

2018 TEXAS HIGH PLAINS REPLICATED AGRONOMIC COTTON EVALUATION (RACE) TRIALS

Contributing Authors

Southern High Plains

Murilo Maeda, Extension Cotton Specialist,
Lubbock

Jourdan Bell, Extension & Research
Agronomist, Amarillo

Robert Wright, Extension Cotton Technician,
Lubbock

Wayne Keeling, Professor, Cropping Systems,
Lubbock

Danny Carmichael, Ag-CARES Manager,
Lamesa

Beau Henderson, Farm Foreman II, Lubbock

Casey Hardin, Farm Manager, Halfway

Caitlin Jackson, Crosby County Extension
Agent

Cristen Brooks, Floyd County Extension Agent

Wes Utley, Hockley County Extension Agent

Kendra Bilbrey, Cochran County Extension
Agent

Tyler Mays, Gaines, Terry, and Yoakum
Counties IPM Agent

Kerry Siders, Cochran, Hockley, and Lamb
Counties IPM Agent

Blayne Reed, Hale, Floyd, and Swisher Counties
IPM Agent

Panhandle

Jourdan Bell, Extension and Research
Agronomist – Amarillo

Kevin Heflin, Program Specialist, Amarillo

Carla Naylor, Research Associate, Amarillo

Preston Sirmon, Extension Assistant, Amarillo

Rick Auckerman, Deaf Smith County Agent

Marcel Fischbacher, Moore County Agent

Sergio Mendez, Parmer County Agent

Curtis Preston, Bailey County Agent

J.D. Ragland, Randall County Agent

Kristy Slough, Hutchinson County Agent

Scott Strawn, Ochiltree County Agent

JR Sprague, Lipscomb County Agent

Michael Wilkes, Roberts County Agent

John Villalba, Swisher County Agent

Murilo Maeda, Extension Cotton Specialist -
Lubbock





Table of Contents

	Page
<i>2018 Southern High Plains RACE Trials</i>	4
Acknowledgements.....	5
2018 Season Overview.....	6
RACE Trial Format.....	7
Conditions at Harvest.....	7
2018 RACE Trial Cotton Varieties.....	8
In-Season Rainfall and Heat Unit Accumulation.....	9
Floyd County.....	10
Dawson County.....	11
Hale County.....	12
Lubbock County.....	13
Terry County.....	14
Hockley County.....	15
Dryland Trials Combined.....	16
Limited Irrigation Trials Combined.....	17
Irrigated Trials Combined.....	18
<i>2018 Texas Panhandle RACE Trials</i>	19
<i>List of Figures (Panhandle RACE Trials)</i>	
Distribution of growing degree days (GDD60) accumulated from planting.....	20
4-week stand counts in the 2018 Hutchison County row spacing trial.....	34
Comparison of 2017 and 2018 lint data for the 2018 Hutchinson County row spacing trial.....	35

	Page
<i>List of Tables (Panhandle RACE Trials)</i>	
2018 Agronomic information by location.....	21
2018 trial condition and in-season details including irrigation, precipitation, Growing Degree Days, and harvest date.....	22
Characteristics of varieties evaluated in 2018 Panhandle RACE trials.....	23
Four-week post planting stand counts by location.....	24
Four-week post planting stand counts as a fraction of the planted population	25
2018 Lint yield and quality for the Deaf Smith County Irrigated RACE Trial, Frank Bezner Farm at Hereford, Texas.....	26
2018 Lint yield and quality for the Gray County Dryland RACE Trial, Chandler Bowers Farm at Pampa, Texas.....	27
2018 Lint yield and quality for the Hansford County Dryland RACE Trial, Craig McCloy Farm at Morse, Texas.....	28
2018 Lint yield and quality for the Hutchison County Irrigated RACE Trial, Craig McCloy Farm at Pringle, Texas.....	29
2018 Lint yield and quality for the Moore County Deficit Irrigated RACE Trial, Darren Stallwitz Farm at Dumas, Texas.....	30
2018 Lint yield and quality for the Ochiltree County Irrigated RACE Trial, Brandon Davis Farm at Perryton, Texas.....	31
2018 Lint yield and quality for the Sherman County Irrigated RACE Trial, Tommy Cartrite Farm at Sunray, Texas.....	32
2018 Lint yield and quality for the Swisher County Irrigated RACE Trial, Jeremy Reed Farm at Kress, Texas.....	33
2018 Hutchinson County row spacing lint yield and fiber quality.....	36
2018 Hutchinson County row spacing lint yield and fiber quality by row spacing.....	37
2018 Hutchinson County seeding rate trial lint yield and fiber data	38
Acknowledgements.....	39

**2018 Texas Southern High Plains
Replicated Agronomic Cotton Evaluation (RACE) Trials**



Murilo Maeda, Extension Cotton Specialist, Lubbock
Jourdan Bell, Extension & Research Agronomist, Amarillo
Robert Wright, Extension Cotton Technician, Lubbock
Wayne Keeling, Professor, Cropping Systems, Lubbock
Danny Carmichael, Ag-CARES Manager, Lamesa
Beau Henderson, Farm Foreman II, Lubbock
Casey Hardin, Farm Manager, Halfway
Caitlin Jackson, Crosby County Extension Agent
Cristen Brooks, Floyd County Extension Agent
Wes Utley, Hockley County Extension Agent
Kendra Bilbrey, Cochran County Extension Agent
Tyler Mays, Gaines, Terry, and Yoakum Counties IPM Agent
Kerry Siders, Cochran, Hockley, and Lamb Counties IPM Agent
Blayne Reed, Hale, Floyd, and Swisher Counties IPM Agent

Acknowledgements

We would like to express our sincere appreciation for all the collaborators (Cole Hamilton, Lubbock County, Clay and David Lewis, Terry County; Gary Nixon, Floyd County; Mark and David Appling, Crosby County; David Pearson, Hockley County; Shannon Patton, Yoakum County; and Andrew Sauer, Mitchell County) who allowed us in their land, use of their equipment, and most importantly their time. Among other things, it is because of their selflessness that we are able to provide up-to-date information on the performance of commercially available varieties for use by, and to the benefit of all farmers across the State of Texas; but particularly in the Southern High Plains region. Sincere thanks to Cotton Incorporated, Plains Cotton Growers, and the Texas State Support Committee for their support of these trials, as well as their tireless efforts in advocating and educating people to improve the cotton industry, ultimately benefiting our growers.

Seed companies are also acknowledged for their continued support of Texas A&M AgriLife Extension efforts in bringing reliable, non-biased information to our cotton producers. Companies graciously donate all the seed that goes into the Replicated Agronomic Cotton Evaluation (RACE) trials.

This year in particular we would also like to acknowledge Dr. Jaroy Moore (Professor and Center Director, Lubbock), Dr. Gaylon Morgan (Professor and State Extension Cotton Specialist, College Station), Dr. Wayne Keeling (Professor - Cropping Systems, Lubbock), Mr. Robert Wright (Extension Cotton Technician, Lubbock), as well as our County and IPM agents across the region, among many others, for putting forth the effort to ensure these trials were in place for the 2018 season.

Appreciation is also extended to Dr. Brendan Kelly, Jacob James, and staff at the Fiber Biopolymer Research Institute at Texas Tech University in Lubbock for their continued support of our activities.

Seed Companies:



2018 Season Overview

As many of you are well aware, 2018 was definitely a challenging growing season. Lack of adequate soil moisture early on meant many of the dryland acres failed across the region, and even some of the irrigated crop ended up with skippy stands. A total of 11 RACE trials were planted in 2018, 6 dryland and 5 irrigated. Trials were planted in Hale, Floyd, Lubbock, Crosby, Hockley, Terry, Yoakum, Dawson, and Mitchell Counties. Five trials (4 dryland and 1 irrigated) failed to make adequate stand, so they were abandoned. Studies that made it to harvest and are present in this report include 2 dryland (Floyd and Dawson) and 4 irrigated (Lubbock, Hockley, Terry, and Hale).

In most places across the Southern High Plains soil moisture remained fairly low throughout the season, with much of it not coming until mid to late September for many; a bit too late for it to be of any real good help to the dryland crop. When harvest time came around, widespread rainfall across the region held many of our producers back, and kept those strippers parked at the barns for most of October.

All things considered though, as we compile this report in late January most of the Texas High Plains growers should be done with harvest (or pretty close to it). Given favorable weather, it is pretty impressive to watch how fast acres and acres of cotton literally disappear from the fields. Most gins appear to be wrapping up their season or getting pretty close to it as well. According to the USDA-National Agricultural Statistics Service office, 7,400,000 acres of cotton were planted in the State and as of December 15, 2018 a total of 4,227,950 had been ginned in Texas.

According to the USDA-Agricultural Marketing Service office the ten most planted varieties accounted for approximately 58.5% of the total acreage in Texas (Table 1).

Table 1. Ten most planted upland cotton varieties in the State of Texas. Source: USDA-AMS.

	Company	Variety	% of acres
1	Deltapine	DP 1646 B2XF	10.73%
2	Americot	NG 4689 B2XF	9.84%
3	Americot	NG 3406 B2XF	8.94%
4	Americot	NG 3500 XF	7.50%
5	Americot	NG 4545 B2XF	7.44%
6	FiberMax	FM 1830 GLT	4.03%
7	Americot	NG 3640 XF	3.33%
8	Phytogen	PHY 330 W3FE	2.41%
9	Phytogen	PHY 312 WRF	2.19%
10	All-Tex/Dyna-Gro	DG 3385 B2XF	2.13%

RACE Trial Format

For the 2018 season the same format introduced in 2016 was maintained. A standard lineup of 10-12 commercial varieties (exception of CG18XT9 XF) were evaluated across different locations in the Southern High Plains region, with all seed companies given the opportunity to participate in these trials, as well as select varieties from their respective portfolios to enter the RACE trials. Varieties could differ between dryland and irrigated trials, but most (7 varieties) were present in both (Table 2). All plots were replicated three times and local management of the study followed the collaborator's on-farm practices, but no one variety was treated different in any of these trials. As noted on figure 1, most trials were limited by the lack of timely rainfall but not by the lack of accumulated heat units during 2018. Accumulated DD60s from planting to harvest ranged from 2,200 to 2,600 by early October, when temperatures started to drop. Average yields ranged from 220 to 277 lbs of lint per acre on the dryland trials, 367 to 532 lbs of lint per acre on the limited irrigation trials, and 852 to 1,316 lbs of lint per acre for the irrigated trials. Trials were harvested with a cotton stripper and seedcotton samples were collected for each variety and replication upon harvest. Those samples were later sent to the Fiber Biopolymer Research Institute at Texas Tech University in Lubbock for ginning and HVI fiber quality analysis. From the six locations that made it to harvest, growing conditions (and yield levels) could be separated into three (dryland, limited irrigation, and irrigated). Pooled data for these is shown as bar graphs in this report for reference.

Specifically, for the Terry County RACE trial our collaborator was interested in evaluating two varieties (NG3517 B2XF and DP1549 B2XF) so they were both added. Moving forward, we would like to encourage our growers in the region to get in touch with your local Texas A&M AgriLife Extension office if they have interest in hosting one of these trials at their farm or would like to see a particular variety included. These trials are done for the benefit of our growers and should also include varieties that are relevant for their specific regions.

Conditions at Harvest

All trials were harvested between October 30th and December 19th, 2018.

- Terry County: A single replication of two FiberMax varieties (FM1888 GL and FM2574 GLT) in Terry County suffered dicamba damage early in the season and were deemed lost. These were not included in the data analysis for this report.
- Floyd County: Harvest occurred during fairly high winds, thus some loss of seedcotton happened when transferring it from the stripper into the weigh wagon. Wind effect assumed to have affected all plots equally.
- Hale County: No issues.
- Lubbock County: No issues.
- Hockley County: Harvest happened over two days (December 18 – 19th) due to rain. Precipitation was minimal but enough to put a hold on harvest operations.
- Dawson County: Last few plots harvested at approximately 60% RH, otherwise no issues.

