2022 TEXAS HIGH PLAINS REPLICATED AGRONOMIC COTTON EVALUATION (RACE) TRIAL REPORT

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2022 Southern High Plains

Replicated Agronomic Cotton Evaluation (RACE) Trial Results

Replicated Agronomic Cotton Evaluation (RACE) Trial in Lamb County. Cooperator: Billy Tiller

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Season Highlights

Despite having most of our acres planted in a timely manner, the lack of adequate planting moisture in the 2022 season led to a high number of acres failing to come up to a good stand, especially dryland. While the irrigated crop fared much better overall, those with limited irrigation capacity had trouble keeping up with crop needs, and that ultimately affected yield.

Summer was characterized by above-average temperatures and below-average precipitation, culminating in a high number of fields being abandoned. As the summer months progressed, crop conditions rapidly deteriorated and severely affected West Texas cotton production. For reference, the final 2022 Texas Crop Progress and Condition report from USDA-NASS released Nov. 29, 2022, classified the Texas cotton crop as 2% excellent, 10% good, 18% fair, and 70% poor or very poor.

According to FSA numbers, as much as 3.37 million acres of cotton were failed in the Northern and Southern High Plains regions of Texas, accounting for almost 72% of the total acres planted. As of January 13th, the USDA-Agricultural Marketing Service (AMS) Lubbock Classing Office reports approximately 1.4 million bales classed for the season. The average staple is 36.83 with 1.15 length, 31.03 strength, 80.6% uniformity, and 3.9 micronaire.

According to the USDA Farm Service Agency crop acreage report from Oct. 3, West Texas cotton growers seeded 4.7 million acres in 2022. The split between irrigated and dryland acres is approximately 38% and 62%, respectively. The average yield per harvested acre was 947 lb/A for all cotton acres according to USDA-AMS. The World Agricultural Supply and Demand Estimates (WASDE) January 2023 report indicates the upland season-average price received by U.S. farmers is projected at 83 cents per pound, compared to 90 cents in the same period last year.

LIST of TABLES

2022 VARIETY LINEUP CHARACTERISTICS

Table 1. Agronomic characteristics of varieties included in the 2022 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***
DeltaPine 2012 B3XF	I	Early	Glufos, Glyphos, and Dicamba	Smooth	Med-tall	4.2	Mod. tolerant	Resistant	4
DeltaPine 1820 B3XF	I	Early-med	Glufos, Glyphos, and Dicamba	Semi-Smooth	Med-tall	4.1	Mod.	Resistant	3.5
DeltaPine 1822 XF	D	Early-med	Glufos, Glyphos, and Dicamba	Semi-Smooth	Med-tall	4.3	Moderate	Resistant	3
DeltaPine 2123 B3XF	D	Early-med	Glufos, Glyphos, and Dicamba	Semi-Smooth	Medium	4.7	Mod. Tolerant	Mod. Susceptibility	4
DeltaPine 2127 B3XF	I	Early-med	Glufos, Glyphos, and Dicamba	Smooth	Med-tall	4.7	Mod. Susceptibility	Susceptible	7
NexGen 3930 B3XF	I + D	Early-med	Glufos, Glyphos, and Dicamba	Semi-Smooth	Med-tall	4.1 - 4.5	Good	Resistant	6.8
Stoneville 4993 B3XF	I + D	Early-med	Glufos, Glyphos, and Dicamba	Semi-Smooth	Medium	4.6	Fair	Resistant	7
FiberMax 2498 GLT	I	Medium	Glufos, Glyphos	Semi-Smooth	Med-tall	4.5	Very Good	Resistant	6
NexGen 4098 B3XF	I + D	Medium	Glufos, Glyphos, and Dicamba	Semi-Smooth	Med-tall	4.3 - 4.5	Good	Resistant	8.8
DeltaPine 1646 B2XF	D	Med-full	Glufos, Glyphos, and Dicamba	Smooth	Med-tall	4.4	Mod. Susceptibility	Mod. Resistant	5
DeltaPine 1845 B3XF	I	Med-full	Glufos, Glyphos, and Dicamba	Semi-Smooth	Medium	4.2	Mod.	Resistant	5
DeltaPine 2044 B3XF	D	Med-full	Glufos, Glyphos, and Dicamba	Semi-Smooth	Medium	3.6	Mod. Susceptibility	Resistant	4.5
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.

2022 TRIAL LOCATION DETAILS

Table 2. Location, cooperator, and remarks for the 2022 Southern High Plains Replicated Agronomic Cotton Evaluation (RACE) trials.

	Location	Irrigation	Cooperator	Planting Date	Harvest Date	Seeding Rate (seeds/a)	Remarks
1	Crosby	I	Ciera Ware Huffstutler	5/30/2022	12/1/2022	36,500	
2	Crosby	D	Ciera Ware Huffstutler	5/30/2022	-	36,500	Drought - Failed
3	Dawson	D	AG-CARES	6/6/2022	11/15/2022	35,000	
4	Hale	I	Halfway-LREC Research Station	5/17/2022	12/1/2022	48,000	Limited Irrigation
5	Lamb	D	Billy Tiller	6/2/2022	12/6/2022	26,300	Skip Row, 2 in 1 out
6	Lubbock	I	Casey Jones	6/1/2022	12/5/2022	45,000	
7	Lubbock	D	Glover-AREC	5/19/2022	-	46,604	Drought - Failed
8	Lubbock	D	Lubbock-AREC	5/19/2022	11/29/2022	46,604	Irrigated for emergence (dropped)
9	Lynn	I	Drew Stone	6/9/2022	-	45,000	80 in. spacing drip, failed

HEAT UNIT ACCUMULATION AND IN-SEASON PRECIPITATION

Table 3. Weather summary and in-season precipitation for 2022 RACE trial locations. Data provided by the National Weather Service for the closest available weather station for reference.

