

**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 13<sup>th</sup>, the USDA-AMS Lubbock Classing Office reports approximately 1.4 million bales classed for the season. 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 – Agricultural Marketing Service (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.

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## 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	Verticillum	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.

	<b>Location</b>	<b>Irrigation</b>	<b>Cooperator</b>	<b>Planting Date</b>	<b>Harvest Date</b>	<b>Seeding Rate (seeds/a)</b>	<b>Remarks</b>
1	Crosby	I	Ciera Ware Huffstutler	5/30/2022	12/1/2022	36,500	
2	Crosby	-	Ciera Ware Huffstutler	5/30/2022	-	36,500	Drought - Failed
3	Dawson	-	AG-CARES	6/6/2022	11/15/2022	35,000	
4	Hale	I	Halfway-AREC	5/17/2022	12/1/2022	48,000	Limited Irrigation
5	Lamb	-	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	-	Glover-AREC	5/19/2022	-	46,604	Drought - Failed
8	Lubbock	-	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)		DD60	# of 100 °F days
	(in.)	Min	Max		
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	-	-
<b>Total</b>	<b>10.1</b>			<b>2619</b>	<b>36</b>

Halfway (May 17th - December 1st)					
	Precip.	Temp (°F)		DD60	# of 100 °F days
	(in.)	Min	Max		
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	-	-
<b>Total</b>	<b>9.5</b>			<b>2535</b>	<b>24</b>

Lamesa (June 6th - November 15th)					
	Precip.	Temp (°F)		DD60	# of 100 °F days
	(in.)	Min	Max		
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.	-	-	-	-	-
<b>Total</b>	<b>6.4</b>			<b>2617</b>	<b>19</b>

Littlefield (June 2nd - December 6th)					
	Precip.	Temp (°F)		DD60	# of 100 °F days
	(in.)	Min	Max		
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	-	-
<b>Total</b>	<b>10.2</b>			<b>2168</b>	<b>14</b>

Lubbock (May 19th - December 5th)					
	Precip.	Temp (°F)		DD60	# of 100 °F days
	(in.)	Min	Max		
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	-	-
<b>Total</b>	<b>13.3</b>			<b>2784</b>	<b>30</b>

**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

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

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

\*\*\* Grower entry

Variety not present (X)

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.

<b>AGCARES</b>		<b>DRY</b>									
Variety	Lint Yield lb/a	Turnout %	MIC	Length in.	Uniformity %	Strength g/tex	Seed Yield lb/a	Color	Leaf	Loan Value cents/lb	Lint Value \$/a
ST 4993 B3XF	363	36	4.5	1.10	82.4	31.0	513	31, 31, 31	1, 1, 1	55	200
DP 1646 B2XF	335	34	4.1	1.16	81.1	28.0	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	81.0	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
<b>Mean</b>	322	31	4.1	1.13	81.2	29.9	454			55	177
<b>STDEV</b>	25	1	0.2	0.01	0.9	0.9	36			1.8	14
<b>CV, %</b>	10	3	5	2	1	4	10			4	10
<b>p-value</b>	0.3090	0.0000	0.0000	0.0019	0.1325	0.0002	0.3116			0.0513	0.0792
<b>LSD</b>	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.

<b>CROSBY</b>		<b>IRR.</b>									
<b>Variety</b>	<b>Lint Yield</b>	<b>Turnout</b>	<b>MIC</b>	<b>Length</b>	<b>Uniformity</b>	<b>Strength</b>	<b>Color</b>	<b>Leaf</b>	<b>Seed Yield</b>	<b>Loan Value</b>	<b>Lint Value</b>
	<b>lb/a</b>	<b>%</b>		<b>in.</b>	<b>%</b>	<b>g/tex</b>			<b>lb/a</b>	<b>cents/lb</b>	<b>\$/a</b>
<b>ST 4993 B3XF</b>	959	36	4.5	1.24	83.3	31.8	41, 31, 41	7, 7, 6	1353	49	468
<b>DP 1820 B3XF</b>	954	39	4.6	1.18	83.0	31.1	31, 41, 41	3, 8, 6	1422	46	466
<b>DP 2127 B3XF</b>	927	36	4.1	1.22	83.3	30.6	41, 41, 41	6, 7, 8	1309	43	402
<b>DP 1845 B3XF</b>	922	34	4.2	1.25	82.7	30.7	41, 41, 41	8, 8, 6	1302	37	344
<b>NG 4098 B3XF</b>	886	33	3.9	1.28	82.3	32.3	51, 41, 51	8, 8, 8	1251	32	287
<b>PHY 332 W3FE*</b>	857	33	4.4	1.21	82.3	29.8	41, 41, 41	7, 6, 5	1210	50	424
<b>NG 3930 B3XF</b>	742	33	4.4	1.20	83.3	29.8	41, 41, 41	5, 6, 6	1179	50	418
<b>DP 2012 B3XF</b>	734	34	4.3	1.21	83.7	29.9	41, 31, 31	6, 5, 4	1036	52	387
<b>FM 2498 GLT</b>	726	34	5.1	1.22	82.7	29.8	41, 41, 41	6, 6, 7	1025	47	338
<b>Mean</b>	856	35	4.4	1.22	83.0	30.6			1232	45	393
<b>STDEV</b>	70	1	0.2	0.03	0.7	0.5			109	5.1	69
<b>CV, %</b>	10	5	7	3	1	2			11	14	22
<b>p-value</b>	0.0274	0.0115	0.0044	0.0796	0.4470	0.0004			0.0259	0.0208	0.2255
<b>LSD</b>	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).