2018 RACE Trial Cotton Varieties

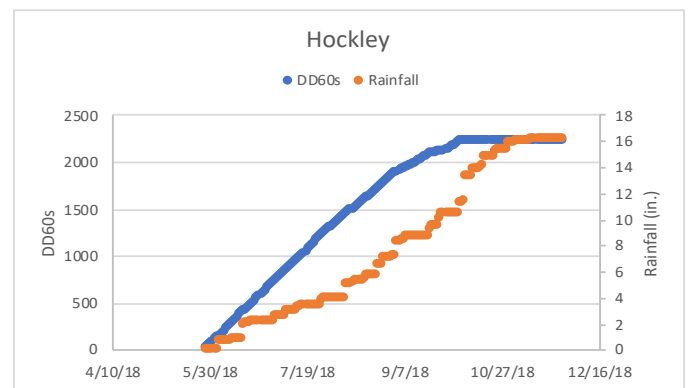
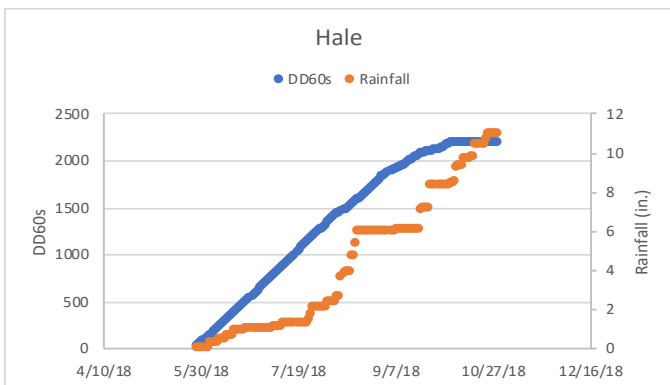
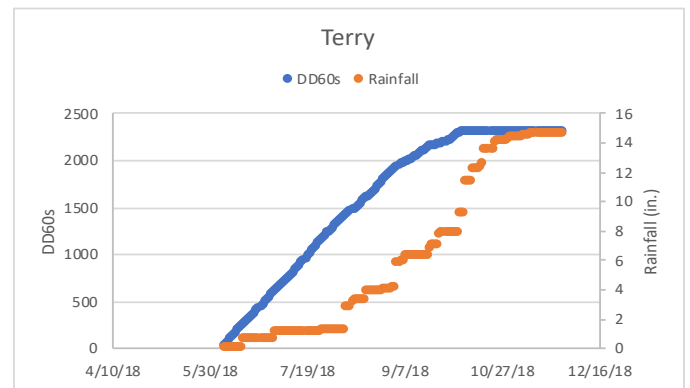
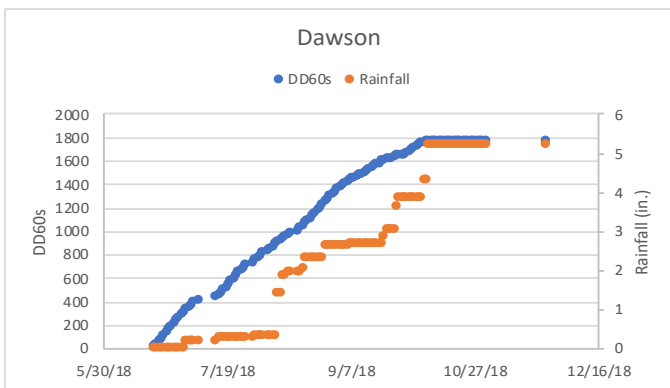
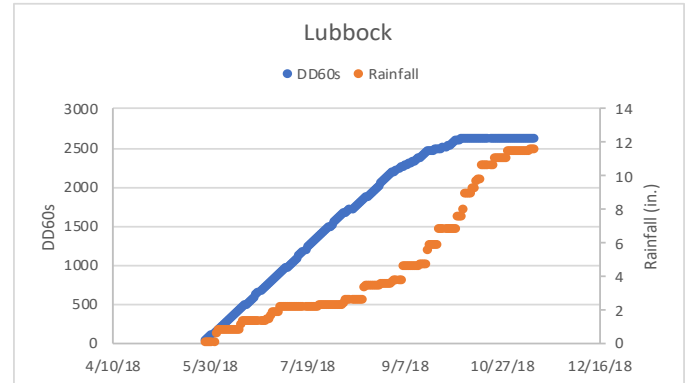
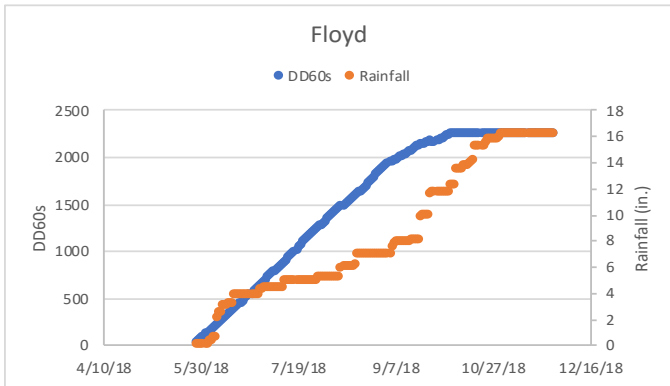
Table 2. Cotton varieties included in the irrigated and dryland 2018 Southern High Plains RACE trials.

Irrigated		Dryland	
1	NG 3780 B2XF	1	NG 3640 XF
2	NG 4777 B2XF	2	NG 4777 B2XF
3	NG 4689 B2XF	3	NG 4545 B2XF
4	NG 4792 XF	4	NG 4792 XF
5	DP 1522 B2XF	5	DP 1549 B2XF
6	DP 1646 B2XF	6	DP 1646 B2XF
7	CP 9598 B3XF	7	FM 2574 GLT
8	CP 18XT9 XF	8	FM 1830 GLT
9	FM 2574 GLT	9	FM 1888 GL
10	FM 1830 GLT	10	FM 1911 GLT
11	FM 1888 GL		
12	FM 1911 GLT		
13	NG 3517 B2XF*		
14	DP 1549 B2XF*		

*Grower entry, exclusive to Terry County trial.

B2XF = Bollgard II® XtendFlex™
 B3XF = Bollgard III® XtendFlex™
 GL = GlyTol® LibertyLink®
 GLT = GlyTol® LibertyLink® TwinLink®
 XF = XtendFlex™

Figure 1. In-Season Rainfall and Heat Unit (DD60s) Accumulation



Data retrieved from the National Weather Service.
Dawson County weather dataset is incomplete.

Floyd County

Dryland

Planted: 05/29/2018

Harvested: 11/28/2018

Plant population and row spacing: 29,000 plants per acre, 40 in. rows

Heat Units (DD60s): 2,250

In-season rainfall: 16 in.

Variety	Lint Yield lbs/acre		Bales acre	Turnout %		Mic		Length in.		Unif %		Strength g/tex		Stand plants/acre		Loan Value (cents/lb)		Lint Value (\$/acre)	
DP1549	284	a	0.59	0.39	a	3.9	cd	1.05	d	79.8	a	29.5	bc	15,033	a	51.9	bc	147	a
FM1911	278	a	0.58	0.38	a	4.1	b-d	1.12	b	81.5	a	31.3	ab	18,083	a	54.7	ab	152	a
NG4545	262	a	0.55	0.39	a	4.7	ab	1.06	d	80.9	a	30.7	ab	13,725	a	53.1	bc	139	a
FM1888	261	a	0.54	0.39	a	4.5	a-c	1.10	bc	80.5	a	30.8	ab	15,251	a	54.1	a-c	141	a
DP1646	246	a	0.51	0.39	a	3.7	d	1.17	a	80.8	a	28.4	c	12,854	a	53.7	a-c	133	a
NG3640	230	a	0.48	0.38	a	5.0	a	1.06	d	81.6	a	32.5	a	18,736	a	51.8	c	119	a
NG4777	227	a	0.47	0.39	a	4.9	a	1.08	cd	81.6	a	31.0	ab	18,954	a	52.8	bc	120	a
NG4792	227	a	0.47	0.39	a	4.7	ab	1.05	d	81.3	a	31.6	a	16,558	a	51.3	c	116	a
FM1830	226	a	0.47	0.39	a	4.3	a-d	1.17	a	81.5	a	31.6	a	16,993	a	56.1	a	127	a
FM2574	223	a	0.46	0.39	a	4.4	a-c	1.13	b	80.6	a	31.0	ab	18,083	a	56.3	a	125	a
Mean	246		0.51	0.39		4.4		1.10		81.0		30.8		16,427		53.6		132	
STDEV	34			0.01		0.53		0.05		0.85		1.46		3,084		2.18		18.87	
CV, %	13.8			2.7		12.0		4.5		1.0		4.7		18.8		4.1		14.3	
p-value	0.1492			0.9596		0.0153		<.0001		0.1287		0.0187		0.1346		0.0108		0.2081	
LSD	NS			NS		0.7		0.035		NS		1.94		NS		2.8		NS	

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

CV: Coefficient of Variation in %, LSD: Least Significant Difference at 0.05 probability level, NS: not significant

Lint loan values were calculated from the 2018 Upland Cotton loan valuation model from Cotton Incorporated using a \$0.52/lb base price.

MIC = Micronaire, UNIF = Uniformity

NG = NexGen, FM = FiberMax, DP = Deltapine

Dawson County

Dryland

Planted: 06/20/2018

Harvested: 12/06/2018

Plant population and row spacing: 25,000 plants per acre, 40 in. rows

Heat Units (DD60s): 1,771 (incomplete dataset)

In-season rainfall: 16 in. (incomplete dataset)

Variety	Lint Yield lbs/acre		Bales acre	Turnout %		Mic		Length in.		Unif %		Strength g/tex		Stand plants/acre	Loan Value (cents/lb)		Lint Value (\$/acre)	
NG4792	273	a	0.57	0.35	a	4.3	a	1.11	d	80.2	ab	31.4	ab	NC	54.4	a	148	a
DP1646	271	a	0.56	0.36	a	3.3	d	1.21	a	80.8	a	29.9	a-c	NC	52.5	a	143	a
DP1549	269	a	0.56	0.37	a	3.5	cd	1.11	d	78.6	d	29.6	c	NC	53.1	a	143	a
NG3640	250	a	0.52	0.37	a	4.1	a	1.14	b-d	80.8	a	31.6	a	NC	54.1	a	136	a
NG4777	238	a	0.50	0.36	a	4.2	a	1.13	cd	80.0	ab	29.8	a-c	NC	53.1	a	127	a
NG4545	229	a	0.48	0.34	a	4.2	a	1.12	d	79.0	cd	29.6	bc	NC	54.4	a	124	a
FM1830	228	a	0.48	0.38	a	4.1	a	1.18	a	80.5	ab	30.9	a-c	NC	54.5	a	124	a
FM1911	225	a	0.47	0.31	a	3.9	a-c	1.17	ab	79.7	bc	30.7	a-c	NC	54.3	a	122	a
FM2574	217	a	0.45	0.33	a	3.6	b-d	1.20	a	80.4	ab	30.9	a-c	NC	54.8	a	119	a
FM1888	193	a	0.40	0.37	a	3.9	ab	1.17	a-c	80.2	ab	30.9	a-c	NC	54.4	a	105	a
Mean	239		0.50	0.35		3.9		1.15		80.0		30.5			54.0		129	
STDEV	44.54			0.04		0.39		0.04		0.84		1.16			1.47		23.93	
CV, %	18.6			10.0		10.0		3.8		1.0		3.8			2.7		18.5	
p-value	0.4345			0.4164		0.001		0.0004		0.008		0.2201			0.6467		0.5662	
LSD	NS			NS		0.44		0.046		0.923		1.83			NS		NS	

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

CV: Coefficient of Variation in %, LSD: Least Significant Difference at 0.05 probability level, NS: not significant, NC: not collected

Lint loan values were calculated from the 2018 Upland Cotton loan valuation model from Cotton Incorporated using a \$0.52/lb base price.