Crosbyton (May 30th - December 1st)

	Precip.	Temp (°F)	Temp (°F)	DD60	# of 100 °F
	(in.)	Min	Max		days
May	0.2	72	99	50	-
June	1.3	54	106	602	6
July	0.4	65	109	816	24
Aug.	3.9	61	106	646	6
Sep.	0.6	54	95	441	-
Oct.	2.1	36	89	64	-
Nov.	1.6	19	78	-	-
Dec.	0.0	22	43	-	-
Total	10.1			2619	36

Halfway (May 17th - December 1st)

	Precip.	Temp (°F)	Temp (°F)	DD60	# of 100 °F
	(in.)	Min	Max		days
May	1.6	41	103	186	3
June	-	54	107	564	8
July	0.4	66	104	751	11
Aug.	5.2	62	105	583	2
Sep.	0.1	52	94	416	-
Oct.	1.7	36	86	36	-
Nov.	0.5	31	61	-	-
Dec.	-	55	25	-	-
Total	9.5			2535	24

Lamesa (June 6th - November 15th)

	Precip.	Temp (°F)	Temp (°F)	DD60	# of 100 °F
	(in.)	Min	Max		days
May	-	-	-	-	-
June	0.3	62	105	588	5
July	0.5	65	105	794	11
Aug.	3.1	64	102	661	3
Sep.	0.5	55	95	470	-
Oct.	1.9	36	87	103	-
Nov.	-	22	81	-	-
Dec.	-	-	-	-	-
Total	6.4			2617	19

Littlefield (June 2nd - December 6th)

	Precip.	Temp (°F)	Temp (°F)	DD60	# of 100 °F
	(in.)	Min	Max		days
May	-	-	-	-	-
June	1.5	54	105	525	4
July	1.9	64	106	717	9
Aug.	3.4	57	102	530	1
Sep.	1.6	51	93	359	-
Oct.	1.1	32	87	38	-
Nov.	0.7	15	80	-	-
Dec.	-	19	75	-	-
Total	10.2			2168	14

Lubbock (May 19th - December 5th)

	Precip.	Temp (°F)	Temp (°F)	DD60	# of 100 °F
	(in.)	Min	Max		days
May	2.5	46	103	178	2
June	0.8	57	107	625	7
July	0.1	68	107	832	18
Aug.	6.0	63	103	639	3
Sep.	0.8	54	93	464	-
Oct.	2.4	37	86	48	-
Nov.	0.6	21	78	-	-
Dec.	0.1	29	76	-	-
Total	13.3			2784	30

PLANT POPULATION BY VARIETY

Table 4. Final plant population by variety for Replicated Agronomic Cotton Evaluation (RACE) trial locations in 2022. Values expressed as a percentage of the seeding rate.

VARIETY	AGCARES	CROSBY	HALFWAY	LAMB	LUBBOCK	STATION
DP 1646 B2XF	55%	X	X	74%	X	68%
DP 1820 B3XF	X*	75%	69%	X	44%	X
DP 1822 XF	71%	X	X	70%	X	87%
DP 1845 B3XF	X	71%	68%	X	31%	X
DP 2012 B3XF	X	84%	86%	X	52%	X
DP 2044 B3XF	73%	X	X	76%	X	75%
DP 2123 B3XF	77%	X	X	79%	X	82%
DP 2127 B3XF	X	76%	71%	X	49%	X
FM 2498 GLT	X	80%	90%	X	53%	X
NG 3930 B3XF	63%	73%	66%	74%	63%	67%
NG 4098 B3XF	68%	68%	63%	68%	49%	58%
ST 4993 B3XF	53%	74%	71%	71%	53%	72%
ST 5707 B2XF	66%	X	X	77%	X	82%
PHY 332 W3FE* **	X	69%	X	X	X	X
Location Average	66%	74%	73%	74%	49%	74%
DAP**	51	57	49	55	56	18

*Variety not present (X).

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

*** Grower entry.

Color coding represents highest plant population (green) to lowest (red) per location.

Table 5. AG-CARES dryland RACE trial. Seeding rate (35,000 seed/A). Planted: 06/06/22. Harvested: 11/15/22. Cooperator AG-CARES. Ranked by highest to lowest lint yield values.

AG-CARES DRY

Variety	Lint Yield	Turnout	MIC	Length	Uniformity	Strength	Seed Yield	Color	Leaf	Loan Value	Lint Value
	lb/a	%		in.	%	g/tex	lb/a			cents/lb	$/a
ST 4993 B3XF	363	36	4.5	1.1	82.4	31	513	31, 31, 31	1, 1, 1	55	200
DP 1646 B2XF	335	34	4.1	1.16	81.1	28	473	21, 21, 31	1, 1, 1	57	190
DP 2123 B3XF	324	31	4.5	1.11	81.6	28.7	457	31, 31, 31	3, 2, 3	55	179
DP 1822 XF	321	31	4.3	1.16	81.9	30.6	453	31, 31, 31	2, 2, 2	57	181
NG 3930 B3XF	320	31	4.3	1.12	81.2	26.6	452	31, 31, 31	2, 2, 3	55	174
ST 5707 B2XF	310	29	4.1	1.12	81	30.7	437	31, 31, 21	2, 3, 2	55	171
NG 4098 B3XF	304	29	3.9	1.15	81.1	33.2	430	31, 31, 31	4, 4, 4	55	168
DP 2044 B3XF	298	30	3.3	1.14	79.4	30.3	420	31, 31, 31	3, 4, 3	50	149
Mean	322	31	4.1	1.13	81.2	29.9	454			55	177
STDEV	25	1	0.2	0.01	0.9	0.9	36			1.8	14
CV, %	10	3	5	2	1	4	10			4	10
p-value	0.309	0	0	0.0019	0.1325	0.0002	0.3116			0.0513	0.0792
LSD	n.s.	1	0.3	0.03	n.s.	1.6	n.s.			n.s.	n.s.

Loan value calculated using the Cotton Incorporated (2022) 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 6. Crosby irrigated RACE trial. Seeding rate (36,500 seed/A). Planted: 05/30/22. Harvested: 12/01/22. Cooperator Ciera Ware Huffstutler. Ranked by highest to lowest lint yield values.

