



2021 XtendFlex Technology Cotton Variety Trial – Lonestar Gin

**Derek Jacobs Farm
Frederick, OK**

Dr. Randy Boman, Cotton Agronomics Manager – Windstar Inc.

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Summary

In 2019, a cotton variety testing program was established as a new service created by Windstar Inc. affiliated gins. These gins are working together to support a Cotton Agronomics Manager position. One of the components of this program is to work with local producers to scientifically evaluate varieties in a commercial on-farm setting from planting through ginning. These unique replicated trials are planted and harvested with the grower's commercial equipment. Each variety's round modules are combined across all replicates and then ginned and classed separately in an extremely detailed manner. Purging and weighing any remnant bale from the press is also performed for each variety. All lint samples from each variety's commercial bales are then classed by the USDA-AMS classing office. This detailed ginning and classing management of all round modules for each variety is key to the success of this program and to the best of our knowledge is without peer in the U.S. ginning industry.

At this site in 2021, twelve varieties with Bollgard 3 XtendFlex technology were planted in a dryland field in a scientifically valid trial with three replicates. *A full soil profile of moisture was available at planting due to abundant spring rainfall. Excellent early growth in the trial was observed. The trial had good moisture until August, when lack of rainfall resulted in dry conditions. The crop experienced substantial late season stress in August and September. A late rainfall event and warm early fall conditions allowed completion of boll development. Other than encountering moisture stress, it was a uniform dryland variety trial. No Verticillium wilt or other disease pressure was noted in this trial.*

Harvest results indicated that statistically significant differences were observed (Table 1). Lint yields ranged from a high of 669 lb/acre (NG 4098 B3XF) to a low of 491 lb/acre (NG 5711 B3XF), and averaged 606 lb/acre. These differences were statistically significant. Average Loan value for varieties from commercially ginned and classed bales varied from a high of \$0.5592/lb (NG 4936 B3XF) to a low of \$0.5100/lb (NG 5711 B3XF). Average Loan value for the trial across all entries was 0.5350/lb. When including lint Loan value on a per acre basis and net gin credit, statistically significant differences were found in net value/acre among varieties. NG 4098 B3XF had the highest net value at \$402/acre, and NG 5711 B3XF had the lowest at \$277/acre, a difference of \$125/acre.

Table 2 presents in-season data including stand establishment percentage, vigor, nodes above white flower (NAWF) on two observation dates, plant height on three sampling dates, nodes

above cracked boll (NACB) on October 9, and a visual estimate of storm resistance at harvest. Final plant height of varieties ranged from a low of 25.5 inches (NG 4098 B3XF) to a high of 31.3 (ST 4990 B3XF and ST 4993 B3XF), and averaged 28.7. NACB values for varieties ranged from a low of 0.8 to a high of 2.7, and averaged 1.6, indicating excellent maturity for all entries in early October. Visual storm resistance ratings (1 to 9 scale with 9 tightest) ranged from a low of 3.7 (NG 4190 B3XF) to a high of 7.3 (DG 3422 B3XF), and averaged 5.2.

Table 3 provides the USDA-AMS classing results from each commercial bale for each variety and the variety averages. Averages indicate that color grades were typically 21 or 31 across entries. Leaf grades were excellent and ranged from 1.3 to 3.5. Staple ranged from an average high of 35.4 (NG 4936 B3XF) to an average low of 33.0 32nds inch (NG 5711 B3XF). Average micronaire values ranged from a high of 4.9 (ST 4993 B3XF) to a low of 4.2 (NG 4098 B3XF). No bark contamination was noted in any of the commercial bales. Fiber strength ranged from a high of 32.0 g/tex to a low of 26.4 g/tex. Uniformity ranged from a high of 82.1% to a low of 79.0%.

Disclaimer: Readers should realize that results from one trial do not represent conclusive evidence that the same response would occur where conditions vary. Multi-site and multi-year data are always best. For this trial, good scientific techniques were used and the results are presented to indicate what actually occurred in the trial. Context of the environment, overall growing season impact, management techniques, and trial methodology used are important and must be considered.

