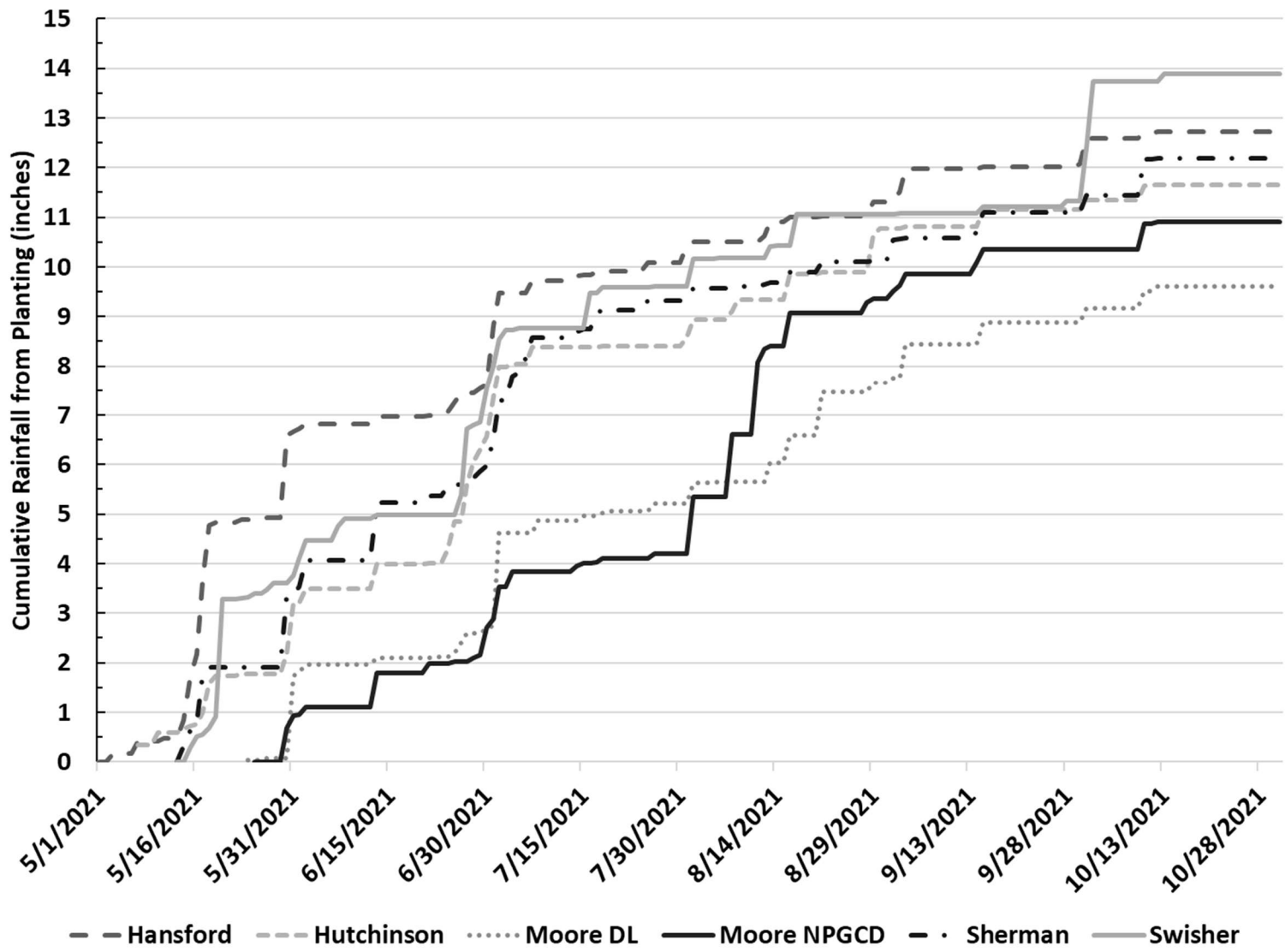


Figure 3. Cumulative rainfall from planting at 2021 Panhandle RACE trial locations.