CROSBY	IRR.										
Variety	Lint Yield	Turnout	MIC	Length	Uniformity	Strength	Color	Leaf	Seed Yield	Loan Value	Lint Value
	lb/a	%		in.	%	g/tex			lb/a	cents/lb	$/a
ST 4993 B3XF	959 a*	36	4.5	1.24	83.3	31.8	41, 31, 41	7, 7, 6	1353	49	468
DP 1820 B3XF	954 a	39	4.6	1.18	83	31.1	31, 41, 41	3, 8, 6	1422	46	466
DP 2127 B3XF	927 a	36	4.1	1.22	83.3	30.6	41, 41, 41	6, 7, 8	1309	43	402
DP 1845 B3XF	922 a	34	4.2	1.25	82.7	30.7	41, 41, 41	8, 8, 6	1302	37	344
NG 4098 B3XF	886 a	33	3.9	1.28	82.3	32.3	51, 41, 51	8, 8, 8	1251	32	287
PHY 332 W3FE**	857 ab	33	4.4	1.21	82.3	29.8	41, 41, 41	7, 6, 5	1210	50	424
NG 3930 B3XF	742 bc	33	4.4	1.2	83.3	29.8	41, 41, 41	5, 6, 6	1179	50	418
DP 2012 B3XF	734 bc	34	4.3	1.21	83.7	29.9	41, 31, 31	6, 5, 4	1036	52	387
FM 2498 GLT	726 c	34	5.1	1.22	82.7	29.8	41, 41, 41	6, 6, 7	1025	47	338
Mean	856	35	4.4	1.22	83	30.6			1232	45	393
STDEV	70	1	0.2	0.03	0.7	0.5			109	5.1	69
CV, %	10	5	7	3	1	2			11	14	22
p-value	0.0274	0.0115	0.0044	0.0796	0.447	0.0004			0.0259	0.0208	0.2255
LSD	124	3	0.4	n.s.	n.s.	1			190	9	n.s.

Loan value calculated using the Cotton Incorporated (2022) 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).

*Means followed by the same letter within a column are not significantly different at the 0.05 probability level.

**Grower entry.

Table 7. Halfway – LREC Research Station irrigated RACE trial. Seeding rate (48,000 seed/A). Planted: 05/17/22. Harvested: 12/01/22. Cooperator Halfway - AREC. Ranked by highest to lowest lint yield values.

HALFWAY	IRR.										
Variety	Lint Yield	Turnout	MIC	Length	Uniformity	Strength	Color	Leaf	Seed Yield	Loan Value	Lint Value
	lb/a	%		in.	%	g/tex			lb/a	cents/lb	$/a
DP 2127 B3XF	664 a*	33	4.5	1.22	83.3	30.5	31,31,31	3, 4, 3	937	56	372 a*
DP 1820 B3XF	657 a	33	4.4	1.28	82	31.6	31, 41, 41	4, 5, 4	928	54	352 ab
DP 1845 B3XF	631 a	31	3.7	1.29	81.1	30.4	41,41,31	5, 5, 5	892	52	328 ab
NG 4098 B3XF	626 a	31	3.6	1.27	81.1	32.9	41, 41, 41	7, 5, 7	884	48	297 abc
ST 4993 B3XF	605 a	30	4	1.21	81.9	33	31, 31, 31	4, 4, 5	854	54	329 ab
NG 3930 B3XF	561 a	29	3.5	1.21	82.2	30	32, 31, 31	4, 4, 4	793	51	285 bc
DP 2012 B3XF	408 b	26	3.5	1.22	79.7	29.5	31, 31, 41	3, 4, 5	577	52	217 cd
FM 2498 GLT	327 b	28	3.3	1.17	80	31.6	32, 32, 32	4, 4, 5	462	47	155 d
Mean	560	30	3.8	1.23	81.4	31.2			791	52	292
STDEV	77	2	0.2	0.01	1.1	0.8			108	2.7	46
CV, %	17	6	6	1	2	3			17	6	19
p-value	0.0041	0.0051	0.0001	0	0.0635	0.0032			0.0041	0.0479	0.005
LSD	136	3	0.3	0.03	n.s.	1			191	5	81

Loan value calculated using the Cotton Incorporated (2022) 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).

*Means followed by the same letter within a column are not significantly different at the 0.05 probability level.

Table 8. Lamb dryland RACE trial. Seeding rate (26,300 seed/A). Planted: 06/02/22. Harvested: 12/06/22. Cooperator Billy Tiller. Ranked by highest to lowest lint yield values.

LAMB	DRY										
Variety	Lint Yield	Turnout	MIC	Length	Uniformity	Strength	Color	Leaf	Seed Yield	Loan Value	Lint Value
	lb/a	%		in.	%	g/tex			lb/a	cents/lb	$/a
DP 1646 B2XF	515	33	3.8	1.26	82.8	30.8	31, 41, 31	5, 6, 5	728	50	260
DP 2123 B3XF	467	32	4.5	1.2	82.9	31.7	31, 41, 31	5, 5, 4	659	53	251
DP 2044 B3XF	451	30	3.5	1.24	81.8	33	41, 32, 31	5, 6, 5	637	47	217
ST 5707 B2XF	396	30	3.9	1.22	83.3	32.9	31, 31, 31	4, 4, 4	559	54	210
DP 1822 XF	359	33	4.3	1.25	84	33.4	31, 41, 31	6, 5, 5	507	52	185
NG 3930 B3XF	358	31	3.5	1.21	82.4	30.8	31, 41, 31	5, 6, 5	505	50	181
ST 4993 B3XF	347	33	4.3	1.21	83.4	32.2	31, 41, 31	6, 7, 5	490	50	175
NG 4098 B3XF	314	30	3.8	1.25	83.1	33.6	41, 41, 41	8, 8, 7	444	38	114
Mean	401	31	4	1.23	83	32.3			566	49	199
STDEV	93	2	0.2	0.01	0.4	0.7			131	3.1	45
CV, %	28	7	7	1	1	3			28	8	28
p-value	0.397	0.3248	0.0024	0.0009	0.005	0.0078			0.3966	0.0034	0.1097
LSD	n.s.	n.s.	0.4	0.02	0.8	1.3			n.s.	5	n.s.

Loan value calculated using the Cotton Incorporated (2022) 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 9. Lubbock irrigated RACE trial. Seeding rate (45,000 seed/A). Planted: 06/01/22. Harvested: 12/05/22. Cooperator Casey Jones. Ranked by highest to lowest lint yield values.

LUBBOCK IRR.