MIC = Micronaire, UNIF = Uniformity

NG = NexGen, FM = FiberMax, DP = Deltapine

Hale County

Irrigated – Center Pivot

Planted: 05/14/2018

Harvested: 10/30/2018

Plant population and row spacing: 45,000 plants per acre, 40 in. rows

Heat Units (DD60s): 2,195

In-season rainfall: 11 in.

Irrigation: 16.5 in.

Variety	Lint Yield lbs/acre		Bales acre	Turnout %		Mic		Length in.		Unif %		Strength g/tex		Stand plants/acre		Loan Value (cents/lb)		Lint Value (\$/acre)	
NG4792	1,269	a	2.64	0.38	cd	4.0	a	1.13	de	83.4	ab	31.8	cd	32,898	ab	54.0	a-c	685	a
FM1830	1,223	ab	2.55	0.40	b	3.9	ab	1.22	a	83.0	a-c	33.8	a	30,283	b	55.7	a	681	a
FM2574	1,207	a-c	2.52	0.42	a	3.8	ab	1.22	a	83.6	a	33.5	ab	25,708	b-d	52.1	cd	630	ab
NG4777	1,197	a-c	2.49	0.37	d	3.8	a-c	1.15	cd	82.6	a-c	33.6	ab	31,155	ab	54.7	ab	654	a
NG4689	1,176	a-d	2.45	0.39	c	4.0	a	1.17	bc	82.9	a-c	30.0	f	38,562	a	53.2	a-d	625	ab
FM1911	1,125	b-e	2.34	0.39	c	3.6	cd	1.17	bc	82.9	a-c	31.8	cd	27,015	bc	51.5	de	579	bc
FM1888	1,123	b-e	2.34	0.38	cd	3.6	cd	1.18	bc	82.7	a-c	33.7	a	20,697	c-e	49.2	ef	553	cd
NG3780	1,114	b-e	2.32	0.36	e	3.9	ab	1.13	e	82.2	cd	33.1	ab	28,540	b	52.4	b-d	584	bc
CG18XT9	1,104	c-e	2.30	0.41	ab	3.5	d	1.15	cd	81.3	d	32.7	bc	15,468	e	48.2	f	531	cd
DP1646	1,096	c-e	2.28	0.42	a	3.6	cd	1.22	a	82.6	a-c	30.5	ef	26,144	b-d	52.0	cd	570	bc
CG9598	1,081	de	2.25	0.42	a	3.7	b-d	1.17	bc	82.3	b-d	31.3	de	18,736	de	53.5	a-d	578	bc
DP1522	1,026	e	2.14	0.38	cd	3.4	d	1.14	de	82.2	cd	31.0	de	25,490	b-d	49.0	f	502	d
Mean	1,145		2.39	0.39		3.7		1.17		82.6		32.2		26,725		52.1		598	
STDEV	87.35			0.02		0.24		0.03		0.81		1.37		7,236		2.57		63.85	
CV, %	7.6			5.2		6.4		3.0		1.0		4.2		27.1		4.9		10.7	
p-value	0.0077			<.0001		0.0003		<.0001		0.0241		<.0001		0.0002		<.0001		<.0001	
LSD	56.4			0.0064		0.132		0.114		0.555		0.462		3851.86		4.93		31.14	

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

CV: Coefficient of Variation in %, LSD: Least Significant Difference at 0.05 probability level, NS: not significant

Lint loan values were calculated from the 2018 Upland Cotton loan valuation model from Cotton Incorporated using a \$0.52/lb base price.

MIC = Micronaire, UNIF = Uniformity

NG = NexGen, FM = FiberMax, DP = Deltapine, CG = Croplan Genetics

Lubbock County

Irrigated - Furrow

Planted: 05/08/2018

Harvested: 11/13/2018

Plant population and row spacing: 45,000 plants per acre, 40 in. rows

Heat Units (DD60s): 2,607

In-season rainfall: 11.5 in.

Irrigation: Row watered 3x

Variety	Lint Yield		Bales	Turnout		Mic		Length		Unif		Strength		Stand		Loan Value		Lint Value	
	lbs/acre		acre	%				in.		%		g/tex		plants/acre		(cents/lb)		(\$/acre)	
NG3780	484	a	1.01	0.36	c-e	4.8	ab	1.10	c-e	80.4	d	30.0	b-d	23,094	a	52.6	a	254	a
NG4792	468	a	0.98	0.35	e	5.0	a	1.10	de	82.0	ab	32.9	a	22,658	a	50.2	a	235	a
CG18XT9	448	a	0.93	0.35	de	4.4	de	1.14	a-c	81.6	a-c	31.4	a-b	11,547	c	35.7	b	175	a
CG9598	440	a	0.92	0.39	a	4.8	a-c	1.13	a-d	81.9	a-c	30.3	b-d	15,468	bc	54.2	a	239	a
DP1522	432	a	0.90	0.37	cd	4.6	b-d	1.11	b-e	82.4	a	30.2	b-d	18,954	ab	47.1	a	204	a
NG4777	421	a	0.88	0.36	c-e	4.8	a-c	1.08	e	80.6	d	29.1	d	18,301	ab	52.5	a	221	a
NG4689	396	a	0.83	0.37	cd	4.8	ab	1.07	e	81.0	cd	29.5	cd	22,222	a	50.4	a	200	a
FM1911	383	a	0.80	0.37	bc	4.4	de	1.14	a-d	81.8	a-c	31.1	bc	23,094	a	52.8	a	202	a
FM1888	379	a	0.79	0.37	bc	4.4	e	1.13	a-d	80.5	d	30.9	bc	20,261	ab	47.8	a	179	a
DP1646	366	a	0.76	0.39	a	4.5	de	1.16	a	81.3	b-d	29.1	d	17,647	a-c	52.4	a	192	a
FM2574	345	a	0.72	0.39	a	4.6	c-e	1.16	a	81.1	b-d	31.3	ab	18,519	ab	53.5	a	184	a
FM1830	319	a	0.66	0.38	ab	4.6	b-d	1.14	ab	81.7	a-c	31.5	ab	22,222	a	54.4	a	173	a
Mean	407		0.85	0.37		4.7		1.12		81.4		30.6		19,499		50.3		205	
STDEV	1117.10			0.02		0.24		0.04		0.79		1.39		4,570		7.01		64.20	
CV, %	28.8			4.4		5.1		3.1		1.0		4.6		23.4		13.9		31.4	
p-value	0.9084			<.0001		<.0001		0.0015		0.003		0.0053		0.0171		0.0446		0.9279	
LSD	NS			0.0067		0.121		0.0208		0.485		0.882		3078.7		4.99		NS	

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

CV: Coefficient of Variation in %, LSD: Least Significant Difference at 0.05 probability level, NS: not significant

Lint loan values were calculated from the 2018 Upland Cotton loan valuation model from Cotton Incorporated using a \$0.52/lb base price.

MIC = Micronaire, UNIF = Uniformity

NG = NexGen, FM = FiberMax, DP = Deltapine, CG = Croplan Genetics

Terry County

Irrigated – Center Pivot

Planted: 06/07/2018

Harvested: 11/27/2018

Plant population and row spacing: 27,000 plants per acre, 40 in. rows

Heat Units (DD60s): 2,307

In-season rainfall: 14.6 in.

Irrigation: 9 in.

Variety	Lint Yield lbs/acre		Bales acre	Turnout %		Mic		Length in.		Unif %		Strength g/tex		Stand plants/acre		Loan Value (cents/lb)		Lint Value (\$/acre)	
NG3780	539	a	1.12	0.38	a	3.6	a	1.08	ef	79.4	bc	29.1	a	17,211	a-c	53.2	a	287	a
DP1522	532	a	1.11	0.37	a	3.2	de	1.08	d-f	80.1	ab	28.0	a	16,558	a-d	48.5	b-e	258	a
NG3517	532	a	1.11	0.38	a	3.4	a-d	1.08	f	79.6	bc	28.9	a	13,943	b-e	51.0	a-c	271	a
NG4689	531	a	1.11	0.39	a	3.5	a-c	1.05	f	79.9	ab	27.7	a	16,558	a-d	50.2	a-d	267	a
FM1888	520	a	1.08	0.40	a	2.9	ef	1.13	b-c	79.8	ab	29.4	a	15,686	a-d	47.9	b-e	250	a
DP1549	517	a	1.08	0.38	a	2.8	f	1.06	f	78.5	c	27.6	a	16,993	a-c	44.7	f	233	a
CG18XT9	509	a	1.06	0.39	a	3.1	de	1.12	cd	80.6	a	28.7	a	10,022	e	51.1	ab	261	a
FM1830	499	a	1.04	0.39	a	3.2	b-e	1.14	bc	80.0	ab	29.1	a	12,636	de	50.9	a-c	254	a
NG4792	497	a	1.04	0.40	a	3.3	b-d	1.05	f	79.7	ab	29.2	a	17,429	ab	47.9	c-e	238	a
NG4777	495	a	1.03	0.40	a	3.5	ab	1.07	f	79.6	ab	29.7	a	18,519	a	52.1	a	257	a
FM1911	442	a	0.92	0.38	a	3.2	c-e	1.17	ab	79.8	ab	28.5	a	18,736	a	52.0	a	230	a
DP1646	431	a	0.90	0.39	a	2.7	f	1.18	a	79.8	ab	28.5	a	13,072	c-e	48.1	b-e	208	a
FM2574	401	a	0.84	0.39	a	2.7	f	1.15	a-c	79.1	bc	28.6	a	14,706	a-c	46.1	ef	187	a
CG9598	391	a	0.81	0.38	a	2.7	f	1.13	bc	80.0	ab	29.6	a	10,240	e	47.3	d-f	185	a
Mean	488		1.02	0.39		3.1		1.11		79.7		28.8		15,165		49.3		242	
STDEV	76.66			0.01		0.33		0.05		0.68		0.95		3,491		2.86		43.41	
CV, %	15.6			2.9		10.6		4.4		0.9		3.3		23.0		5.8		17.9	
p-value	0.2632			0.2721		<.0001		<.0001		0.0453		0.0648		0.0018		0.0002		0.1263	
LSD	NS			NS		0.135		0.0189		0.448		NS		1,949.80		1.429		NS	

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

CV: Coefficient of Variation in %, LSD: Least Significant Difference at 0.05 probability level, NS: not significant

Lint loan values were calculated from the 2018 Upland Cotton loan valuation model from Cotton Incorporated using a \$0.52/lb base price.

MIC = Micronaire, UNIF = Uniformity

NG = NexGen, FM = FiberMax, DP = Deltapine, CG = Croplan Genetics

Hockley County

Irrigated – Center Pivot

Planted: 05/23/2018

Harvested: 12/19/2018

Plant population and row spacing: 38,000 plants per acre, 40 in. rows

Heat Units (DD60s): 2,232

In-season rainfall: 16.1 in.

Irrigation: 16 in.