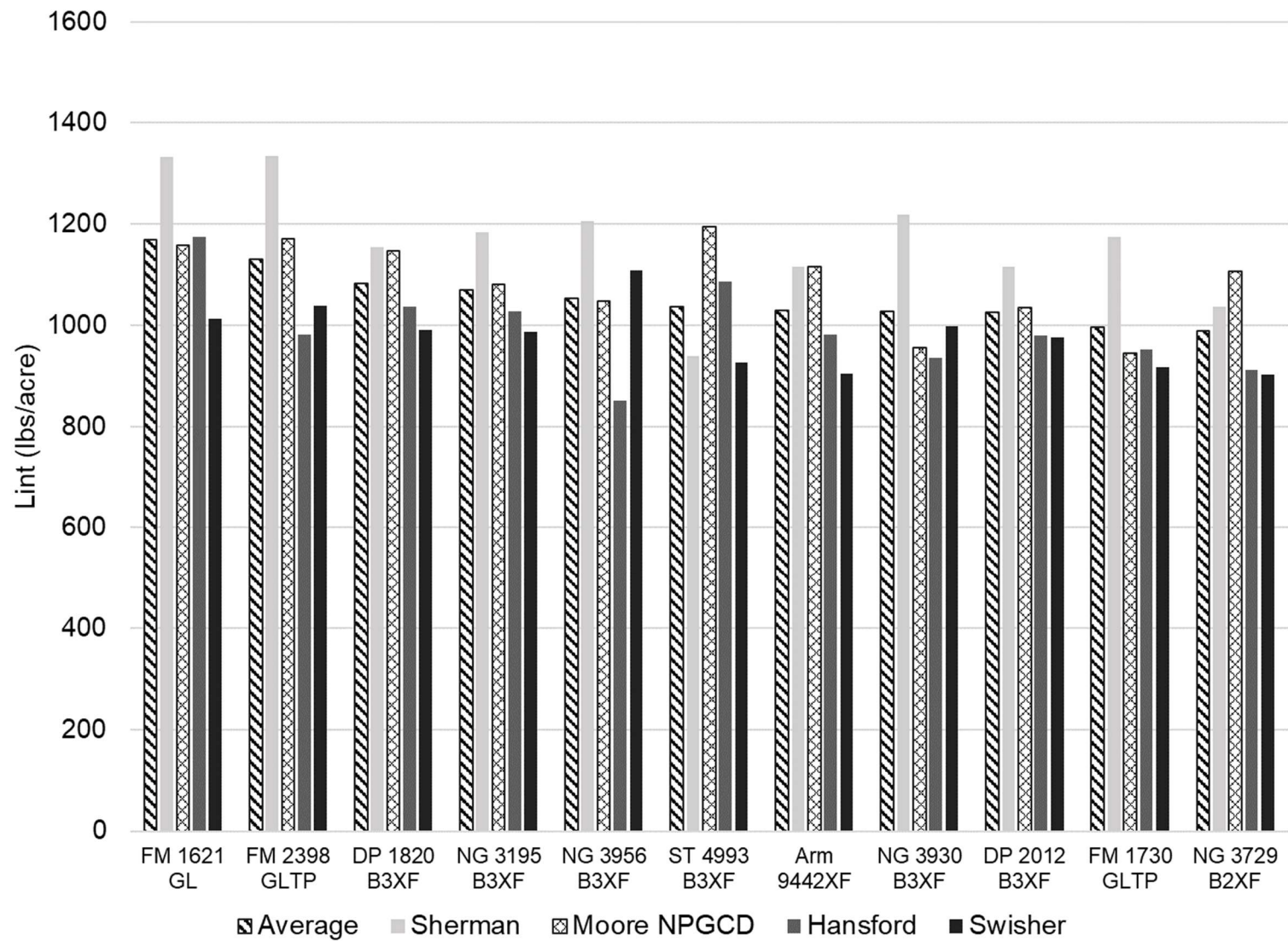


Figure 4. Comparison of varieties in irrigated trials by highest to lowest 4-location average. The Hutchinson County data is not included for comparison because only one-rep is reported.

Table 3. Four-week post planting stand counts by location.