Variety	Lint Yield	Turnout	MIC	Length	Uniformity	Strength	Color	Leaf	Seed Yield	Loan Value	Lint Value
	lb/a	%		in.	%	g/tex			lb/a	cents/lb	$/a
FM 2498 GLT	948	36	5.2	1.2	83.3	30.7	41, 41, 41	5, 6, 6	1471	47	491 a*
DP 1820 B3XF	921	37	4.9	1.23	83.2	31.7	41, 31, 41	6, 5, 4	1301	51	473 a
DP 2127 B3XF	893	37	4.7	1.15	83.8	28.3	41, 41, 41	3, 5, 4	1337	53	502 a
NG 4098 B3XF	864	31	4.1	1.26	82.6	32.7	51, 51, 51	7, 8, 8	1220	37	326 bc
ST 4993 B3XF	864	37	4.7	1.16	83.7	31.1	41, 41, 41	7, 5, 5	1220	51	436 a
DP 2012 B3XF	825	34	4.4	1.19	82.8	28.2	41, 31, 41	6, 4, 5	1165	52	429 a
NG 3930 B3XF	825	33	4.3	1.2	83.1	28.1	41, 41, 41	6, 5, 6	1165	50	411 ab
DP 1845 B3XF	819	35	4.4	1.28	83	30.7	41, 41, 41	8, 6, 8	1156	38	313 c
Mean	870	35	4.6	1.21	83.2	30.2			1254	47	423
STDEV	59	1	0.2	0.01	0.4	0.7			91	4	52
CV, %	8	3	5	1	1	3			9	10	15
p-value	0.5224	0.0001	0.0004	0	0.0938	0			0.0428	0.0054	0.0182
LSD	n.s.	2	0.3	0.01	n.s.	1			160	7	92

Loan value calculated using the Cotton Incorporated (2022) 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).

*Means followed by the same letter within a column are not significantly different at the 0.05 probability level.

http://cotton.tamu.edu/

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2022 Texas Panhandle
Replicated Agronomic Cotton Evaluation (RACE)

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2022 Texas Panhandle Highlights

The objective of the Texas Panhandle replicated agronomic cotton evaluations (RACE Trials) is to provide producers regional, on-farm, and unbiased comparisons of top cotton varieties marketed for Panhandle cotton production systems. The 2022 Texas Panhandle RACE trials were planted at 7 locations under varying crop rotations, row spacings, and populations (Table 1). Three locations failed; the Hansford County trial was hailed out and the Moore and Parmer County trials failed because of weather related field variability. Early to medium maturing varieties were planted at each location as a seed company entry or a cooperating producer entry (Table 2).

Regionally, above-average May temperatures and widespread drought (Image 1) resulted in poor stands and crop failure. In the southern and western Panhandle, most dryland fields failed and many cotton fields under limited irrigation reached cutout in late July because of extreme water stress, which was enhanced where irrigation was shared with corn. Dryland and irrigated fields were more uniform in the eastern Panhandle. The majority of the seasonal rainfall was received late-July to mid-August, but in most cases, the rain conributed to excess late-seaon vegetative growth and did not benefit lint production. Where early season irrigation was managed to retain early fruiting positions, timely rainfall later in the season during the bloom and boll maturation periods enhanced lint yields and quality. Growing degree days (GDDs) were not limiting in 2022. The average 2022 cumulative GDDs were 2,496, which was 334 GDDs greater than the previous 6-year average of 2,178 for the RACE trial locations.

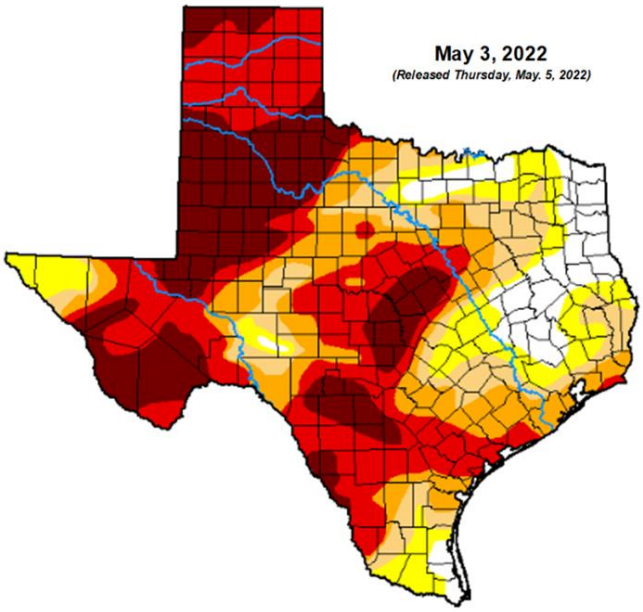

Image 1. Texas drought monitor May 3, 2022, representing D3 (extreme) and D4 (exceptional) https://droughtmonitor.unl.edu/data/png/20220503/20220503_tx_trd.png.

Cotton germination and emergence often occur for 2- or more weeks after planting under Panhandle conditions. To more accurately represent final plant stands, stand count data is collected 30-days after planting. The 2022 final plant stand was 46-67% of the planted seed (Tables 3 and 4).

The Swisher County dryland trial was an “established” dryland field trial designed by Blayne Reed. The two Swisher trials were located on one center pivot with low well capacity. To improve irrigation water efficiency by increasing yields per inch of water

applied, in-season irrigation was concentrated on half the planted acreage (the irrigated trial), but to ensure more uniform stands under dryland conditions, the “dryland” acreage received a one-inch irrigation after planting to ensure crop establishment. This irrigation ensured establishment, but because of extreme drought conditions, a yield benefit was not recognized. The highest yielding irrigated variety in 2022 was FM 1621 GL at the Hutchinson County trial (1,927 lbs. lint/acre; Tables 5 and 10).