Variety	Lint Yield lbs/acre	Bales acre	Turnout %	Mic	Length in.	Unif %	Strength g/tex	Stand plants/acre	Loan Value (cents/lb)	Lint Value (\$/acre)
NG4777	1,436 a	2.99	0.36 ab	3.8 a	1.15 f	81.4 ab	30.4 ab	26,144 a-c	55.0 a	790 a
FM1911	1,411 ab	2.94	0.37 ab	3.5 ab	1.19 b-d	82.6 a	29.0 cd	26,362 a-c	53.4 ab	753 ab
NG4689	1,358 ab	2.83	0.37 a	3.5 ab	1.15 ef	81.5 ab	30.7 ab	23,529 a-d	53.6 ab	729 ab
DP1646	1,321 a-c	2.75	0.38 a	3.3 a-c	1.20 b	80.6 b	27.9 d	25,054 a-d	49.0 bc	650 bc
FM1830	1,320 a-c	2.75	0.37 ab	3.4 a-c	1.24 a	82.5 a	30.5 ab	26,144 a-c	50.2 ab	664 a-c
CG9598	1,318 a-c	2.75	0.38 a	3.7 a	1.18 c-e	82.3 a	28.8 cd	20,479 cd	54.3 ab	716 a-c
NG4792	1,318 a-c	2.75	0.37 a	3.8 a	1.12 g	82.6 a	30.3 ab	28,322 ab	52.7 ab	695 a-c
FM1888	1,279 bc	2.66	0.36 ab	3.7 a	1.18 b-d	82.3 a	31.0 a	24,401 a-d	51.4 ab	658 bc
DP1522	1,275 bc	2.66	0.36 ab	3.7 a	1.17 d-f	82.2 a	27.7 d	19,826 d	51.2 ab	654 bc
FM2574	1,208 c	2.52	0.37 a	3.0 bc	1.20 bc	80.8 b	29.6 bc	22,876 b-d	48.5 bc	587 c
NG3780	1,179 c	2.46	0.35 b	3.7 a	1.19 b-d	81.8 ab	30.5 ab	29,412 a	53.8 ab	634 bc
CG18XT9	600 d	1.25	0.35 b	2.9 c	1.17 de	81.6 ab	28.9 cd	11,329 e	43.4 c	264 d
Mean	1,252	2.6	0.4	3.5	1.18	81.9	29.6	23,656	51.4	650
STDEV	223.89		0.01	0.40	0.03	0.92	1.26	5,521	4.30	144.49
CV, %	17.9		3.9	11.5	1.1	2.8	4.2	23.3	8.4	22.2
p-value	<.0001		0.0377	0.0306	0.0245	<.0001	<.0001	0.0002	0.0258	<.0001
LSD	74.80		0.01	0.03	0.63	0.01	0.63	2,996.88	2.97	64.54

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

CV: Coefficient of Variation in %, LSD: Least Significant Difference at 0.05 probability level, NS: not significant

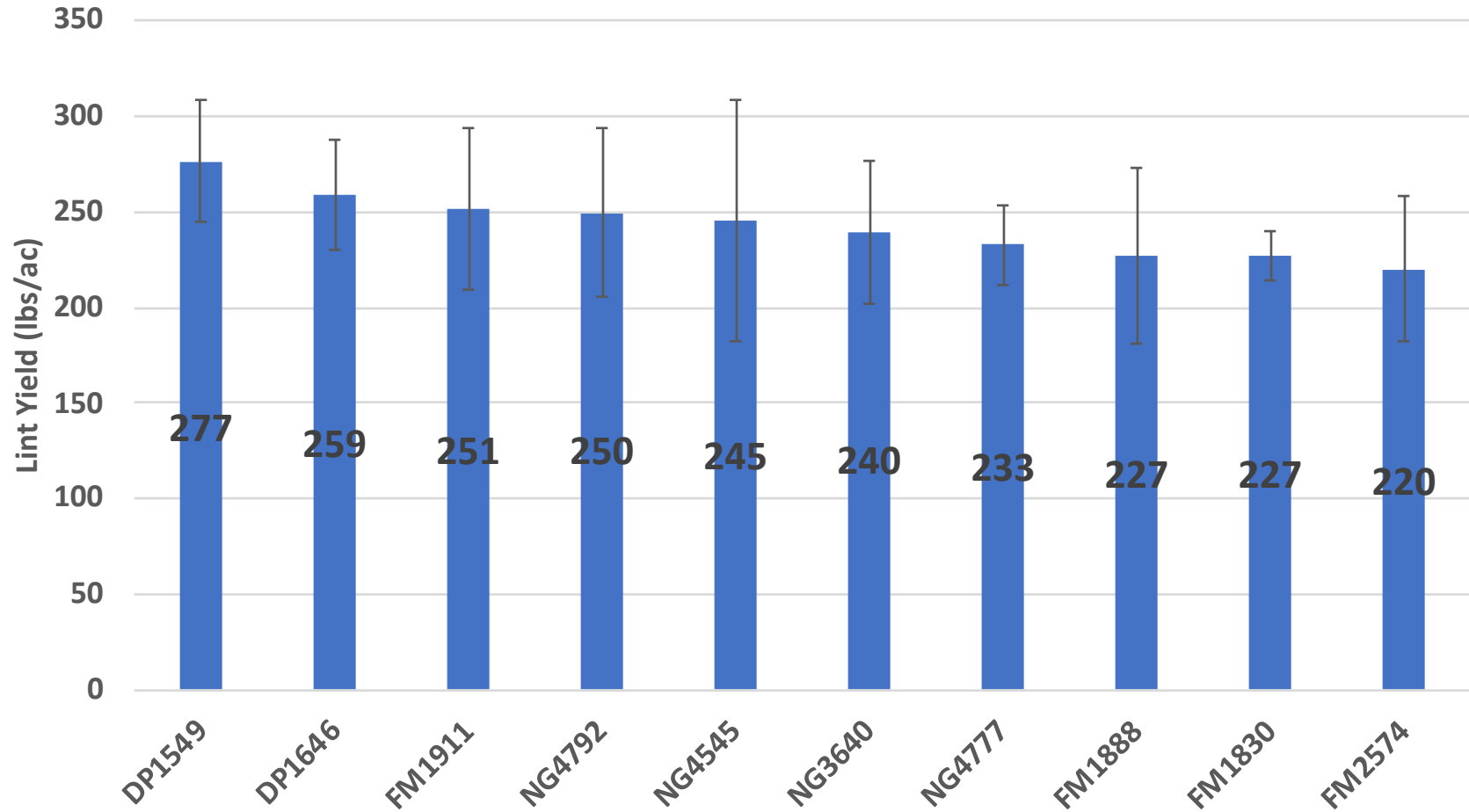
Lint loan values were calculated from the 2018 Upland Cotton loan valuation model from Cotton Incorporated using a \$0.52/lb base price.

MIC = Micronaire, UNIF = Uniformity

NG = NexGen, FM = FiberMax, DP = Deltapine, CG = Croplan Genetics

Dryland RACE Trials at Dawson and Floyd Combined

No statistical differences between varieties at the 0.05 probability level.
Bars represent \pm one standard deviation.

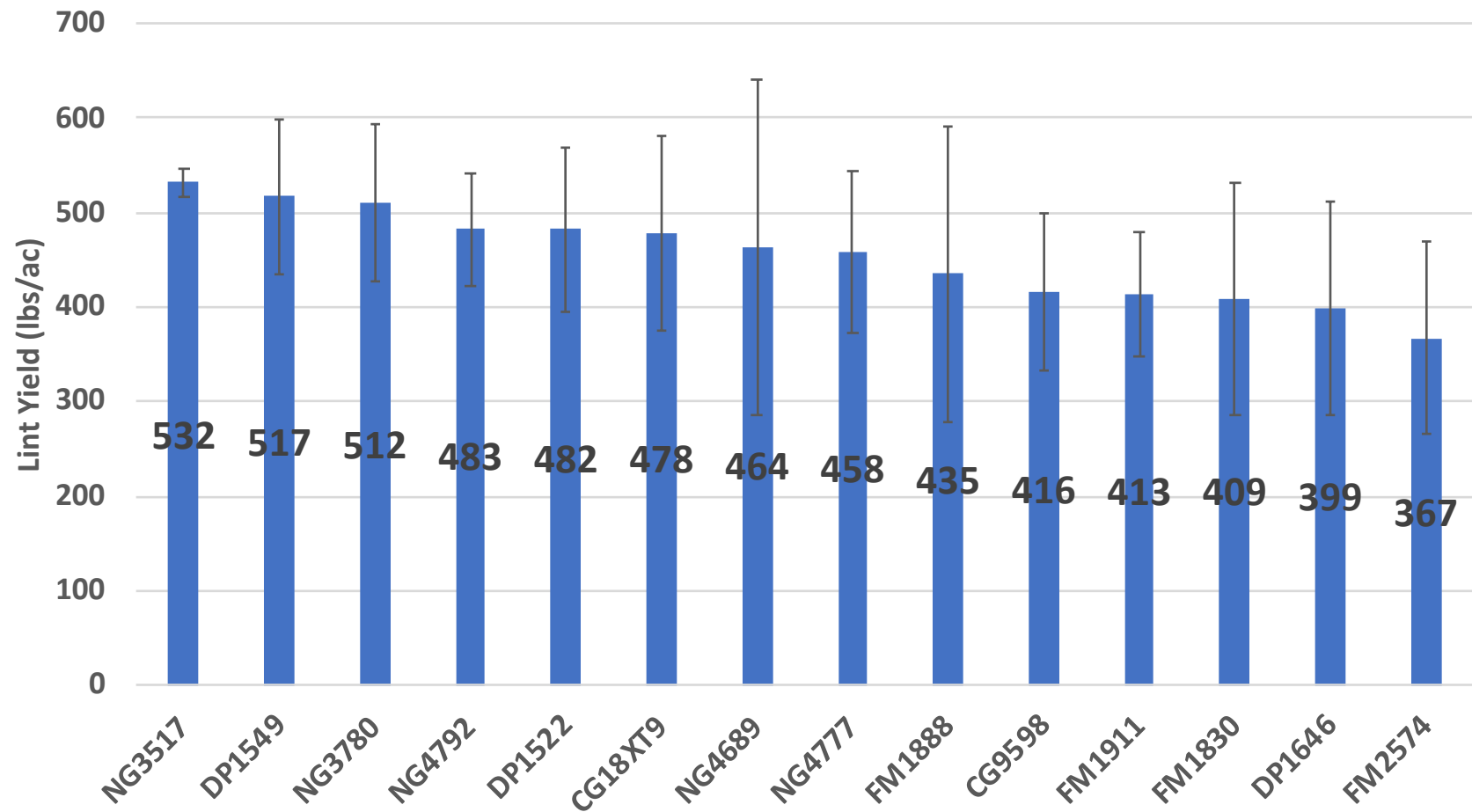


Limited Irrigation RACE Trials at Lubbock and Terry Combined

No statistical differences between varieties at the 0.05 probability level.

Bars represent \pm one standard deviation.

NG3517 and DP1549 are exclusive to Terry County.



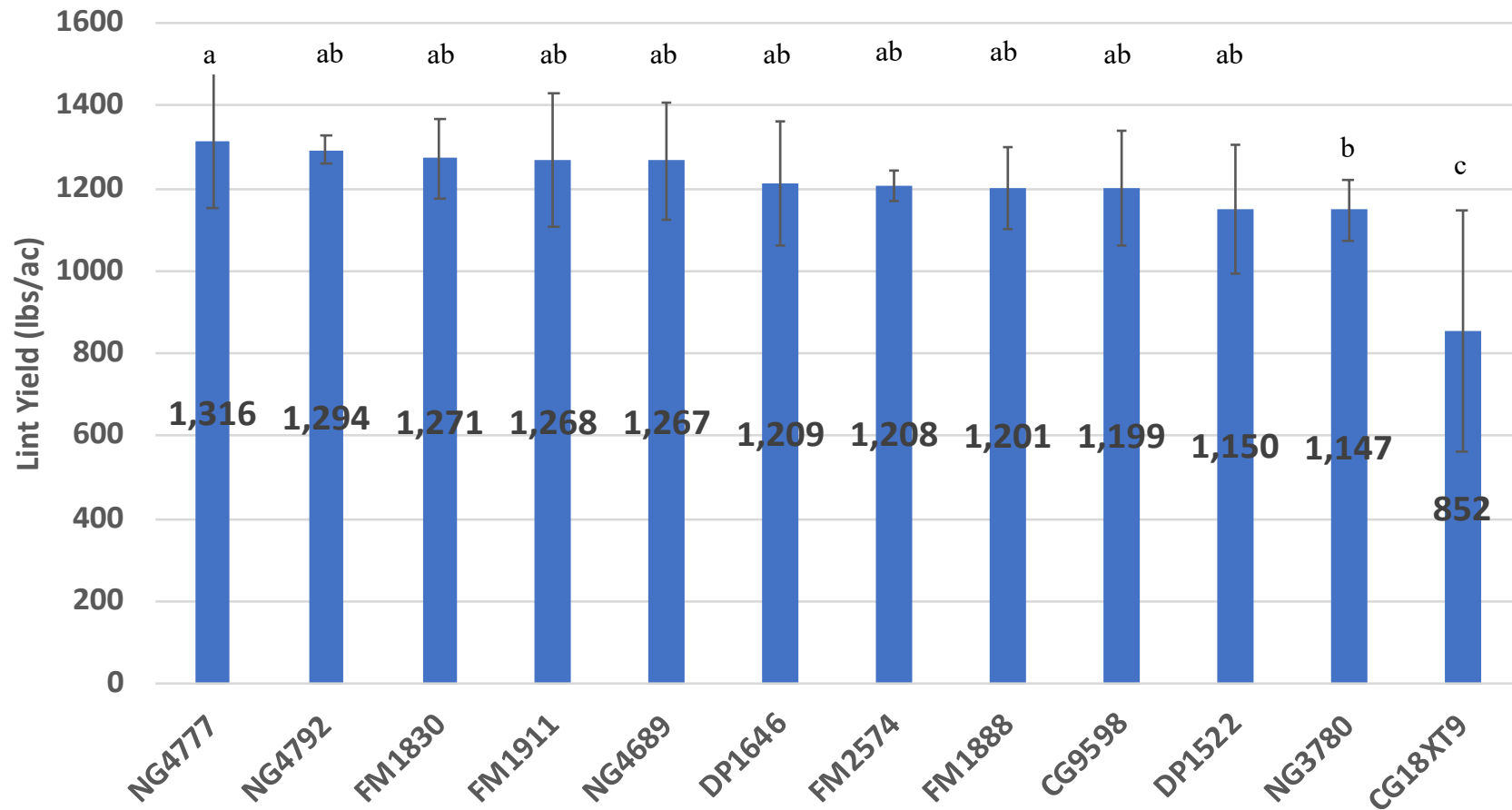
Irrigated RACE Trials at Hale and Hockley Combined

p-value = <0.0001

Least Significant Difference = 166.6 lbs/ac

Different letters indicate statistical significance at the 0.05 probability level.