	Bailey DL	Hansford	Hutch - inson	Moore - NPGCD	Moore DL	Sherman	Swisher DL	Swisher Irrig.
Planted Seeds/Acre	40,000	50,000	80,000	75,000	40,000	65,000	32,000	52,000
	---- Measured plants/acre----							
Armor 9442XF	----*	24,248	64,469	45,085	----	36,010	----	41,273
Deltapine 1820 B3XF	----	28,750	64,687	45,956	----	41,672	----	45,194
Deltapine 1822 XF	24,176	----	----	----	33,686	----	27,770	----
Deltapine 1909 B3XF	22,542	----	----	----	29,766	----	28,967	----
Deltapine 2012 B3XF	----	32,380	57,064	53,797	----	39,785	----	46,718
Deltapine Exp.	----	----	----	----	----	38,430	----	----
DynaGro 3317 B3XF	----	----	----	----	----	----	----	----
FiberMax 1320 GL†	----	----	61,420	----	----	----	----	----
FiberMax 1621 GL	----	34,412	62,509	48,497	31,218	41,237	26,463	46,500
FiberMax 1730 GLTP	----	28,604	51,836	48,352	----	39,349	26,136	42,471
FiberMax 1888 GL	----	----	----	----	----	----	28,205	----
FiberMax 2202 GL	----	----	----	----	----	----	27,770	----
FiberMax 2398 GLTP	----	32,234	63,380	52,562	----	36,590	----	45,738
NexGen 3195 B3XF	21,018	27,007	55,539	42,907	28,604	34,412	27,770	40,946
NexGen 3500 XF†	19,602	----	----	----	----	----	----	----
NexGen 3729 B2XF	----	27,733	51,836	50,747	----	33,251	----	37,734
NexGen 3930 B3XF	21,236	34,993	58,153	50,747	33,686	41,237	26,898	37,734
NexGen 3956 B3XF	----	31,363	59,024	50,747	----	40,656	----	46,936
NexGen 4050 XF	21,562	----	----	----	29,766	----	----	----
NexGen 4098 B3XF	20,582	----	----	----	30,347	----	26,136	----
Stoneville 4480 B3XF	24,394	----	----	----	31,654	----	29,076	----
Stoneville 4993 B3XF	----	31,218	50,312	45,085	----	35,574	----	----
Phy 205 W3FE†	----	----	----	----	----	42,108	----	----
Phy 210 W3FE†	----	----	----	----	----	37,026	----	----
Phy 300 W3FE†	----	----	----	----	----	39,785	----	42,798
Phy 332 W3FE†	----	----	----	----	----	----	29,621	49,168
Phy 350 W3FE†	----	----	----	----	----	----	28,967	50,312
Trial Average	21,889	30,268	58,352	48,589	31,091	38,475	27,519	43,095
CV, %	10.4	9.0	9.2	8.6	12.4	7.9	5.6	8.0
p-value	0.1969	0.0022	0.0613	0.1257	0.7499	<0.0001	0.1323	0.0185
LSD	NS	4,602	NS	NS	NS	5,184	NS	6,015

*Varieties not planted at the respective location.

†Farmer entry

Bailey trial failed due to August 2021 drought stress, but stand counts were measured 30 days post planting. All locations represent stand counts from all 3 replications. Measurements were made at Hutchinson County on June 7. A hail storm on June 24 impacted the south-half of the pivot (reps 2 and 3).

Table 4. Four-week post planting stand counts as a fraction of the planted population.