\*Grower entry

Table 7. Halfway 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.

<b>HALFWAY IRR.</b>											
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
<b>DP 2127 B3XF</b>	664	33	4.5	1.22	83.3	30.5	31,31,31	3, 4, 3	937	56	372
<b>DP 1820 B3XF</b>	657	33	4.4	1.28	82.0	31.6	31, 41, 41	4, 5, 4	928	54	352
<b>DP 1845 B3XF</b>	631	31	3.7	1.29	81.1	30.4	41,41,31	5, 5, 5	892	52	328
<b>NG 4098 B3XF</b>	626	31	3.6	1.27	81.1	32.9	41, 41, 41	7, 5, 7	884	48	297
<b>ST 4993 B3XF</b>	605	30	4.0	1.21	81.9	33.0	31, 31, 31	4, 4, 5	854	54	329
<b>NG 3930 B3XF</b>	561	29	3.5	1.21	82.2	30.0	32, 31, 31	4, 4, 4	793	51	285
<b>DP 2012 B3XF</b>	408	26	3.5	1.22	79.7	29.5	31, 31, 41	3, 4, 5	577	52	217
<b>FM 2498 GLT</b>	327	28	3.3	1.17	80.0	31.6	32, 32, 32	4, 4, 5	462	47	155
<b>Mean</b>	560	30	3.8	1.23	81.4	31.2			791	52	292
<b>STDEV</b>	77	2	0.2	0.01	1.1	0.8			108	2.7	46
<b>CV, %</b>	17	6	6	1	2	3			17	6	19
<b>p-value</b>	0.0041	0.0051	0.0001	0.0000	0.0635	0.0032			0.0041	0.0479	0.0050
<b>LSD</b>	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).

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.

<b>LAMB</b>		<b>DRY</b>									
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
<b>DP 1646 B2XF</b>	515	33	3.8	1.26	82.8	30.8	31, 41, 31	5, 6, 5	728	50	260
<b>DP 2123 B3XF</b>	467	32	4.5	1.20	82.9	31.7	31, 41, 31	5, 5, 4	659	53	251
<b>DP 2044 B3XF</b>	451	30	3.5	1.24	81.8	33.0	41, 32, 31	5, 6, 5	637	47	217
<b>ST 5707 B2XF</b>	396	30	3.9	1.22	83.3	32.9	31, 31, 31	4, 4, 4	559	54	210
<b>DP 1822 XF</b>	359	33	4.3	1.25	84.0	33.4	31, 41, 31	6, 5, 5	507	52	185
<b>NG 3930 B3XF</b>	358	31	3.5	1.21	82.4	30.8	31, 41, 31	5, 6, 5	505	50	181
<b>ST 4993 B3XF</b>	347	33	4.3	1.21	83.4	32.2	31, 41, 31	6, 7, 5	490	50	175
<b>NG 4098 B3XF</b>	314	30	3.8	1.25	83.1	33.6	41, 41, 41	8, 8, 7	444	38	114
<b>Mean</b>	401	31	4.0	1.23	83.0	32.3			566	49	199
<b>STDEV</b>	93	2	0.2	0.01	0.4	0.7			131	3.1	45
<b>CV, %</b>	28	7	7	1	1	3			28	8	28
<b>p-value</b>	0.3970	0.3248	0.0024	0.0009	0.0050	0.0078			0.3966	0.0034	0.1097
<b>LSD</b>	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.

<b>LUBBOCK</b>		<b>IRR.</b>									
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
<b>FM 2498 GLT</b>	948	36	5.2	1.20	83.3	30.7	41, 41, 41	5, 6, 6	1471	47	491
<b>DP 1820 B3XF</b>	921	37	4.9	1.23	83.2	31.7	41, 31, 41	6, 5, 4	1301	51	473
<b>DP 2127 B3XF</b>	893	37	4.7	1.15	83.8	28.3	41, 41, 41	3, 5, 4	1337	53	502
<b>NG 4098 B3XF</b>	864	31	4.1	1.26	82.6	32.7	51, 51, 51	7, 8, 8	1220	37	326
<b>ST 4993 B3XF</b>	864	37	4.7	1.16	83.7	31.1	41, 41, 41	7, 5, 5	1220	51	436
<b>DP 2012 B3XF</b>	825	34	4.4	1.19	82.8	28.2	41, 31, 41	6, 4, 5	1165	52	429
<b>NG 3930 B3XF</b>	825	33	4.3	1.20	83.1	28.1	41, 41, 41	6, 5, 6	1165	50	411
<b>DP 1845 B3XF</b>	819	35	4.4	1.28	83.0	30.7	41, 41, 41	8, 6, 8	1156	38	313
<b>Mean</b>	870	35	4.6	1.21	83.2	30.2			1254	47	423
<b>STDEV</b>	59	1	0.2	0.01	0.4	0.7			91	4.0	52
<b>CV, %</b>	8	3	5	1	1	3			9	10	15
<b>p-value</b>	0.5224	0.0001	0.0004	0.0000	0.0938	0.0000			0.0428	0.0054	0.0182
<b>LSD</b>	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).



<http://cotton.tamu.edu/>

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