Bars represent \pm one standard deviation.



**2018 Texas Panhandle
Replicated Agronomic Cotton Evaluation (RACE)**



Jourdan Bell, Extension and Research Agronomist – Amarillo
Kevin Heflin, Program Specialist, Amarillo
Carla Naylor, Research Associate, Amarillo
Preston Sirmon, Extension Assistant, Amarillo
Rick Auckerman, Deaf Smith County Agent
Marcel Fischbacher, Moore County Agent
Sergio Mendez, Parmer County Agent
Curtis Preston, Bailey County Agent
J.D. Ragland, Randall County Agent
Kristy Slough, Hutchinson County Agent
Scott Strawn, Ochiltree County Agent
JR Sprague, Lipscomb County Agent
Michael Wilkes, Roberts County Agent
John Villalba, Swisher County Agent
Murilo Maeda, Extension Cotton Specialist - Lubbock

2018 Texas Panhandle Highlights

The Texas Panhandle RACE trials provide producers knowledge of varietal performance and stability under regional environmental conditions. The 2018 production season brought many weather-related challenges. In the southern and southwestern Panhandle, dry planting conditions and above average early season temperatures resulted in dryland cotton crop failure across much of the region. In the northeastern Panhandle, early June rain brought much needed moisture, but severe rainfall events resulted in water logging as well as extensive hail damage and crop loss on numerous fields. Regionally, above-average spring temperatures resulted in rapid growing degree day (GDD) accumulation in May (Fig. 1). Hot-dry conditions in late-May and early-June increased crop water demands, but under irrigation, crops were managed for optimum production with irrigated yields exceeding 2000 lbs/ac at many locations.

The 2018 Texas Panhandle RACE Trials were planted at ten locations under varying crop rotations, row spacings and populations (Table 1). Two locations were not taken to harvest (Randall – drought and poor stand; Parmer – extensive volunteer cotton). Eight early to early-mid maturing double and triple herbicide stacked varieties were planted at each location.

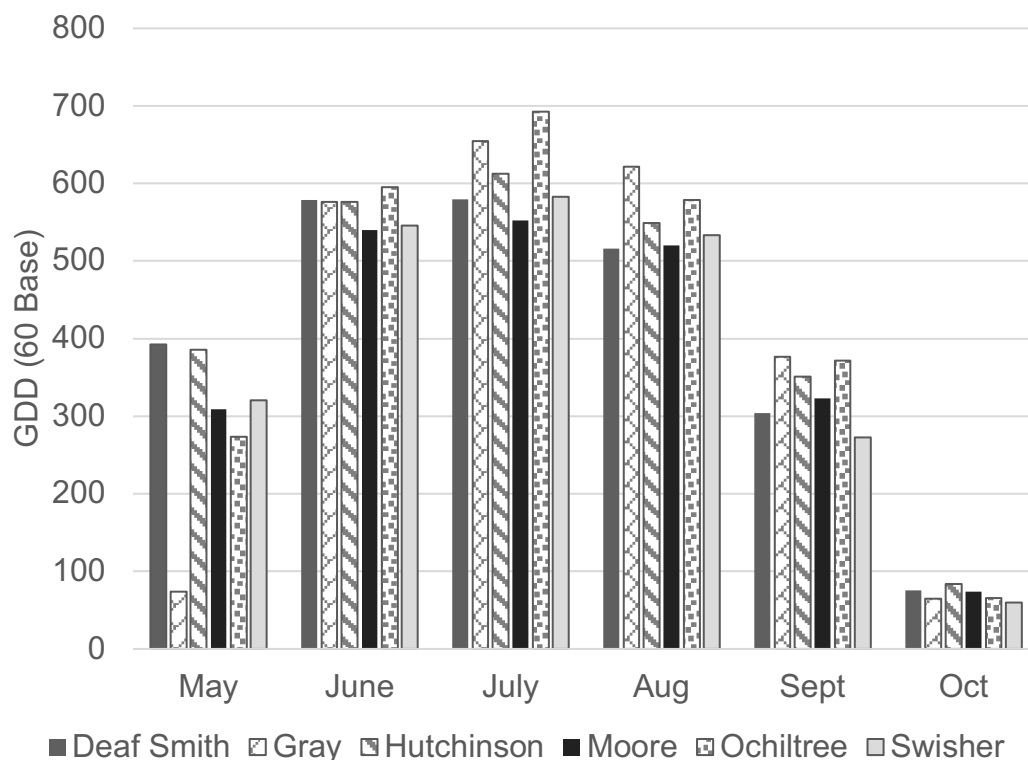


Figure 1. Distribution of growing degree days (GDD60) accumulated from planting for locations where a Texas A&M AgriLife weather station is located.

Table 1. 2018 Agronomic information by location.

County	Location (Nearest Town)	Cooperator	County Agent(s)	Planting Date	Planting Population (Seeds/ac)	Previous Crop	Row Spacing (in)	Air Temp. at Planting (F)	4" Soil Temp. at Planting (F)
Deaf Smith	Hereford	Frank Bezner	Rick Auckerman	8-May-18	55,000	Corn	30	60	59
Gray	Pampa	Chandler Bowers	NA	28-May-18	32,000	Grain Sorghum	30	93	85
Hansford	Morse	Craig McCloy	Kristy Slough	21-May-18	36,000	Wheat	40	66	67
Hutchinson	Pringle	Craig McCloy	Kristy Slough	8-May-18	80,000	Cotton w/ wheat cover	20	72	67
Moore	Dumas	Stallwitz Farm	Marcel Fischbacher	15-May-18	60,000	Grain Sorghum	30	81	79
Ochiltree	Perryton	Davis Farm	Strawn, Sprague, and Wilkes	15-May-18	50,000	Corn	30	68	68
Parmer	Farwell	Williams Farm	C. Preston and S. Mendez	7-May-18	40,000	Cotton	30	75	63
Randall	Umbarger	Danny Hicks	J.D. Ragland	30-May-18	35,000	Wheat	30	81	76
Sherman	Sunray	Tommy Cartrite	Marcel Fischbacher	10-May-18	65,000	Corn	30	77	66
Swisher	Kress	Jeremy Reed	John Vilalba	11-May-18	50,000	Grain Sorghum	40	72	68

Table 2. 2018 trial condition and in-season details including irrigation, precipitation, Growing Degree Days, and harvest date.

County	Trial Condition/Issue	Irrigation (inches)	In-season Precipitation (inches)*	Growing Degree Days	Harvest Date
Deaf Smith	Good	8	13	2446	10-Dec-18
Gray	Dicamba Drift	Dryland	12	2368	1-Dec-18
Hansford	Field water logged in June	Dryland	16	2354	20-Nov-18
Hutchinson	Good	12	16	2558	29-Oct-18
Moore	Good	6.5	9	2237	3-Nov-18
Ochiltree	Good	9	18	2577	28-Nov-18
Parmer	Not Harvested - Heavy Volunteer	---	---	---	---
Randall	Terminated	Dryland	---	---	---
Sherman	Good	12	16	2322	29-Nov-18
Swisher	Good - Hail in July	not available	11	2315	26-Nov-18

* Across the Texas Panhandle, approximately 5 inches of rainfall (+/- 2.5 inches) was received after October 1. Heavy precipitation in October resulted in harvest delays and quality concerns. Regionally, precipitation after October 1 did not contribute to lint productivity.

Table 3. Characteristics of varieties evaluated in 2018 Panhandle RACE trials.

Variety	Maturity	Herbicide Package	Leaf Type	Storm Tolerance*	Plant Height	Mic	Vert.	Bacterial Blight
Deltapine 1522B2XF	Early-Med	Glyphos., Glufos., and Dicamba	Light Hair	5	Medium	4.3	Poor	Susceptible
Deltapine 1612B2XF	Early	Glyphos., Glufos., and Dicamba	Light Hair	6	Medium	4.3	Good	Mod. Susc.
Deltapine 1820B3XF	Early-Med	Glyphos., Glufos., and Dicamba	Semi-Smooth	3.5	Med-Tall	4.1	Moderate	Resistant
Stoneville 4747GLB2	Early-Med	Glyphosate and Glufosinate	Semi-Smooth	7	Short	4.2	Intermediate	Susceptible
FiberMax 1320GL	Very Early	Glyphosate and Glufosinate	Semi-Smooth	7	Short	3.9	Fair	Partial Susc.
FiberMax 1888GLB2	Early-Med	Glyphosate and Glufosinate	Semi-Smooth	7	Medium	3.9	Fair	Resistant
FiberMax 2011GT†	Early	Glyphosate and Glufosinate	Semi-Smooth	8	Short	3.9	Very Good	Resistant
FiberMax 2322GL†	Med	Glyphosate and Glufosinate	Semi-Smooth	6	Med-Tall	4	Excellent	Susceptible
NexGen 3406B2XF	Early-Med	Glyphos., Glufos., and Dicamba	Semi-Smooth	6	Medium	4.4	Intermediate	Susceptible
NexGen 3500B2XF	Early-Med	Glyphos., Glufos., and Dicamba	Smooth	6	Med-Tall	3.8	Excellent	Resistant
NexGen 3517B2XF	Early-Med	Glyphos., Glufos., and Dicamba	Smooth	6	Med-Tall	4.3	Tolerant	Mod. Susc.
NexGen 3780B2XF	Early-Med	Glyphos., Glufos., and Dicamba	Smooth	6	Med-Tall	4.3	Tolerant	Susceptible

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

†Variety included at the producer's request.

Table 4. Four-week post planting stand counts by location.

	Deaf Smith	Gray	Hansford	Hutchinson	Moore	Ochiltree	Parmer	Sherman	Swisher
	----plants/acre----								
Planted Pop.	55,000	32,000	36,000	80,000	60,000	50,000	40,000	65,000	50,000
DP 1522 B2XF	----*	14665	24720	----	31363	----	----	----	19275
DP 1612 B2XF	37171	20764	22325	66211	35138	39494	22651	55902	28314
DP 1820 B3XF	27443	18150	----	60984	----	37752	18150	50239	25483
FM 1320 GL	22651	19892	12850	56846	32815	33977	16988	42253	----
FM 1888 GL	23522	16553	17642	55757	30492	33541	18150	43415	----
NG 3406 B2XF	29476	18731	17860	57935	36736	35429	21054	48932	22433
NG 3500 XF	----	17714	19166	----	31218	----	----	----	19602
NG 3517 B2XF	27152	----	----	52054	----	35429	17134	50094	21562
NG 3780 B2XF	29621	20328	17533	55975	31508	33541	17424	41527	25156
ST 4747 GLB2	30056	18440	17315	57281	32525	34993	19021	44286	23522
Trial Average	28387	18360	18676	57880	32724	35520	18822	47081	23168
CV, %	11.30	23.10	22.85	8.01	18.83	9.39	23.08	7.08	16.85
p-value	0.0038	0.7557	0.2914	0.0656	0.9082	0.2086	0.7838	0.0007	0.0482
LSD	5619	ns	ns	8020	10666	5775	ns	5657	6205

* Varieties not planted at the respective location.