Planted Seeds/Acre	Bailey DL	Hansford	Hutch - inson	Moore - NPGCD	Moore DL	Sherman	Swisher DL	Swisher Irrig.
	40,000	50,000	80,000	75,000	40,000	65,000	32,000	52,000
	---- % of planted seed as final stand							
Armor 9442XF	----	0.48	0.81	0.60	----	0.55	----	0.79
Deltapine 1820 B3XF	----	0.57	0.81	0.61	----	0.64	----	0.87
Deltapine 1822 XF	0.60	----	----	----	0.84	----	0.87	----
Deltapine 1909 B3XF	0.56	----	----	----	0.74	----	0.91	----
Deltapine 2012 B3XF	----	0.65	0.71	0.72	----	0.61	----	0.90
Deltapine Exp.	----	----	----	----	----	0.61	----	----
DynaGro 3317 B3XF	----	----	----	----	----	----	----	----
FiberMax 1320 GL†	----	----	0.77	----	----	----	----	----
FiberMax 1621 GL	----	0.69	0.78	0.65	0.78	0.63	0.83	0.89
FiberMax 1730 GLTP	----	0.57	0.65	0.64	----	0.61	0.82	0.82
FiberMax 1888 GL	----	----	----	----	----	----	0.88	----
FiberMax 2202 GL	----	----	----	----	----	----	0.87	----
FiberMax 2398 GLTP	----	0.64	0.79	0.70	----	0.56	----	0.88
NexGen 3195 B3XF	0.53	0.54	0.69	0.57	0.72	0.53	0.87	0.79
NexGen 3500 XF†	0.49	----	----	----	----	----	----	----
NexGen 3729 B2XF	----	0.55	0.65	0.68	----	0.51	----	0.73
NexGen 3930 B3XF	0.53	0.70	0.73	0.68	0.84	0.63	0.84	0.93
NexGen 3956 B3XF	----	0.63	0.74	0.68	0.00	0.63	----	0.90
NexGen 4050 XF	0.54	----	----	----	0.74	----	----	----
NexGen 4098 B3XF	0.51	----	----	----	0.76	----	0.82	----
Stoneville 4480 B3XF	0.61	----	----	----	0.79	----	0.91	----
Stoneville 4993 B3XF	----	0.62	0.63	0.60	----	0.55	----	0.84
Phy 205 W3FE†	----	----	----	----	----	0.65	----	----
Phy 210 W3FE†	----	----	----	----	----	0.57	----	----
Phy 300 W3FE†	----	----	----	----	----	0.61	----	0.82
Phy 332 W3FE†	----	----	----	----	----	----	0.93	0.95
Phy 350 W3FE†	----	----	----	----	----	----	0.91	0.97
Trial Average	0.55	0.61	0.73	0.65	0.69	0.59	0.87	0.86

Table 5. 2021 Lint yield, quality, and loan value results for the Texas A&M AgriLife RACE Plots located in Hansford County, Greg Slough Cooperator.

Variety	Seed Cotton		Lint	Seed	Fiber			Lint loan	Lint	
	Yield --- lb/acre ---	Turnout --%--	Yield --- lb/acre ---	Yield --- lb/acre ---	Micro- naire	Length (in.)	Uniformity --%--	Strength (g/tex)	Value cents/lb	Value --- \$/acre ---
FM 1621 GL	3336	0.35	1174	1657	4.0	1.06	81.2	30	50.02	589
ST 4993 B3XF	3239	0.34	1087	1535	3.6	1.08	81.3	34	53.43	582
DP 1820 B3XF	3085	0.34	1037	1465	3.6	1.13	80.0	32	53.68	557
NG 3195 B3XF	3124	0.33	1027	1450	3.3	1.07	80.7	30	49.35	507
Arm 9442 XF	3138	0.31	982	1387	3.2	1.15	80.9	33	46.77	459
FM 2398 GLTP	2953	0.33	982	1386	3.3	1.07	80.5	30	48.72	477
DP 2012 B3XF	3099	0.32	979	1382	3.2	1.08	80.5	29	47.77	467
DG 3317 B3XF	2850	0.34	974	1376	3.6	1.05	80.3	31	49.83	485
FM 1730 GLTP	2992	0.32	952	1344	3.5	1.12	82.0	34	54.02	514
NG 3930 B3XF	2981	0.31	935	1321	3.3	1.10	82.1	30	51.07	477
NG 3729 B2XF	3026	0.30	911	1286	3.4	1.10	80.9	29	50.37	458
NG 3956 B3XF	2868	0.30	850	1200	3.6	1.07	80.5	31	52.02	441
Test Average	3058	0.32	991	1399	3.4	1.09	81.0	31	50.65	503
CV, %	5.1	2.6	5.6	5.6	10.0	2.1	1.1	3.4	8.2	9.8
p-value	0.0297	<0.0001	<0.0001	0.0001	0.2289	0.0004	0.1571	<0.0001	0.5019	0.0109
LSD	263	0.01	95	134	NS	0.04	NS	1.8	NS	83

Value for lint based on CCC loan value from grab samples and FBRI HVI results.