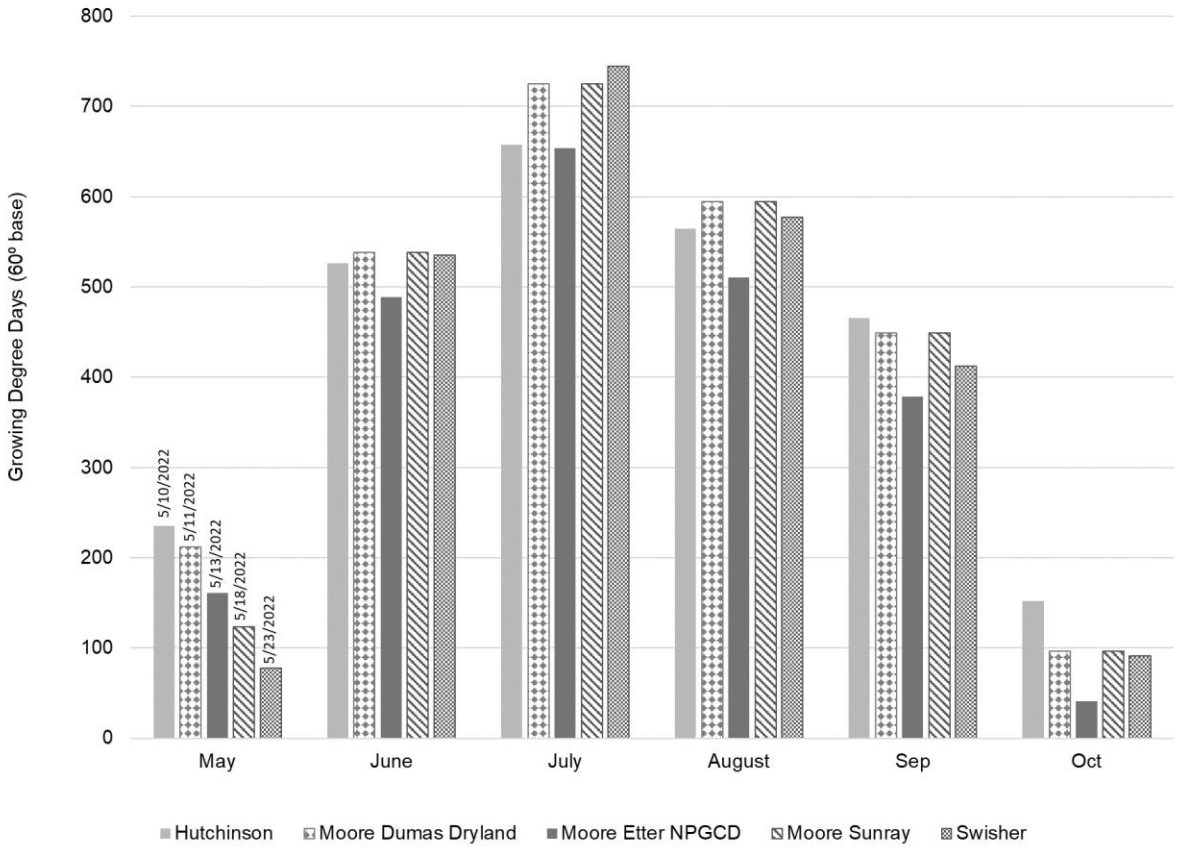

Figure 1. Distribution of growing degree days (GDD60) accumulated from planting through October. Planting date for each location noted above May bars. In November, negligible GDDs were accumulated, or defoliation had occurred. Temperature data at the Hutchinson County trial, Moore County Etter and Moore County Dumas trials was collected from a Texas A&M AgriLife weather station located at the field site. Temperature data for the Moore County Sunray trial is from the AgriLife station located ~3.5 miles SW of the field site. Temperature data for the Swisher County trial was collected from a NWS observation site at Tulia (https://www.weather.gov/wrh/Climate?wfo=lub).

Table 1. 2022 Agronomic information by location.

County	Hansford	Hutchinson	Moore	Moore	Moore	Parmer	Swisher	Swisher
Location (Nearest Town)	Gruver	Pringle	Dumas	Etter	Sunray	Farwell	Kress	Kress
Cooperator	Greg Slough	Craig McCloy	Justin Garrett	NPGCD (Stan Spain)	Chandler Preston	Ryan Williams	Jeremy Reed	Jeremy Reed
County Agent(s)	Kristy Slough	Hanna Conner & Kristy Slough	D. Coker & Fischbacher	D. Coker & Fischbacher	D. Coker & Fischbacher	John Thobe & Janelle Duffy	Blayne Reed & Jason Wade	Blayne Reed & Jason Wade
Irrigation Regime	Irrigated	Irrigated	Dryland	Irrigated	Irrigated	Limted Irrigated	Irrigated	Est. Dryland
In-Season Precipitation (in.)	---	5.0	8.4	7.6	7.9	---	8.4	8.4
Growing Degree Days (DD60s)	---	2,511	2,635	2,233	2,571	---	2,438	2,438
Herbicide Technologies	Gly, Gluf, XF	Gly, Gluf, XF	Gly, Gluf, XF	XF	Gly, Gluf, XF, Enlist	XF	XF	XF
Planting Date	5/19/2022	5/10/2022	5/11/2022	5/13/2022	5/18/2022	5/12/2022	5/23/2022	5/23/2022
Plantiong Pop (Seeds/ac)	50,000	90,000	25,000	74,500	55,000	40,000	50,000	24,500
Soil Temp. at Planting (°F)	74	68	85	75	67	----	67	67
Harvest Date	Failed	10/27/2022	Failed	11/6/2022	12/6/2022	Failed	12/1/2022	12/1/2022
Row Spacing (in.)	30	20	30	30	30	40	40	40

Table 2. Characteristics of varieties evaluated in 2022 Panhandle RACE trials. All variety characteristics are obtained from company variety descriptions. Varieties listed are seed company and farmer entries.