Site Information and Methods

Dryland field

Elevation: 1150 ft

Previous crop: wheat harvested in 2020

Tillage system: conventional

Planted: June 18

Replicates: 3 replicates in a randomized complete block design

Plot width: 8-row plots

Row spacing: 40-inch rows

Plot length: trial was planted in straight rows; ~2400 ft long (one-half mile rows minus headlands)

Seeding rate: 25,000 seed/acre

Days from planting to first bloom: 53 (August 3)

Total rainfall May through August: not recorded at site, but Oklahoma Mesonet weather data for the Tipton recording station (about 14 miles northwest of the trial site) is provided in the Appendix

Fertility management: no fertilizers applied

Chemical Applications:

Preplant incorporated – 1 qt/acre trifluralin

Post emergence – June applications of glyphosate and dicamba

Post emergence – late July applications of glyphosate and dicamba

Plant growth regulators: 8 oz/acre chloride on July 20

Insecticides: 4 oz/acre acephate on July 10

Harvest aid applications: 32 oz/acre ethephon + 12 oz/acre tribufos (Folex) in late October

Harvesting: November 19 using a John Deere CS690, with harvested area calculated by the GPS on the stripper monitor. Entire plot length was harvested with 1 round module harvested/plot. Round modules were weighed using the CS690 scale.

Commercial ginning: Round modules for all 3 reps of each variety were staged together (1 per plot, with 3 reps = 3 total per variety) and commercially ginned separately by Lonestar Gin.

Commercial ginning included: cleaning module feeder, clearing gin stream, dumping seed rolls, and purging remnant bale in press. This process was initiated before the first variety module was ginned and then repeated for each variety module in trial. Remnants were ejected from the bale press and weighed, but not sampled for USDA-AMS classing. Only data from commercial bales are included in classing data for each variety.

Lint value: Table 1 is based on CCC Loan value from commercial ginning and USDA-AMS classing results.

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Acknowledgements

Lonestar Gin would like to thank Derek Jacobs for committing equipment, land, and time to conduct and manage the trial. Gratitude is expressed to participating seed companies for providing testing seed. These include Deltapine, Dyna-Gro, NexGen, and Stoneville. Gratitude is also expressed to Windstar Inc. Detailed ginning was performed by Malcom Jones, Dalton Skinner and the Lonestar ginning crew and a big thank you is extended to this hard-working group.



2021 XtendFlex Trial Variety Descriptions – Lonestar Gin

**Derek Jacobs Farm
Frederick, OK**

**Dr. Randy Boman
Cotton Agronomics Manager**

Variety Descriptions from Company Literature and Websites

DG 3402 B3XF Roundup Ready Flex (glyphosate), Liberty Link (glufosinate), and dicamba stacked herbicide tolerance technologies stacked with Bollgard 3 Bt technology. Early-medium maturity. Smooth leaves, medium plant height, storm tolerance - excellent. ~ 38.7 staple, strength ~30 g/tex. Diseases (on scale of 1 poor, 5 average, 9 excellent resistance): Fusarium wilt – n/a, Verticillium wilt 7, Bacterial blight 8.

DG 3421 B3XF Roundup Ready Flex (glyphosate), Liberty Link (glufosinate), and dicamba stacked herbicide tolerance technologies stacked with Bollgard 3 Bt technology. Early-medium maturity. Semi-smooth leaves, medium plant height, storm tolerance - excellent. ~ 38 staple, strength ~30 g/tex. Diseases (on scale of 1 poor, 5 average, 9 excellent resistance): Fusarium wilt 8, Verticillium wilt 7, Bacterial blight 4.

DG 3422 B3XF Roundup Ready Flex (glyphosate), Liberty Link (glufosinate), and dicamba stacked herbicide tolerance technologies stacked with Bollgard 3 Bt technology. Early-medium maturity. Smooth leaves, medium plant height, storm tolerance - excellent. ~ 37 staple, strength ~30 g/tex. Diseases (on scale of 1 poor, 5 average, 9 excellent resistance): Fusarium wilt 8, Verticillium wilt 7, Bacterial blight 4.

DP 2012 B3XF Roundup Ready Flex (glyphosate), Liberty Link (glufosinate), and dicamba stacked herbicide tolerance technologies. Early maturity. Smooth leaves, medium-tall plant height, storm resistance 3.5 (on scale of 1 = tight, 9 = loose). ~ 37.5 staple, strength ~29.8 g/tex. Disease ratings: Fusarium wilt – moderately resistant, Verticillium wilt – moderately tolerant, Bacterial blight – resistant.

DP 2020 B3XF Roundup Ready Flex (glyphosate), Liberty Link (glufosinate), and dicamba stacked herbicide tolerance technologies stacked with Bollgard 3 Bt technology. Early-medium maturity. Semi-smooth leaves, medium-tall plant height, storm resistance 4 (on scale of 1 = tight, 9 = loose). ~ 38.8 staple, strength ~30.9 g/tex. Disease ratings: Fusarium wilt – moderately resistant, Verticillium wilt – moderately tolerant, Bacterial blight – resistant.