Lint loan value calculated from the 2021 Upland Cotton Loan Evaluation Model from Cotton Incorporated using a \$0.52/pound base.

Seed value calculated using 1.41 lbs seed/lb lint.

Table 6. 2021 Lint yield, quality, and loan value results for the Texas A&M AgriLife RACE Trial located in Hutchinson County, Craig McCloy Cooperator. Data presented is only the 3rd replication, which was unaffected by the June 24 hail storm.

Variety	Seed Cotton		Lint Yield --- lb/acre ---	Seed Yield --- lb/acre ---	Micro- naire	Fiber			Lint loan Value cents/lb	Lint Value --- \$/acre ---
	Yield --- lb/acre ---	Turnout --%--				Length (in.)	Uniformity --%--	Strength (g/tex)		
FM 2398 GLTP	4474	0.35	1566	2211	3.2	1.15	81.2	30	50.85	796
FM 1621 GL	4150	0.36	1501	2119	3.3	1.15	80.2	30	48.95	735
DP 1820 B3XF	4141	0.34	1394	1968	2.9	1.22	81.0	34	48.20	672
Arm 9442 XF	4307	0.32	1375	1941	3.1	1.19	80.3	31	46.15	635
FM 1730 GLTP	4181	0.32	1336	1886	3.0	1.20	81.8	32	50.70	677
NG 3930 B3XF	3975	0.34	1334	1884	2.9	1.07	77.5	28	42.50	567
FM 1320 GL	4019	0.33	1321	1865	3.1	1.12	80.5	31	48.95	647
NG 3956 B3XF	3962	0.31	1209	1707	2.8	1.10	80.8	30	46.35	560
DP 2012 B3XF	3416	0.35	1181	1667	3.0	1.14	82.9	29	50.20	593
ST 4993 B3XF	3337	0.33	1118	1578	2.9	1.14	81.3	29	48.15	538
NG 3195 B3XF	3203	0.34	1085	1532	3.0	1.11	82.2	33	50.55	549
NG 3729 B2XF	3483	0.31	1085	1532	3.0	1.15	82.3	30	46.95	509
Test Average	3887	0.33	1292	1824	3.0	1.15	81.0	31	48.21	623

Value for lint based on CCC loan value from grab samples and FBRI HVI results.

Lint loan value calculated from the 2021 Upland Cotton Loan Evaluation Model from Cotton Incorporated using a \$0.52/pound base.

Seed value calculated using 1.41 lbs seed/lb lint.

Table 7. 2021 Lint yield, quality, and loan value results for the Texas A&M AgriLife RACE Plots located at North Plains Groundwater Conservation District's Water Conservation Center in Moore County, Stan Spain Cooperator.