Variety	Maturity	Herbicide Package	Leaf Type	Storm Tolerance*	Plant Height	Mic	Verticilium Tol.**	Bacterial Blight**
Armor 9371 B3XFǂ	Early-Med	Glyphos., Glufos., and Dicamba	Semi-Smooth	3	Medium	4.5-4.6	Good	Tolerant
DynaGro 3469 B3XFǂ	Early-Med	Glyphos., Glufos., and Dicamba	Smooth	9	Medium	4.4	Average-Good	Very Tolerant
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 1908 B3XF	Very Early	Glyphos., Glufos., and Dicamba	Smooth	5	Medium	3.9	Mod. Susceptible	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
DeltaPine 2020 B2XFǂ	Early-Med	Glyphos., Glufos., and Dicamba	Semi-Smooth	4	Med-Tall	4.3	Mod. Tolerance	Resistant
DeltaPine 2115 B3XF	Early	Glyphos., Glufos., and Dicamba	Semi-Smooth	4	Medium	4.6	Mod. Susceptible	Moderate
DeltaPine 2123 B3XF	Early-Med	Glyphos., Glufos., and Dicamba	Semi-Smooth	4	Medium	4.4	Mod. Susceptible	Mod. Susceptible
DeltaPine 2127 B3XF	Early-Med	Glyphos., Glufos., and Dicamba	Smooth	7	Med-Tall	4.7	Mod. Susceptible	Susceptible
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
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 B3XFǂ	Early-Med	Glyphos., Glufos., and Dicamba	Semi-Smooth	7	Med-Tall	4.1-4.5	Very Good	Very Tolerant
NexGen 3956 B3XFǂ	Early-Med	Glyphos., Glufos., and Dicamba	Semi-Smooth	8	Med-Tall	4.3-4.7	Very Good	Very Tolerant
Phytogen 205 W3FEǂ	Very Early	Glyphosate, Glufosinate, and Enlist	Semi-Smooth	Excellent	Short	4.5	Tolerant	Resistant
Stoneville 4993 B3XF	Early-Med	Glyphos., Glufos., and Dicamba	Semi-Smooth	6	Medium	4.6	Fair	Fair

ǂFarmer entry

*Storm Tolerance (1-9): 1=Loose Boll, 9=Tight Boll from company variety descriptions.

** Verticillium and bacterial bliight tolerance from company descriptions.

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

	Hutch - inson Irrig.	Moore Dumas Dryland	Moore Etter NPGCD Irrig.	Moore Sunray Irrig.	Parmer Deficit Irrig.	Swisher Irrig.	Swisher Est. Dryland
Planted Seeds/Acre	90,000	25,000	74,500	55,000	40,000	50,000	24,500
	---- Measured plants/acre----						
Armor 9371 B3XF‡	-----	-----	-----	-----	23,032	-----	-----
DynaGro 3469 B3XF‡	-----	-----	43,996	-----	-----*	-----	-----
DeltaPine 1820 B3XF	54,886	-----	43,342	41,818	21,072	27,770	-----
DeltaPine 1822 XF	-----	10,890	-----	-----	-----	39,640	18,186
DeltaPine 1908 B3XF	52,708	-----	53,143	39,785	26,463	32,343	-----
DeltaPine 1909 XF	-----	15,827	-----	-----	-----	-----	16,117
DeltaPine 2012 B3XF	-----	4,211	-----	-----	-----	-----	16,226
DeltaPine 2020 B2XF‡	-----	-----	-----	39,640	-----	-----	-----
DeltaPine 2115 B3XF	49,005	-----	47,698	36,155	24,339	25,592	-----
DeltaPine 2123 B3XF	-----	9,148	-----	-----	-----	-----	13,939
DeltaPine 2127 B3XF	58,153	-----	52,272	36,736	26,953	27,334	-----
FiberMax 1621 GL	57,717	15,827	-----	-----	-----	-----	-----
FiberMax 1730 GLTP	59,677	-----	-----	-----	-----	-----	-----
FiberMax 1888 GL	-----	15,101	-----	-----	-----	-----	-----
FiberMax 2202 GL	-----	12,197	-----	-----	-----	-----	-----
FiberMax 2398 GLTP	50,747	-----	-----	-----	-----	-----	-----
NexGen 3195 B3XF	56,682	11,906	48,787	40,656	23,522	30,710	12,959
NexGen 3299 B3XF	45,411	11,471	32,017	26,717	18,949	17,860	8,930
NexGen 3930 B3XF‡	-----	11,761	-----	-----	-----	-----	-----
NexGen 3956 B3XF‡	-----	12,778	-----	-----	-----	-----	-----
Phytogen 205 W3FE‡	66,429	-----	-----	-----	-----	-----	-----
Stoneville 4993 B3XF	51,945	7,550	45,883	34,703	22,052	28,641	11,217
Trial Average	**54,851**	**11,556**	**45,892**	**37,026**	**23,298**	**28,736**	**13,939**
CV, %	9.8	16.1	10.8	10.4	12.9	9.7	14.4
p-value	0.0016	<0.0001	0.0703	0.0049	0.2689	<0.0001	0.0007
LSD	9,225	3,155	NS	6,668	NS	4,809	3,546

*Varieties not planted at the respective location.

‡Farmer entry

Stand counts were measured approximately 30 days post planting. All locations represent stand counts from all 3 replications with the exception of Parmer County and Moore County at NPGCD which represent 2 replications.

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

	Hutch - inson Irrig.	Moore Dumas Dryland	Moore Etter NPGCD Irrig.	Moore Sunray Irrig.	Parmer Deficit Irrig.	Swisher Irrig.	Swisher Est. Dryland
Planted Seeds/Acre	90,000	25,000	74,500	55,000	40,000	50,000	24,500
	---- Measured plants/acre----						
Armor 9371 B3XF‡	-----	-----	-----	-----	0.58	-----	-----
DynaGro 3469 B3XF‡	-----	-----	0.59	-----	-----*	-----	-----
DeltaPine 1820 B3XF	0.61	-----	0.58	0.76	0.53	0.56	-----
DeltaPine 1822 XF	-----	0.44	-----	-----	-----	0.79	0.74
DeltaPine 1908 B3XF	0.59	-----	0.71	0.72	0.66	0.65	-----
DeltaPine 1909 XF	-----	0.63	-----	-----	-----	-----	0.66
DeltaPine 2012 B3XF	-----	0.17	-----	-----	-----	-----	0.66
DeltaPine 2020 B2XF‡	-----	-----	-----	0.72	-----	-----	-----
DeltaPine 2115 B3XF	0.54	-----	0.64	0.66	0.61	0.51	-----
DeltaPine 2123 B3XF	-----	0.37	-----	-----	-----	-----	0.57
DeltaPine 2127 B3XF	0.65	-----	0.70	0.67	0.67	0.55	-----
FiberMax 1621 GL	0.64	0.63	-----	-----	-----	-----	-----
FiberMax 1730 GLTP	0.66	-----	-----	-----	-----	-----	-----
FiberMax 1888 GL	-----	0.60	-----	-----	-----	-----	-----
FiberMax 2202 GL	-----	0.49	-----	-----	-----	-----	-----
FiberMax 2398 GLTP	0.56	-----	-----	-----	-----	-----	-----
NexGen 3195 B3XF	0.63	0.48	0.65	0.74	0.59	0.61	0.53
NexGen 3299 B3XF	0.50	0.46	0.43	0.49	0.47	0.36	0.36
NexGen 3930 B3XF‡	-----	0.47	-----	-----	-----	-----	-----
NexGen 3956 B3XF‡	-----	0.51	-----	-----	-----	-----	-----
Phytogen 205 W3FE‡	0.74	-----	-----	-----	-----	-----	-----
Stoneville 4993 B3XF	0.58	0.30	0.62	0.63	0.55	0.57	0.46
Trial Average	**0.61**	**0.46**	**0.62**	**0.67**	**0.58**	**0.57**	**0.57**

*Varieties not planted at the respective location.