Table 5. Four-week post planting stand counts by location as a fraction of the planted population.

	Deaf Smith	Gray	Hansford	Hutchinson	Moore	Ochiltree	Parmer	Sherman	Swisher	
	----plants/acre----									Variety
Planted Pop.	55,000	32,000	36,000	80,000	60,000	50,000	40,000	65,000	50,000	Average
DP 1522 B2XF	----*	0.46	0.69	----	0.52	----	----	----	0.39	0.51
DP 1612 B2XF	0.68	0.65	0.62	0.83	0.59	0.79	0.57	0.86	0.57	0.68
DP 1820 B3XF	0.50	0.57	----	0.76	----	0.76	0.45	0.77	0.51	0.62
FM 1320 GL	0.41	0.62	0.36	0.71	0.55	0.68	0.42	0.65	----	0.55
FM 1888 GL	0.43	0.52	0.49	0.70	0.51	0.67	0.45	0.67	----	0.55
FM 2011 GT	----	----	----	----	----	----	----	0.75	----	0.75
FM 2322 GL	----	----	----	----	----	----	----	----	0.39	0.39
NG 3406 B2XF	0.54	0.59	0.50	0.72	0.61	0.71	0.53	0.75	0.45	0.60
NG 3500 XF	----	0.55	0.53	----	0.52	----	----	----	0.39	0.50
NG 3517 B2XF	0.49	----	----	0.65	----	0.71	0.43	0.77	0.43	0.58
NG 3780 B2XF	0.54	0.64	0.49	0.70	0.53	0.67	0.44	0.64	0.50	0.57
ST 4747 GLB2	0.55	0.58	0.48	0.72	0.54	0.70	0.48	0.68	0.47	0.58
Trial Average	0.52	0.57	0.52	0.72	0.55	0.71	0.47	0.73	0.46	0.57

* Varieties not planted at the respective location.

Table 6. 2018 Lint yield and quality for the Deaf Smith County RACE Trial, Frank Bezner Farm at Hereford, Texas (Rick Auckerman County Extension Agent). The reported lint value is an average of the calculated lint values of all three replications.

Variety	Lint Yield --- lb/acre ---		Seed Yield --- lb/acre ---		Turnout --%--	Micro- naire	Fiber Length (in.)	Strength (g/tex)	Uniformity --%--	Lint loan Value cents/lb	Lint Value --- \$/acre ---
ST 4747 GLB2	2366	a	4078	a	0.32 abc	3.4	1.19	29.2	81.1	48.28	1141.32
DP 1820 B3XF	2329	ab	3601	a	0.35 a	2.9	1.24	31.7	81.5	44.20	1030.49
FM 1888 GL	2201	abc	3703	a	0.33 ab	3.2	1.20	31.2	81.0	49.18	1082.10
DP 1612 B2XF	2132	abc	3806	a	0.32 abc	3.1	1.19	30.9	81.7	47.83	1019.81
FM 1320 GL	2011	abc	3790	a	0.31 bc	3.0	1.14	30.2	80.0	46.13	927.86
NG 3780 B2XF	1861	bc	3438	a	0.31 bc	3.1	1.17	31.4	79.6	49.10	914.69
NG 3406 B2XF	1841	c	3393	a	0.31 bc	2.6	1.14	27.8	80.2	44.08	817.41
NG 3517 B2XF	1756	c	3453	a	0.30 c	2.8	1.16	30.4	79.6	44.58	782.87
Test average	2062		3658		0.32	2.99	1.18	30.33	80.57	46.67	964.57
CV, %	5.92		5.20		2.58	8.04	1.10	1.91	0.98	5.95	10.03
Std. Dev.	240.30		264.80		0.02	0.27	0.03	1.32	0.99	2.93	140.65
p-value	0.0063		0.0727		0.0058	0.0699	0.0008	0.0021	0.1496	0.3787	0.0543
LSD	482.7		ns		0.0328	ns	0.0514	2.2967	ns	ns	ns

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

CV - coefficient of variation.

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

Lint loan value calculated from the 2018 Upland Cotton Loan Valuation Model from Cotton Incorporated using a \$0.52/pound base.

NG=NexGen, FM=FiberMax, ST=Stoneville, DP=DeltaPine

Table 7. 2018 Lint yield and quality for the Gray County Dryland RACE Trial, Chandler Bowers Farm at Pampa, Texas. The reported lint value is an average of the calculated lint values of all three replications.

Variety	Lint Yield --- lb/acre ---		Seed Yield --- lb/acre ---		Turnout --%--	Micro- naire	Fiber Length (in.)	Strength (g/tex)	Uniformity --%--	Lint loan Value cents/lb	Lint Value --- \$/acre ---
DP 1612 B2XF	970	a	1363	a	0.33 bc	3.9	1.14	30.0	81.0	49.89	532.26
NG 3406 B2XF	960	a	1320	ab	0.34 ab	3.6	1.12	29.2	81.1	50.63	520.35
DP 1522 B2XF	941	a	1274	ab	0.34 ab	3.7	1.14	30.1	80.7	51.05	494.95
DP 1820 B3XF*	933	a	1158	b	0.35 a	3.6	1.16	30.7	80.6	51.67	490.22
NG 3500 XF	919	a	1275	ab	0.34 ab	4.3	1.10	30.5	81.9	51.39	486.82
NG 3780 B2XF	871	a	1328	ab	0.32 c	4.1	1.13	30.4	80.8	54.07	470.94
FM 1320 GL	.		.		.	.	.	.	.	.	.
FM 1888 GL	.		.		.	.	.	.	.	.	.
ST 4747 GLB2	.		.		.	.	.	.	.	.	.
Test average	932		1286		0.34	3.88	1.13	30.14	81.02	51.45	499.26
CV, %	7.89		6.82		2.10	14.70	1.22	2.92	1.24	7.58	9.64
Std. Dev.	73.00		102.18		0.01	0.58	0.02	0.92	0.99	3.70	41.28
p-value	0.4904		0.0582		0.0001	0.3898	0.0004	0.2682	0.4993	0.7462	0.9946
LSD	ns		197.1		0.0159	ns	0.0309	ns	ns	ns	ns

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

CV - coefficient of variation.

*Farmer Entry

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

Lint loan value calculated from the 2018 Upland Cotton Loan Valuation Model from Cotton Incorporated using a \$0.52/pound base.

NG=NexGen, FM=FiberMax, ST=Stoneville, DP=DeltaPine

Non-XtendFlex varieties injured by dicamba drift.

Table 8. 2018 Lint yield and quality for the Hansford County Dryland RACE Trial, Craig McCloy Farm at Morse, Texas (Kristy Slough County Extension Agent). The reported lint value is an average of the calculated lint values of all three replications.

Variety	Lint Yield --- lb/acre ---		Seed Yield --- lb/acre ---		Turnout --%--	Micro- naire	Fiber Length (in.)	Strength (g/tex)	Uniformity --%--	Lint loan Value cents/lb	Lint Value --- \$/acre ---
NG 3406 B2XF	437	a	628	a	0.37 ab	3.8	1.02	27.5	78.9	48.48	211.24
FM 1320 GL	429	a	659	a	0.35 bc	3.7	1.00	28.4	77.8	47.55	204.03
FM 1888 GL	419	a	608	a	0.36 abc	3.7	1.03	27.9	78.2	47.48	198.20
NG 3500 XF	400	a	598	a	0.36 abc	4.2	1.01	28.2	79.6	46.20	185.61
DP 1612 B2XF	400	a	595	a	0.36 abc	4.0	1.02	28.1	79.0	45.63	182.98
ST 4747 GLB2	387	a	599	a	0.35 bc	3.9	1.01	25.4	76.5	43.87	170.30
DP 1522 B2XF	385	a	541	a	0.37 a	4.1	1.02	28.0	79.4	47.23	182.23
NG 3780 B2XF	374	a	582	a	0.34 c	3.9	1.00	27.7	77.4	45.10	168.42
Test average	404		601		0.36	3.91	1.01	27.63	78.35	46.44	187.87
CV, %	12.88		13.80		1.98	1.91	1.45	2.35	0.81	3.77	13.50
Std. Dev.	48.40		76.50		0.01	0.17	0.02	1.07	1.15	2.06	25.77
p-value	0.77		0.82		0.0043	<0.0001	0.1612	0.0009	0.0002	0.0821	0.4047
LSD	ns		ns		0.0200	0.21	ns	ns	1.7869	ns	ns

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

CV - coefficient of variation.

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

Lint loan value calculated from the 2018 Upland Cotton Loan Valuation Model from Cotton Incorporated using a \$0.52/pound base.

NG=NexGen, FM=FiberMax, ST=Stoneville, DP=DeltaPine

Table 9. 2018 Lint yield and quality for the Hutchinson County Irrigated RACE Trial, Craig McCloy Farm at Pringle, Texas (Kristy Slough County Extension Agent). The reported lint value is an average of the calculated lint values of all three replications.

Variety	Lint Yield --- lb/acre ---		Seed Yield --- lb/acre ---		Turnout --%--	Micro- naire	Fiber Length (in.)	Strength (g/tex)	Uniformity --%--	Lint loan Value cents/lb	Lint Value --- \$/acre ---		
DP 1820 B3XF	2266	a	3051	a	0.37	a	4.0	1.22	32.7	82.8	50.78	1149.75	a
FM 1888 GL	2046	ab	2952	a	0.35	ab	3.7	1.21	32.6	82.7	50.72	1038.21	ab
FM 1320 GL	1982	bc	2909	a	0.35	ab	3.9	1.13	30.8	80.7	52.10	1033.56	ab
ST 4747 GLB2	1927	bc	3223	a	0.32	cd	3.7	1.17	29.6	79.1	48.35	931.65	bc
NG 3517 B2XF	1833	bcd	3266	a	0.31	d	3.6	1.16	32.6	81.3	50.20	919.61	bc
NG 3780 B2XF	1728	cd	2588	a	0.30	d	3.4	1.18	32.8	80.7	50.12	864.49	c
NG 3406 B2XF	1723	cd	2700	a	0.34	bc	3.3	1.14	30.1	80.7	49.00	843.63	c
DP 1612 B2XF	1630	d	2674	a	0.32	d	3.6	1.17	31.9	81.7	52.62	857.12	c
Test average	1892		2920		0.33		3.66	1.17	31.64	81.22	50.49	954.75	
CV, %	4.87		10.81		2.54		4.25	1.77	2.01	1.07	3.65	5.26	
Std. Dev.	212.21		357.62		0.02		0.25	0.04	1.32	1.37	2.06	112.17	
p-value	<0.0001		0.1308		<0.0001		0.0009	0.0005	<0.0001	0.0016	0.1563	<0.0001	
LSD	260.3		ns		0.0238		0.4395	0.0588	1.7944	2.4542	ns	142.07	

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

CV - coefficient of variation.

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

Lint loan value calculated from the 2018 Upland Cotton Loan Valuation Model from Cotton Incorporated using a \$0.52/pound base.

NG=NexGen, FM=FiberMax, ST=Stoneville, DP=DeltaPine

Table 10. 2018 Lint yield and quality for the Moore County Deficit Irrigated RACE Trial, Darren Stallwitz Farm, Dumas, Texas (Marcel Fischbacher County Extension Agent). The reported lint value is an average of the calculated lint values of all three replications.