Variety	Seed Cotton		Lint	Seed	Fiber			Lint loan	Lint	
	Yield --- lb/acre ---	Turnout --%--	Yield --- lb/acre ---	Yield --- lb/acre ---	Micro- naire	Length (in.)	Uniformity --%--	Strength (g/tex)	Value cents/lb	Value --- \$/acre ---
ST 4993 B3XF	3288	0.36	1195	1687	4.30	1.13	84.0	33	57.60	689
FM 2398 GLTP	3390	0.35	1171	1653	3.92	1.14	82.1	30	57.20	670
FM 1621 GL	3352	0.35	1157	1634	3.87	1.11	81.5	31	54.52	631
DP 1820 B3XF	3210	0.36	1148	1620	4.22	1.19	81.9	33	57.28	657
Arm 9442 XF	3344	0.33	1115	1574	3.73	1.18	81.2	31	55.28	616
NG 3729 B2XF	3449	0.32	1106	1562	4.02	1.14	82.3	29	56.63	627
NG 3195 B3XF	3172	0.34	1081	1527	3.91	1.15	82.3	30	57.65	623
NG 3956 B3XF	3288	0.32	1048	1480	3.80	1.10	81.8	30	53.78	563
DP 2012 B3XF	3033	0.34	1035	1461	4.01	1.14	82.8	30	57.03	590
NG 3930 B3XF	2958	0.32	955	1348	3.85	1.17	82.9	31	55.10	529
FM 1730 GLTP	2985	0.32	944	1334	3.94	1.20	83.2	33	56.53	534
Test Average	3224	0.34	1087	1535	3.96	1.15	82.3	31	56.23	612
CV, %	7.5	2.9	8.6	8.6	9.1	1.4	1.0	3.2	2.9	9.9
p-value	0.4761	0.0032	0.1744	0.1744	0.8915	0.0005	0.1112	0.0185	0.2751	0.2163
LSD	NS	0.02	NS	NS	NS	0.03	NS	2	NS	NS

Value for lint based on CCC loan value from grab samples and FBRI HVI results.

Lint loan value calculated from the 2021 Upland Cotton Loan Evaluation Model from Cotton Incorporated using a \$0.52/pound base.

Seed value calculated using 1.41 lbs seed/lb lint.

Table 8. 2021 Lint yield, quality, and loan value results for the dyland Texas A&M AgriLife RACE Plots located in Moore County, Justin Garrett Cooperator.

Variety	Seed Cotton Yield --- lb/acre ---	Turnout --%--	Lint Yield --- lb/acre ---	Seed Yield --- lb/acre ---	Micro- naire	Fiber Length (in.)	Uniformity --%--	Strength (g/tex)	Lint loan Value cents/lb	Lint Value --- \$/acre ---
DP 1822 XF	2076	0.34	712	1006	4.6	1.11	81.6	32	56.32	401
NG 4050 XF	1969	0.34	672	948	4.6	1.11	82.2	31	55.08	370
NG 3930 B3XF	1964	0.34	666	940	4.8	1.11	83.4	29	56.48	375
NG 3195 B3XF	1899	0.35	660	931	4.7	1.11	82.3	31	56.45	370
NG 4098 B3XF	2045	0.32	657	928	4.3	1.17	81.9	35	56.12	369
DP 1909 B3XF	1964	0.33	647	913	4.6	1.10	82.5	31	55.60	359
DP 1612 B2XF	1974	0.33	646	912	4.5	1.11	82.6	31	56.07	357
ST 4480 B3XF	1973	0.33	645	910	4.4	1.12	82.4	31	56.42	364
Test Average	1983	0.33	663	936	4.6	1.12	82.4	31	56.07	371
CV, %	3.8	1.5	4.1	4.1	2.7	1.6	0.9	3.3	1.8	3.7
p-value	0.3000	0.0001	0.1442	0.1442	0.0019	0.0100	0.2274	0.0004	0.6871	0.0533
LSD	NS	0.0091	NS	NS	0.2	0.03	NS	2	1.8	26.4

Value for lint based on CCC loan value from grab samples and FBRI HVI results.

Lint loan value calculated from the 2021 Upland Cotton Loan Evaluation Model from Cotton Incorporated using a \$0.52/pound base.

Seed value calculated using 1.41 lbs seed/lb lint.

Table 9. 2021 Lint yield, quality, and loan value results for the Texas A&M AgriLife RACE Plots located at Sherman County, Tommy Cartrite Cooperator.