‡Farmer entry

Stand counts were measured approximately 30 days post planting. All locations represent stand counts from all 3 replications with the exception of Parmer County and Moore County at NPGCD which represent 2 replications.

Table 5. 2022 Lint yield, quality, and loan value results for the Texas A&M AgriLife irrigated RACE Trial located in Hutchinson County, Craig McCloy Cooperator.

Variety	Seed Cotton Yield --- lb/acre ---	Turnout --%--	Lint Yield --- lb/acre ---	Seed Yield --- lb/acre ---	Micro-naire	Fiber Length (in.)	Strength (g/tex)	Uniformity --%--	Lint loan Value cents/lb	Lint Value --- $/acre ---
FM 1621 GL	4763	40	1927	2721	3.6	1.21	30	82	50.3	969
NG 3195 B3XF	4879	36	1752	2474	3.5	1.21	29	83	51.3	899
DP 1820 B3XF	4882	35	1725	2435	3.5	1.31	30	83	52.5	906
FM 2398 GLTP	4606	36	1660	2343	3.3	1.23	29	83	50.0	830
PHY 205 W3FE*	4961	32	1604	2264	3.7	1.18	32	83	55.8	894
DP 2127 B3XF	4228	38	1588	2243	3.4	1.18	29	83	51.7	821
DP 2115 B3XF	4006	39	1555	2196	3.3	1.20	29	82	47.0	734
FM 1730 GLTP	4534	34	1532	2163	3.3	1.28	31	83	49.9	762
DP 1908 B3XF	4642	32	1497	2114	3.6	1.26	30	83	51.1	764
NG 3299 B3XF	4131	35	1440	2033	3.3	1.22	31	83	50.5	727
ST 4993 B3XF	4369	32	1392	1965	3.3	1.21	31	83	51.7	717
Test Average	**4545**	**35**	**1606**	**2268**	**3.4**	**1.23**	**30**	**83**	**51.1**	**820**
CV, %	3.0	5.7	6.0	6.0	5.9	1.2	2.7	0.55	6.7	9.0
p-value	<0.0001	0.0003	<0.0001	<0.0001	0.1517	<0.0001	0.0032	0.0613	0.3529	0.0025
LSD	228	3.4	163	230	NS	0.02	1.4	NS	5.80	124

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

Lint loan value calculated from the 2022 Upland Cotton Loan Evaluation Model from Cotton Incorporated using a $0.52/pound base.

Samples ginned on a Compass gin at TTU-FBRI.

Seed value calculated using 1.41 lbs seed/lb lint.

*Farmer Entry

Table 6. 2022 Lint yield, quality, and loan value results for the Texas A&M AgriLife irrigated RACE Plots located at North Plains Groundwater Conservation District's Water Conservation Center in Moore County, Stan Spain Cooperator.

Variety	Seed Cotton Yield --- lb/acre ---	Turnout --%--	Lint Yield --- lb/acre ---	Seed Yield --- lb/acre ---	Micro-naire	Fiber Length (in.)	Strength (g/tex)	Uniformity --%--	Lint loan Value cents/lb	Lint Value --- $/acre ---
DP 2127 B3XF	4022	33	1328	1875	3.9	1.16	29.2	83	56.9	755
ST 4993 B3XF	3809	35	1326	1872	4.0	1.18	30.1	83	57.4	760
DG 3469 B3XF*	3652	35	1271	1794	3.9	1.18	28.6	83	56.0	713
DP 2115 B3XF	3365	37	1239	1750	3.7	1.19	28.9	83	56.0	693
DP 1820 B3XF	3948	31	1228	1733	4.0	1.29	30.8	84	57.2	702
NG 3299 B3XF	3362	36	1204	1701	4.0	1.20	31.6	84	57.3	690
NG 3195 B3XF	3831	31	1170	1652	3.8	1.21	29.3	83	57.0	667
DP 1908 B3XF	3583	31	1113	1571	3.5	1.25	29.9	83	52.6	583
Test Average	**3697**	**34**	**1235**	**1744**	**3.8**	**1.21**	**29.8**	**83**	**56.3**	**695**
CV, %	20.9	6.1	16.5	16.5	3.4	1.2	0.8	0.4	2.3	15.9
p-value	0.9733	0.0988	0.9514	0.9514	0.0414	0.0003	<0.0001	0.1140	0.0761	0.8048
LSD	NS	NS	NS	NS	0.3	0.03	0.50	NS	NS	NS

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

Lint loan value calculated from the 2022 Upland Cotton Loan Evaluation Model from Cotton Incorporated using a $0.52/pound base.

Samples ginned on a Compass gin at TTU-FBRI.

Seed value calculated using 1.41 lbs seed/lb lint.

*Farmer Entry

Table 7. 2022 Lint yield, quality, and loan value results for the irrigated Texas A&M AgriLife RACE Plots located in Moore County, Curtis Preston Cooperator.