DP 2123 B3XF Roundup Ready Flex (glyphosate), Liberty Link (glufosinate), and dicamba stacked herbicide tolerance technologies stacked with Bollgard 3 Bt technology. Early-medium maturity. Semi-smooth leaves, medium plant height, storm resistance 4 (on scale of 1 = tight, 9 = loose). ~ 36.5 staple, strength ~30.4 g/tex. Disease ratings: Fusarium wilt – n/a, Verticillium wilt – moderately tolerant, Bacterial blight – moderately susceptible.

NG 4098 B3XF Roundup Ready Flex (glyphosate), Liberty Link (glufosinate), and dicamba stacked herbicide tolerance technologies stacked with Bollgard 3 Bt technology. Medium maturity. Storm tolerance 8 (scale of 0 = very loose, 9 = very storm tolerant), leaf hair semi-smooth, plant height medium-tall, node of first fruiting branch (avg) 6, staple 38-39, strength 33-35. Diseases (on scale of 0 very susceptible, 9 superior resistance): Fusarium wilt - no data, Verticillium wilt 7, Bacterial blight 7.

NG 4190 B3XF Roundup Ready Flex (glyphosate), Liberty Link (glufosinate), and dicamba stacked herbicide tolerance technologies stacked with Bollgard 3 Bt technology. Medium maturity. Storm tolerance 8 (scale of 0 = very loose, 9 = very storm tolerant), leaf hair smooth, plant height medium-tall, node of first fruiting branch (avg) 6.5, staple 37-38, strength 29-30. Diseases (on scale of 0 very susceptible, 9 superior resistance): Fusarium wilt - no data, Verticillium wilt 5, Bacterial blight 2.

NG 4936 B3XF Roundup Ready Flex (glyphosate), Liberty Link (glufosinate), and dicamba stacked herbicide tolerance technologies stacked with Bollgard 3 Bt technology. Medium maturity. Storm tolerance 5 (scale of 0 = very loose, 9 = very storm tolerant), leaf hair smooth, plant height medium-tall, node of first fruiting branch (avg) 6.9, staple 37-39, strength 29-31. Diseases (on scale of 0 very susceptible, 9 superior resistance): Fusarium wilt - no data, Verticillium wilt 6, Bacterial blight 6.

NG 5711 B3XF Roundup Ready Flex (glyphosate), Liberty Link (glufosinate), and dicamba stacked herbicide tolerance technologies stacked with Bollgard 3 Bt technology. Medium-full maturity. Storm tolerance 7 (scale of 0 = very loose, 9 = very storm tolerant), leaf hair smooth, plant height tall, node of first fruiting branch (avg) 6.8, staple 37-39, strength 30-32. Diseases (on scale of 0 very susceptible, 9 superior resistance): Fusarium wilt - no data, Verticillium wilt 4, Bacterial blight 9.

ST 4990 B3XF Roundup Ready Flex (glyphosate), Liberty Link (glufosinate), and dicamba stacked herbicide tolerance technologies stacked with Bollgard 3 Bt technology. Early-medium maturity. Semi-smooth leaves, medium/moderate plant height, storm resistance 5 (on scale of 0 = very loose, 9 = very storm tolerant). ~ 37.7 staple, strength ~30.8 g/tex. Disease ratings: Root knot nematode/Fusarium wilt – fair, Verticillium wilt – fair, Bacterial blight – susceptible.

ST 4993 B3XF Roundup Ready Flex (glyphosate), Liberty Link (glufosinate), and dicamba stacked herbicide tolerance technologies stacked with Bollgard 3 Bt technology. Early-medium maturity. Semi-smooth leaves, medium plant height, storm resistance 6 (on scale of 0 = very loose, 9 = very storm tolerant). ~ 36.5 staple, strength ~31.9 g/tex. Disease ratings: Root knot nematode/Fusarium wilt – fair, Verticillium wilt – fair, Bacterial blight – resistant.

For the latest Texas A&M AgriLife Research and Extension information from Dr. Terry Wheeler, and Dr. Cecilia Monclova-Santana (lubbock.tamu.edu) go to:

Bacterial blight disease variety reaction information:

<https://lubbock.tamu.edu/files/2021/01/Variety-guide-for-bacterial-blight-ratings-Jan-2021.pdf>

Verticillium wilt disease variety reaction information:

<https://lubbock.tamu.edu/files/2020/12/Verticillium-wilt-variety-trials-2020.pdf>

Fusarium wilt disease variety reaction information:

<https://lubbock.tamu.edu/files/2021/03/Fusarium-wilt-variety-response-2020.pdf>



Table 1. Harvest results for the dryland XtendFlex cotton variety trial, Jacobs Farm, Frederick, OK, 2021.