Variety	Seed Cotton		Lint Yield --- lb/acre ---	Seed Yield --- lb/acre ---	Micro- naire	Fiber			Lint loan Value cents/lb	Lint Value --- \$/acre ---
	Yield --- lb/acre ---	Turnout --%--				Length (in.)	Uniformity --%--	Strength (g/tex)		
Phy 205 W3FE	4343	0.31	1354	1911	3.6	1.06	81.3	31	53.68	726
FM 2398 GLTP	4114	0.32	1334	1883	3.4	1.10	80.5	29	52.75	703
FM 1621 GL	4100	0.32	1332	1881	3.5	1.14	81.0	31	53.18	708
DP EXP	4418	0.30	1274	1581	2.6	1.15	80.3	31	42.93	547
NG 3930 B3XF	4108	0.30	1219	1722	2.9	1.15	81.5	30	47.42	581
NG 3956 B3XF	4122	0.29	1205	1702	3.0	1.14	81.3	30	49.33	595
Phy 210 W3FE	3933	0.30	1199	1693	3.0	1.12	80.7	31	50.30	564
NG 3195 B3XF	3653	0.32	1183	1671	3.0	1.13	81.9	30	48.70	577
FM 1730 GLTP	3710	0.31	1175	1658	3.4	1.17	81.2	32	52.00	610
DP 1820 B3XF	3786	0.30	1154	1629	2.8	1.18	80.4	31	48.48	579
Arm 9442 XF	3924	0.28	1116	1575	2.8	1.18	81.4	31	45.87	520
DP 2012 B3XF	3667	0.30	1115	1574	2.9	1.11	81.0	29	46.70	524
NG 3729 B2XF	3500	0.30	1036	1463	2.8	1.16	80.9	29	47.85	465
Phy 332 W3FE	3353	0.28	945	1334	2.7	1.13	80.5	30	45.48	431
ST 4993 B3XF	2937	0.32	939	1326	2.9	1.11	81.8	31	46.25	436
Test Average	3845	0.30	1172	1640	3.0	1.14	81.2	30	48.38	568
CV, %	6.2	4.4	8.4	8.4	8.2	2.1	1.1	3.2	8.3	15.6
p-value	<0.0001	0.0033	0.0001	0.0003	0.0010	0.0005	0.6593	0.0459	0.0723	0.0121
LSD	414	0.02	174	246	0.5	0.05	NS	2	NS	173

Value for lint based on CCC loan value from grab samples and FBRI HVI results.

Lint loan value calculated from the 2021 Upland Cotton Loan Evaluation Model from Cotton Incorporated using a \$0.52/pound base.

Seed value calculated using 1.41 lbs seed/lb lint.

Table 10. 2021 Lint yield, quality, and loan value results for the established dryland Texas A&M AgriLife RACE Plots located at Swisher County, Jeremy Reed Cooperator. Average leaf grade across all varieties was a 4 with leaf ranging from 2 to 5 with low loan varieties having leaf grades ≥ 4 .

Variety	Seed Cotton		Lint Yield --- lb/acre ---	Seed Yield --- lb/acre ---	Micro- naire	Fiber			Lint loan Value cents/lb	Lint Value --- \$/acre ---
	Yield --- lb/acre ---	Turnout --%--				Length (in.)	Uniformity --%--	Strength (g/tex)		
NG 3195 B2XF	1344	0.35	470	664	3.5	1.08	80.5	29	48.80	229
FM 1621 GL	1313	0.32	426	602	3.9	1.06	80.2	31	51.88	221
PHY 350 W3FE	1419	0.30	420	593	4.1	1.07	80.4	30	52.88	222
NG 4098 B3XF	1413	0.29	409	577	3.3	1.11	80.9	30	48.70	198
FM 1888 GL	1343	0.30	406	574	3.8	1.04	79.6	27	48.98	199
DP 1822 XF	1352	0.29	393	554	3.7	1.10	80.9	31	54.73	215
PHY 332 W3FE	1303	0.30	389	550	3.9	1.02	80.2	26	47.68	185
FM 1730 GLTP	1326	0.29	386	545	3.4	1.07	79.6	31	48.38	186
NG 3930 B3XF	1377	0.27	373	526	3.8	1.12	81.2	32	56.68	211
ST 4480 B3XF	1227	0.29	356	502	3.8	1.12	81.1	31	53.95	192
FM 2202 GL	1219	0.29	352	496	3.8	1.12	80.6	31	54.60	192
DP 1909 B3XF	1213	0.28	340	480	3.5	1.09	79.9	29	51.18	173
Test Average	1321	0.30	393	555	3.7	1.08	80.4	30	51.53	202
CV, %	10.0	6.5	10.6	10.7	4.5	2.1	1.1	5.9	5.0	8.9
p-value	0.8179	0.0753	0.2403	0.2403	0.0138	0.0066	0.5962	0.1468	0.0475	0.1557
LSD	NS	NS	NS	NS	0.4	0.05	NS	NS	5.6	NS

Value for lint based on CCC loan value from grab samples and FBRI HVI results.