Variety	Lint Yield --- lb/acre ---	Seed Yield --- lb/acre ---	Turnout --%--	Micro- naire	Fiber Length (in.)	Strength (g/tex)	Uniformity --%--	Lint loan Value cents/lb	Lint Value --- \$/acre ---
DP 1612 B2XF	1203 a	1702 a	0.34 a	4.6	1.14	31.3	82.8	54.27	652.87 a
FM 1888 GL	1116 a	1483 ab	0.34 a	4.6	1.16	31.6	81.8	53.25	591.97 ab
ST 4747 GLB2	1108 a	1627 ab	0.32 a	4.3	1.15	27.9	80.4	48.93	540.64 ab
DP 1522 B2XF	1099 a	1528 ab	0.33 a	4.6	1.14	30.8	82.4	54.53	599.32 ab
NG 3406 B2XF	1075 a	1486 ab	0.34 a	4.5	1.11	29.6	82.9	54.30	584.03 ab
NG 3500 XF	1053 a	1532 ab	0.33 a	4.7	1.11	32.1	82.5	53.70	568.01 ab
NG 3780 B2XF	1028 a	1532 ab	0.32 a	4.7	1.12	30.7	81.4	52.28	536.01 ab
FM 1320 GL	953 a	1339 b	0.34 a	4.6	1.11	31.1	81.5	53.65	511.68 b
Test average	1079	1529	0.33	4.58	1.13	30.63	81.96	53.11	573.07
CV, %	10.14	7.98	3.54	5.50	1.84	2.40	1.17	2.72	8.32
Std. Dev.	114.79	144.04	0.01	0.24	0.25	1.40	1.14	2.13	58.10
p-value	0.3004	0.0597	0.0675	0.7289	0.0626	0.0001	0.0709	0.0044	0.0544
LSD	ns	344.7	ns	ns	ns	2.0819	ns	4.09	134.81

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

CV - coefficient of variation.

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

Lint loan value calculated from the 2018 Upland Cotton Loan Valuation Model from Cotton Incorporated using a \$0.52/pound base.

NG=NexGen, FM=FiberMax, ST=Stoneville, DP=DeltaPine

Table 11. 2018 Lint yield and quality for the Ochiltree County Irrigated RACE Trial, Davis Farm, Perryton, Texas (Scott Strawn and JR Sprague County Extension Agents). The reported lint value is an average of the calculated lint values of all three replications.

Variety	Lint Yield		Seed Yield		Turnout	Micro-	Fiber Length	Strength	Uniformity	Lint loan Value	Lint Value	
	--- lb/acre ---		--- lb/acre ---		--%--	naire	(in.)	(g/tex)	--%--	cents/lb	--- \$/acre ---	
DP 1820 B3XF	2194	a	3275	a	0.37	a	3.4	1.24	32.6	81.8	53.28	1147.33
DP 1612 B2XF	1944	ab	3378	a	0.32	b	3.4	1.18	32.0	82.0	50.58	964.33
ST 4747 GLB2	1929	ab	3490	a	0.32	b	3.5	1.18	28.6	78.7	50.27	963.00
FM 1888 GL	1919	ab	3210	a	0.34	ab	3.3	1.21	32.0	81.8	50.88	957.33
NG 3517 B2XF	1873	b	3476	a	0.32	b	3.2	1.17	32.5	80.9	50.60	929.00
NG 3406 B2XF	1864	b	3152	a	0.34	ab	3.2	1.15	30.2	81.0	51.18	935.67
NG 3780 B2XF	1982	b	3423	a	0.34	b	3.1	1.19	33.7	81.1	49.78	964.00
FM 1320 GL	1777	b	3220	a	0.32	b	3.7	1.15	30.5	81.4	54.17	944.67
Test average	1935		3328		0.33		3.34	1.18	31.50	81.08	51.34	975.67
CV, %	5.63		5.04		3.73		3.49	1.25	3.31	0.97	2.29	9.23
Std. Dev.	153.87		187.43		0.02		0.22	0.03	1.78	1.20	1.77	100.99
p-value	0.0064		0.1537		0.0012		0.0001	<0.0001	0.0005	0.0027	0.0032	0.1461
LSD	303.9		ns		0.0346		0.3295	0.0420	2.9445	2.2251	3.33	ns

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

CV - coefficient of variation.

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

Lint loan value calculated from the 2018 Upland Cotton Loan Valuation Model from Cotton Incorporated using a \$0.52/pound base.

NG=NexGen, FM=FiberMax, ST=Stoneville, DP=DeltaPine

Table 12. 2018 Lint yield and quality for the Sherman County Irrigated RACE Trial, Tommy Cartrite Farm, Dumas, Texas (Marcel Fischbacher County Extension Agent). The reported lint value is an average of the calculated lint values of all three replications.

Variety	Lint Yield --- lb/acre ---		Seed Yield --- lb/acre ---		Turnout --%--	Micro- naire	Fiber Length (in.)	Strength (g/tex)	Uniformity --%--	Lint loan Value cents/lb	Lint Value --- \$/acre ---		
FM 2011 GT*	1947	a	3048	a	0.34	a	2.8	1.14	29.4	79.8	45.13	869.75	ab
DP 1820 B3XF	1932	a	2788	a	0.33	ab	2.9	1.18	30.4	80.3	47.97	913.67	a
ST 4747 GLB2	1904	a	3017	a	0.29	ab	2.8	1.16	27.7	79.0	44.48	842.50	ab
FM 1888 GL	1904	a	3140	a	0.31	ab	2.7	1.20	30.7	80.8	45.82	853.33	ab
FM 1320 GL	1849	ab	3012	a	0.31	ab	2.8	1.12	30.1	80.3	46.63	845.67	ab
NG 3517 B2XF	1536	bc	2900	a	0.28	ab	2.6	1.17	31.7	80.9	45.90	692.00	bc
NG 3406 B2XF	1483	c	2523	a	0.30	ab	2.7	1.13	28.4	80.8	44.07	643.33	c
DP 1612 B2XF	1422	c	2693	a	0.27	b	2.7	1.17	31.2	80.4	45.05	633.67	c
NG 3780 B2XF	1446	c	2636	a	0.29	ab	2.8	1.17	31.0	80.2	44.72	636.00	c
Test average	1714		2862		0.30		2.8	1.16	30.05	80.26	45.53	769.99	
CV, %	12.22		18.60		6.95		6.65	1.16	1.73	0.73	5.12	14.61	
Std. Dev.	279.83		496.49		0.03		0.18	0.03	1.30	0.76	2.26	146.0377	
p-value	0.0131		0.8009		0.0183		0.6441	<0.0001	<0.0001	0.0193	0.6102	0.0189	
LSD	361.14		ns		0.0606		ns	0.0385	1.4876	1.6781	ns	193.23	

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

CV - coefficient of variation.

*Farmer Entry

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

Lint loan value calculated from the 2018 Upland Cotton Loan Valuation Model from Cotton Incorporated using a \$0.52/pound base.

NG=NexGen, FM=FiberMax, ST=Stoneville, DP=DeltaPine

Table 13. 2018 Lint yield and quality for the Swisher County Irrigated RACE Trial, Jeremy Reed Farm, Kress, Texas (John Villalba County Extension Agent). The reported lint value is an average of the calculated lint values of all three replications.

Variety	Lint Yield		Seed Yield		Turnout	Micro-	Fiber Length	Strength	Uniformity	Lint loan Value	Lint Value		
	--- lb/acre ---		--- lb/acre ---		--%--	naire	(in.)	(g/tex)	--%--	cents/lb	--- \$/acre ---		
FM 1888 GL	2221	a	2837	ab	0.36	ab	3.8	1.15	32.4	80.3	54.07	1184.00	ab
ST 4747 GLB2	2196	a	3064	a	0.33	ab	3.9	1.15	28.9	80.0	51.27	1108.67	a
FM 2322 GL*	2192	a	2567	b	0.36	ab	3.8	1.16	32.1	80.7	53.05	1141.33	ab
DP 1820 B3XF	2182	a	2541	b	0.37	a	4.0	1.18	32.9	80.7	54.72	1177.33	b
FM 1320 GL	2067	ab	2845	ab	0.34	ab	3.9	1.12	30.4	80.8	53.88	1098.33	ab
NG 3406 B2XF	2044	ab	2809	ab	0.34	ab	3.6	1.12	30.4	81.9	52.12	1045.00	ab
NG 3780 B2XF	1995	ab	2871	ab	0.32	b	3.6	1.14	32.3	81.2	53.72	1051.33	ab
NG 3517 B2XF	1897	ab	2842	ab	0.32	ab	3.7	1.14	32.4	81.5	53.70	998.67	ab
DP 1612 B2XF	1750	b	2503	b	0.33	ab	3.7	1.16	31.8	82.2	53.88	925.67	ab
Test average	2060		2764		0.34		3.8	1.15	31.50	81.02	53.38	1081.15	
CV, %	6.70		5.99		4.27		4.18	0.89	1.52	0.76	2.91	7.18	
Std. Dev.	191.70		226.11		0.20		0.20	0.02	1.33	0.87	1.65	104.0600	
p-value	0.0068		0.0089		0.0122		0.03	<0.0001	<0.0001	0.0059	0.2528	0.01	
LSD	395.01		474.02		0.0419		0.45	0.03	1.37	1.77	ns	222.13	

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

CV - coefficient of variation.

*Farmer Entry

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

Lint loan value calculated from the 2018 Upland Cotton Loan Valuation Model from Cotton Incorporated using a \$0.52/pound base.

NG=NexGen, FM=FiberMax, ST=Stoneville, DP=DeltaPine

Supplementary Trials to 2018 Panhandle RACE Trials

2018 Hutchinson County Row Spacing Trial

The 2018 Hutchinson County row spacing trial was a continuation of the 2017 row spacing trial. In both years, FM 1320GL and ST 4747GLB2 were planted on 20, 30, and 40 inch row spacings at a seeding rate to maintain approximately 3.1 seeds per row foot (80,000, 55,000, and 40,000 seeds per acre) rather than the same number of plants per acre. Because final plant stands are often 60-70% of the planted seed, the actual seeding rate of the 30- and 40-inch row spacings was increased to 60,000 and 50,000 seeds per acre to compensate for stand reductions. Plots were planted on May 8, 2018, and final plant stands were evaluated 4-weeks post planting (Fig. 2). There was a significant difference between row spacings ($p=0.0257$), but there were no differences between varieties ($p=0.5672$). The final plant stand for the 20-inch seeding rate was significantly greater than plant populations at 30- and 40-inch row spacings. There were no significant differences in lint for fiber quality parameters when evaluating differences between each variety and row spacing interaction (Table 14; Fig. 3). There were no significant differences between the varieties evaluated. When only considering row spacing, there were significant differences in lint yield ($p=0.0257$) and parameters between the 20- and 40-inch spacings (Table 15).

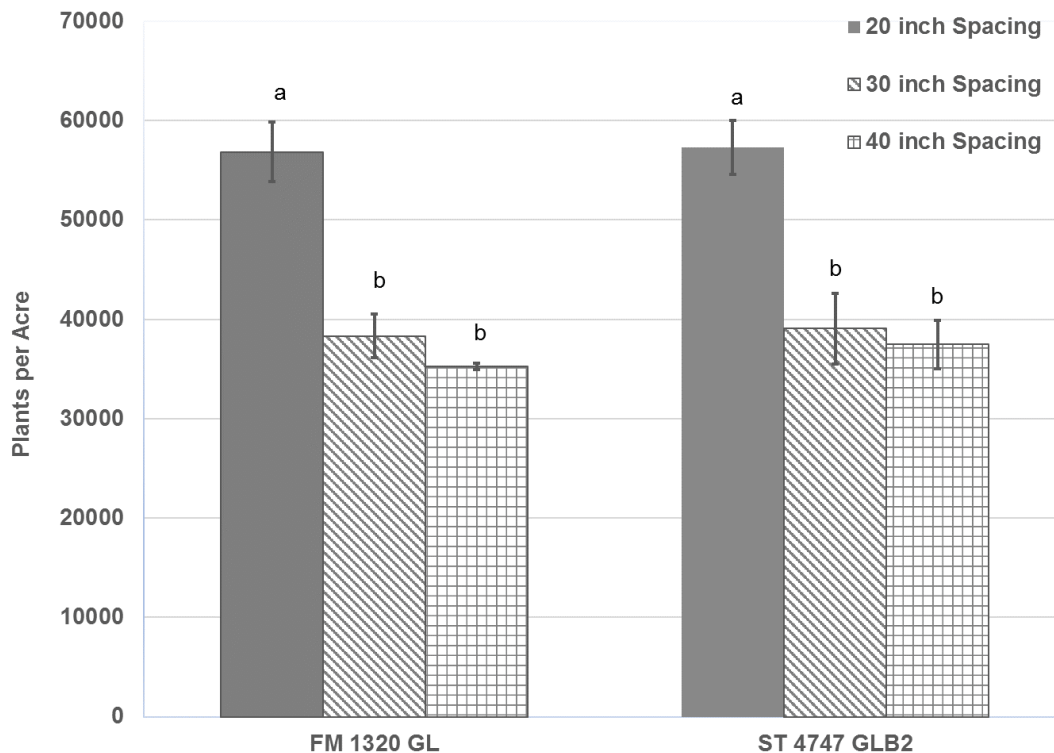


Figure 2. Four-week post planting stand counts for the Hutchinson County 2018 row spacing trial.