Variety	Seed Cotton Yield --- lb/acre ---	Turnout --%--	Lint Yield --- lb/acre ---	Seed Yield --- lb/acre ---	Micro-naire	Fiber Length (in.)	Strength (g/tex)	Uniformity --%--	Lint loan Value cents/lb	Lint Value --- $/acre ---
DP 1820 B3XF	4604	36	1649	2328	3.9	1.22	29.7	82	56.9	938
ST 4993 B3XF	4905	33	1611	2275	4.1	1.16	30.9	83	57.3	924
DP 1908 B3XF	5002	32	1602	2261	3.5	1.21	30.2	82	53.3	853
DP 2127 B3XF	4450	35	1554	2194	3.9	1.14	27.4	82	56.6	879
NG 3299 B3XF	4530	33	1490	2104	4.0	1.19	30.9	83	57.4	856
NG 3195 B3XF	4767	31	1480	2090	3.8	1.20	29.8	82	56.8	841
DP 2115 B3XF	4370	33	1430	2020	3.7	1.17	27.9	82	57.0	816
DP 2020 B2XF*	4298	32	1359	1919	3.4	1.18	27.1	81	53.6	728
Test Average	**4616**	**33**	**1522**	**2149**	**3.79**	**1.18**	**29.2**	**82**	**56.1**	**854**
CV, %	6.1	5.3	7.9	7.9	3.0	2.2	1.9	0.5	2.6	9.3
p-value	0.0751	0.0560	0.1175	0.1175	<0.0001	0.0312	<0.0001	0.0005	0.0129	0.1130
LSD	NS	NS	NS	NS	0.2	0.04	0.96	0.8	2.60	NS

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

Lint loan value calculated from the 2022 Upland Cotton Loan Evaluation Model from Cotton Incorporated using a $0.52/pound base.

Samples ginned on a Compass gin at TTU-FBRI.

Seed value calculated using 1.41 lbs seed/lb lint.

*Farmer Entry

Table 8. 2022 Lint yield, quality, and loan value results for the Texas A&M AgriLife irrigated RACE Plots located in Swisher County, Jeremy Reed Cooperator.

Variety	Seed Cotton Yield --- lb/acre ---	Turnout --%--	Lint Yield --- lb/acre ---	Seed Yield --- lb/acre ---	Micro-naire	Fiber Length (in.)	Strength (g/tex)	Uniformity --%--	Lint loan Value cents/lb	Lint Value --- $/acre ---
NG 3299 B3XF	2168	35	764	1079	4.9	1.16	30.2	83	54.9	596
DP 1908 B3XF	2357	31	739	1043	4.7	1.23	30.9	83	55.5	578
DP 2127 B3XF	2054	35	723	1021	5.1	1.17	28.3	83	55.1	561
DP 2115 B3XF	2050	34	704	994	4.8	1.20	28.9	83	56.5	561
ST 4993 B3XF	1836	37	673	950	5.3	1.12	30.2	83	53.1	504
NG 3195 B3XF	1956	34	672	949	4.6	1.18	29.7	83	56.0	532
DP1822 B3XF	2058	31	645	911	4.7	1.24	32.0	82	56.2	512
DP 1820 B3XF	1921	32	605	855	4.9	1.24	31.9	84	56.2	480
Test Average	**2050**	**34**	**691**	**975**	**4.9**	**1.19**	**30.3**	**83**	**55.4**	**541**
CV, %	15.1	7.0	18.3	18.3	4.1	2.8	3.4	0.8	2.8	19.1
p-value	0.5998	0.0886	0.8169	0.8169	0.0171	0.0044	0.0037	0.3525	0.2359	0.8560
LSD	NS	NS	NS	NS	0.3	0.06	1.8	NS	NS	NS

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

Lint loan value calculated from the 2022 Upland Cotton Loan Evaluation Model from Cotton Incorporated using a $0.52/pound base.

Samples ginned on a Compass gin at TTU-FBRI.

Seed value calculated using 1.41 lbs seed/lb lint.

Table 9. 2022 Lint yield, quality, and loan value results for the Texas A&M AgriLife established dryland RACE Plots located in Swisher County, Jeremy Reed Cooperator. The established dryland plots received irrigation to establish the trial then the field was "dryland" the remainder of the season. All three reps were combined to make one round module when harvesting.

Variety	Seed Cotton Yield --- lb/acre ---	Turnout --%--	Lint Yield --- lb/acre ---	Seed Yield --- lb/acre ---	Micro-naire	Fiber Length (in.)	Strength (g/tex)	Uniformity --%--	Lint loan Value cents/lb	Lint Value --- $/acre ---
NG 3299 B3XF	903	31	282	398	4.3	1.22	32.4	83	55.7	157
ST 4993 B3XF	773	32	251	354	4.3	1.21	31.3	83	57.0	143
DP 1820 XF	856	29	249	352	4.5	1.24	30.7	82	55.0	137
NG 3195 B3XF	762	30	227	320	4.2	1.22	29.2	82	56.4	128
DP 2123 B3XF	765	29	221	313	4.7	1.17	29.4	80	52.6	116
DP 2012 B3XF	873	25	218	308	4.4	1.29	31.5	82	56.6	123
DP 1822 XF	686	29	196	277	4.5	1.25	32.4	81	55.2	108
DP 1909 XF	668	29	191	269	4.3	1.22	29.7	81	54.9	105
Test Average	**786**	**29**	**229**	**324**	**4.4**	**1.23**	**30.8**	**82**	**55.4**	**127**

Value for lint based on CCC loan value from grab samples and FBRI HVI results.
Lint loan value calculated from the 2022 Upland Cotton Loan Evaluation Model from Cotton Incorporated using a $0.52/pound base.
Samples ginned on a Compass gin at TTU-FBRI.
Seed value calculated using 1.41 lbs seed/lb lint.

Table 10. Comparison of company entries between irrigated locations sorted by the maximum yielding location.

Variety	Hutchin-son	Moore Sunray	Moore Etter NPGCD	Swisher
	Lint Yield (lb/ac)			
FM 1621 GL	1927	---*	---	---
NG 3195 B3XF	1752	1480	1170	672
DP 1820 B3XF	1725	1649	1228	605
FM 2398 GLTP	1660	---	---	---
DP 2127 B3XF	1588	1554	1328	723
DP 2115 B3XF	1555	1430	1239	704
FM 1730 GLTP	1532	---	---	---
DP 1908 B3XF	1497	1602	1113	739
NG 3299 B3XF	1440	1490	1204	764
ST 4993 B3XF	1392	1611	1326	673

*XF only trial (FiberMax varieties not at the respective locations)

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, Dennis Coker, and Marcel Fischbacher under the respective environmental and management systems. Videos are available at:
http://northplainsgcd.org/conservationprograms/agricultural-conservation/cotton/

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