Lint loan value calculated from the 2021 Upland Cotton Loan Evaluation Model from Cotton Incorporated using a \$0.52/pound base.

Seed yield calculated using 1.41 lbs seed/lb lint.

Table 11. 2021 Lint yield, quality, and loan value results for the irrigated Texas A&M AgriLife RACE Plots located at Swisher County, Jeremy Reed Cooperator.

Variety	Seed Cotton		Lint Yield --- lb/acre ---	Seed Yield --- lb/acre ---	Micro- naire	Fiber			Lint loan Value cents/lb	Lint Value --- \$/acre ---
	Yield --- lb/acre ---	Turnout --%--				Length (in.)	Uniformity --%--	Strength (g/tex)		
NG 3956 B3XF	3517	0.32	1108	1564	4.3	1.13	82.5	30	56.70	628
FM 2398 GLTP	3155	0.33	1038	1466	4.8	1.14	82.5	31	57.27	595
FM 1621 GL	3035	0.33	1013	1430	4.7	1.13	82.5	30	55.40	561
NG 3930 B3XF	3130	0.32	997	1408	4.6	1.13	82.5	30	56.95	568
DP 1820 B3XF	3004	0.33	990	1398	4.5	1.17	81.6	32	57.47	569
NG 3195 B3XF	3028	0.33	986	1393	4.4	1.13	82.5	30	57.15	564
DP 2012 B3XF	3102	0.31	976	1378	4.3	1.14	81.9	30	57.22	558
PHY 300 W3FE	3138	0.30	943	1332	4.4	1.11	81.8	31	56.48	533
PHY 350 W3FE	3330	0.28	943	1332	4.3	1.15	82.6	31	57.55	543
ST 4993 B3XF	2810	0.33	926	1308	4.7	1.13	83.4	31	57.32	531
FM 1730 GLTP	2967	0.31	917	1295	4.3	1.20	83.3	33	57.05	523
Arm 9442 XF	3097	0.29	905	1278	4.0	1.18	81.9	31	53.72	486
NG 3729 B2XF	2999	0.30	901	1273	4.6	1.16	81.6	29	56.62	510
PHY 332 W3FE	3156	0.28	898	1268	4.3	1.17	82.1	32	57.50	517
Test Average	3105	0.31	967	1366	4.5	1.15	82.4	31	56.62	554
CV, %	8.0	3.6	8.4	8.4	4.0	1.4	0.9	3.2	1.9	9.0
p-value	0.3067	<0.0001	0.2649	0.2649	0.0006	<0.0001	0.0798	0.0008	0.0177	0.2598
LSD	NS	0.02	NS	NS	0.3	0.03	NS	1.8	2.0	NS

Value for lint based on CCC loan value from grab samples and FBRI HVI results.

Lint loan value calculated from the 2021 Upland Cotton Loan Evaluation Model from Cotton Incorporated using a \$0.52/pound base.

Seed yield calculated using 1.41 lbs seed/lb lint.

Yield and quality were evaluated for significant statistical differences using SAS 9.4. A CV (coefficient of variation) describes the variability of the data with a target CV value of 15% or less. The LSD (least significant difference) describes the statistical difference between varieties with 95% confidence.

Texas A&M AgriLife collaborated with North Plains Groundwater Conservation District to provide weekly video updates rotating between RACE trials within District boundaries. The weekly video series, Cotton and Conservation, provided NPGCD cotton producers real-time agronomic updates from Jourdan Bell, Denis Coker, Marcel Fischbacher, and Kristy Slough under the respective environmental and management systems. Videos are available at:

<http://northplainsgcd.org/conservationprograms/agricultural-conservation/cotton/>

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<http://cotton.tamu.edu>