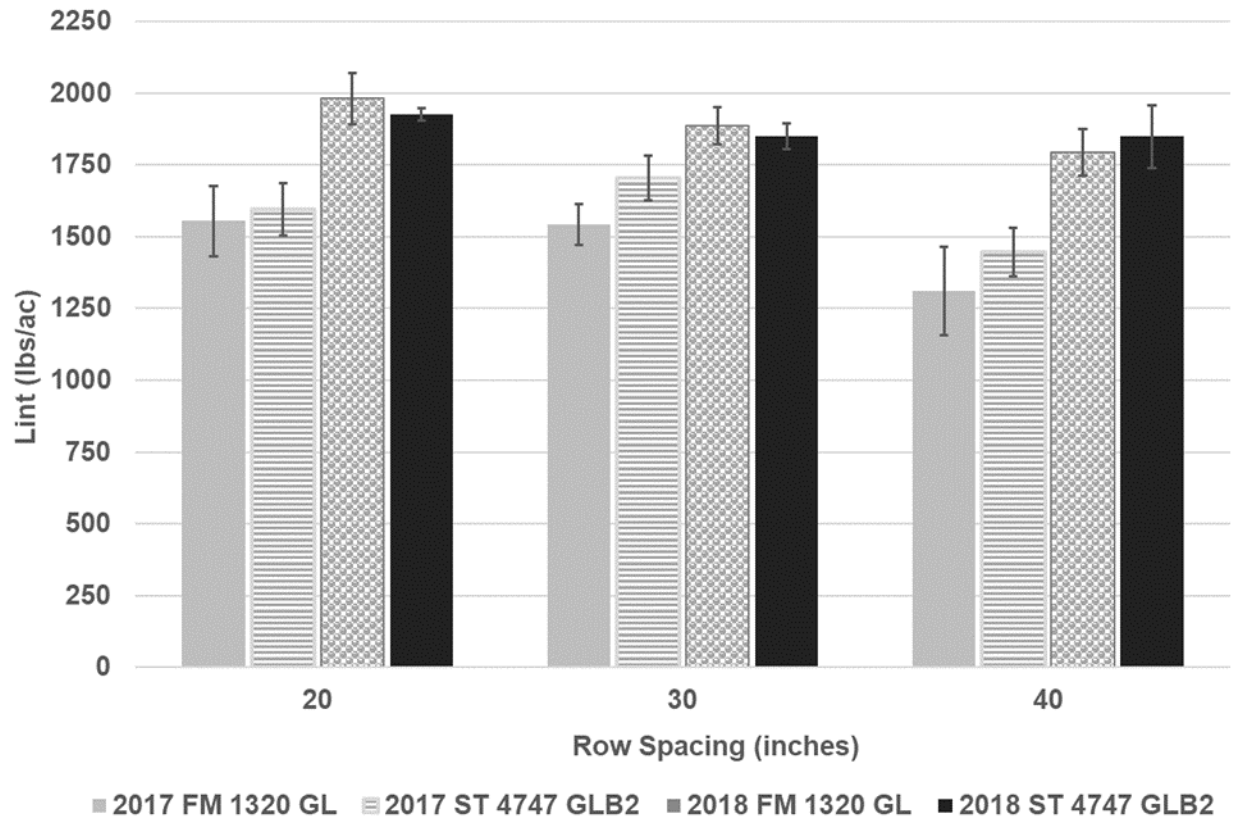


Figure 3. Comparison of 2017 and 2018 lint data for the 2018 Hutchinson County row spacing trial.

Table 14. 2018 Hutchinson County row spacing lint yield and fiber quality. The reported lint value is an average of the calculated lint values of all three replications.

Variety	Row Spacing (in.)	Lint Yield --- lb/acre ---	Seed Yield --- lb/acre ---	Turnout --%--	Micro-naire	Fiber Length (in.)	Strength (g/tex)	Uniformity --%--	Lint loan Value cents/lb	Lint Value --- \$/acre ---
FM 1320 GL	20	1981 a	2909 ab	0.35 ab	3.9	1.13	30.8	80.7	52.10	1033.56 a
ST 4747 GLB2	20	1927 a	3223 a	0.32 d	3.7	1.13	31.1	80.1	48.35	931.65 ab
FM 1320 GL	30	1888 a	2734 b	0.36 a	3.5	1.13	30.7	81.0	52.27	987.72 ab
ST 4747 GLB2	30	1849 a	2888 b	0.33 dc	3.5	1.17	29.6	79.1	48.63	899.60 ab
FM 1320 GL	40	1849 a	2689 b	0.34 bc	3.5	1.15	29.6	79.5	51.85	928.43 ab
ST 4747 GLB2	40	1793 a	2929 ab	0.33 dc	3.3	1.18	30.6	79.9	44.52	822.50 b
Test average		1881	2895	0.34	3.6	1.15	30.41	80.06	49.62	933.91
CV, %		3.93	4.11	4.27	4.42	2.05	1.52	1.27	2.91	7.11
p-value		0.0953	0.0021	<0.0001	0.01	0.0507	0.0509	0.2764	0.0238	0.0322
LSD		ns	325.99	0.0419	0.43	ns	ns	ns	4.74	182.21

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

CV - coefficient of variation.

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

Lint loan value calculated from the 2018 Upland Cotton Loan Valuation Model from Cotton Incorporated using a \$0.52/pound base.

FM=FiberMax, ST=Stoneville, DP=DeltaPine

Table 15. 2018 Hutchinson County row spacing lint yield and fiber quality by row spacing. Because there were no significant differences between varieties, reported row spacing data in this table is an average of FM 1320GL and ST 4747GLB2 at each respective row spacing. The reported lint value is an average of the calculated lint values of all three replications.

Row Spacing (in.)	Lint Yield --- lb/acre ---	Seed Yield --- lb/acre ---	Turnout --%--	Micro- naire	Fiber Length (in.)	Strength (g/tex)	Uniformity --%--	Lint loan Value cents/lb	Lint Value --- \$/acre ---
20	1954 a	3066 a	0.34 b	3.8	1.15	30.2	79.9	50.23	982.61 a
30	1868 ab	2811 b	0.35 ab	3.5	1.14	30.4	79.8	50.45	943.66 ab
40	1821 b	2809 b	0.33 b	3.4	1.16	30.6	80.4	48.18	875.46 b
Test average	1881	2895	0.34	3.6	1.15	30.41	80.06	49.62	933.91
CV, %	3.93	4.10	1.71	4.42	2.05	2.03	1.27	5.37	7.11
p-value	0.0257	0.0037	0.0090	0.0030	0.6302	0.5651	0.1666	0.3040	0.0467
LSD	113.82	183.08	0.0089	0.24	ns	ns	ns	ns	222.13

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

CV - coefficient of variation.

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

Lint loan value calculated from the 2018 Upland Cotton Loan Valuation Model from Cotton Incorporated using a \$0.52/pound base.

FM=FiberMax, ST=Stoneville, DP=DeltaPine

2018 Hutchison County Seeding Rate Trial

Optimized seeding rates are necessary to maximize lint yield while minimizing production costs. In the Texas Panhandle, the final plant stand is approximately 60% of the planted population (as seen in the 2018 RACE trial) so, many producers increase seeding rates to increase the plant density. However, compensatory plant growth often occurs at reduce stands compensating for reduced plant populations. To evaluate seeding rates under an irrigated Texas Panhandle cotton system, a small seeding rate trial was conducted adjacent to the Hutchinson County Irrigated RACE Trial. FM 1320GL was planted on May 8, 2018 at 60,000, 80,000, and 100,000 seeds per acre on 20-inch rows. There was no significant difference between lint production ($p=0.7997$) or fiber properties for any seeding rate. Although non-significant, the lint value for the 100,000 seeds/acre seeding rate was \$26.70 greater than the lint value of the 60,000 seeds/acre seeding rate (Table 16). However, the increased cost associated with planting an additional 40,000 seeds/acre was \$45.46, which resulted in a production loss of -\$18.76/acre at the higher seeding rate.

Table 16. 2018 Hutchinson County seeding rate trial lint yield and fiber data.

Seeding Rate (1000 Seeds/Ac)	Lint Yield --- lb/acre ---	Seed Yield --- lb/acre ---	Turnout --%--	Micro- naire	Fiber Length (in.)	Strength (g/tex)	Uniformity --%--	Lint loan Value cents/lb	Lint Value --- \$/acre ---	Seed Cost --- \$/acre ---
60	1940 a	2894 a	0.34 b	4.0	1.12	31.4	80.6	52.05	1009.64 a	68.18
80	1982 a	2909 a	0.35 a	3.9	1.13	30.8	80.7	52.10	1032.59 a	90.91
100	1952 a	2900 a	0.35 b	4.0	1.12	31.2	80.4	53.10	1036.34 a	113.64
Test average	1958	2901	0.35	4.0	1.12	31.13	80.59	52.42	1026.19	
Std. Dev.	156	179	0.01	0.2	0.01	0.48	0.83	2.85	88.68	
CV, %	5.71	4.72	2.87	4.74	1.91	2.51	0.98	5.36	8.14	
p-value	0.7997	0.9814	0.5151	0.5689	0.7438	0.5265	0.8942	0.9643	0.8752	
LSD	ns	ns	ns	ns	ns	ns	ns	ns	ns	

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

CV - coefficient of variation.

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

Lint loan value calculated from the 2018 Upland Cotton Loan Valuation Model from Cotton Incorporated using a \$0.52/pound base.

FM=FiberMax, ST=Stoneville, DP=DeltaPine



Acknowledgements

We wish to express our appreciation to the cooperators for making the RACE trials possible. They generously provide use of land, assistance and equipment for planting and harvesting. We thank Dr. Jane Dever and Ms. Valerie Morgan (Texas A&M AgriLife Research) for the use of the ginning facilities and the Texas Tech University Fiber and Biopolymer Research Institute for HVI fiber quality analyses. We sincerely thank seed companies (Americot, Bayer, and BASF) for entering top cotton varieties positioned for the Texas Panhandle. We appreciate Plains Cotton Growers for supporting these trials. We appreciate the assistance of Texas A&M AgriLife student employees; Bronc Finch, Layney Miller, Jammie Moore and Mattie Brooks.



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

The information given herein is for educational purposes only. Reference to commercial products or trade names is made with the understanding that no discrimination is intended and no endorsement by Texas AgriLife Extension Service is implied.

Texas A&M AgriLife Extension Service are equal opportunity employers and program providers.

Issued in furtherance of Cooperative Extension Work in Agriculture and Home Economics, Acts of Congress of May 8, 1914, as amended, and June 30, 1914, in cooperation with the United States Department of Agriculture. Edward G. Smith, Director, Texas A&M AgriLife Extension Service, The Texas A&M University System.

Department of Soil and Crop Sciences
soilcrop.tamu.edu