Entry	Lint turnout	Seed turnout	Bur cotton yield	Lint yield	Seed yield	Lint loan value	Lint loan value	Net gin credit	Net value
----- % -----									
NG 4098 B3XF	32.9	43.8	2036	669	892	0.5463	366	36	402 a
DG 3402 B3XF	37.2	45.2	1761	656	796	0.5556	364	34	398 a
NG 4190 B3XF	37.6	45.0	1718	646	773	0.5398	348	33	382 ab
NG 4936 B3XF	35.7	46.7	1663	593	777	0.5592	332	35	367 bc
ST 4993 B3XF	39.0	44.6	1670	651	745	0.5151	336	31	367 bc
DP 2020 B3XF	35.7	45.9	1676	597	769	0.5473	327	33	361 bcd
DG 3421 B3XF	37.9	45.8	1666	632	762	0.5189	328	34	361 bcd
DP 2123 B3XF	32.4	47.0	1788	579	840	0.5480	317	38	355 cde
DP 2012 B3XF	36.8	46.0	1644	606	756	0.5184	314	33	347 cde
DG 3422 B3XF	37.2	44.0	1594	593	701	0.5244	311	29	340 de
ST 4990 B3XF	35.1	47.5	1578	554	749	0.5364	297	34	332 e
NG 5711 B3XF	38.0	46.7	1292	491	603	0.5100	250	27	277 f
Test average	36.3	45.7	1674	606	764	0.5350	324	33	357
CV, %	--	--	5.3	5.3	5.3	--	5.2	5.4	5.3
OSL	--	--	0.0001	0.0001	0.0001	--	0.0001	0.0001	0.0001
LSD	--	--	124	45	57	--	24	3	26

For net value/acre, means within a column with the same letter are not significantly different.

CV - coefficient of variation.

OSL - observed significance level, or probability of a greater F value.

LSD - least significant difference at the 0.10 level, NS - not significant.

Note: some columns may not add up due to rounding error.

Assumes:

\$3.15/cwt commercial ginning cost.

\$225/ton for seed.

Net gin credit is defined as seed credit minus ginning expense.

Value for lint based on CCC loan value from commercial ginning and USDA-AMS classing results.



Table 2. Plant observation results from the dryland XtendFlex cotton variety trial, Jacobs Farm, Frederick, OK, 2021.

Entry	Final population	Stand establishment	Vigor	Nodes above white flower		Prebloom	Plant height		Nodes above cracked boll	Storm resistance
				Early bloom	Late bloom		Early bloom	Final		
	plants/acre	%	1-5 visual scale, 5 best		count		inches		count	1-9 visual scale, 9 tight
	6-Jul	6-Jul	6-Jul	9-Aug	19-Aug	23-Jul	9-Aug	9-Oct	9-Oct	19-Nov
DG 3402 B3XF	20,473	81.9	3.8	5.7	2.9	12.7	21.9	27.2	0.8	5.7
DG 3421 B3XF	18,513	74.0	3.8	7.3	3.9	12.7	21.5	26.6	0.8	5.2
DG 3422 B3XF	23,523	94.1	3.5	6.8	3.0	11.9	21.9	26.2	1.3	7.3
DP 2012 B3XF	24,393	97.6	4.2	6.1	2.5	14.6	21.8	27.2	1.1	4.0
DP 2020 B3XF	21,344	85.4	3.7	6.9	3.3	14.3	21.7	26.7	1.6	4.5
DP 2123 B3XF	21,998	88.0	4.2	6.7	2.6	14.1	20.9	28.0	1.9	5.3
NG 4098 B3XF	17,206	68.8	4.3	6.0	2.1	12.4	19.7	25.5	1.5	6.5
NG 4190 B3XF	17,206	68.8	3.5	7.4	3.3	13.9	24.3	30.2	1.9	3.7
NG 4936 B3XF	18,513	74.1	3.5	7.7	3.3	12.4	23.5	30.1	2.1	4.0
NG 5711 B3XF	17,859	71.4	2.8	6.9	3.0	14.7	24.1	33.7	2.7	4.5
ST 4990 B3XF	17,206	68.8	3.7	7.2	3.1	12.1	21.9	31.3	2.3	4.0
ST 4993 B3XF	18,513	74.0	3.5	7.6	2.5	14.1	22.9	31.3	1.5	7.2
Test average	19,729	78.9	3.7	6.9	3.0	13.3	22.2	28.7	1.6	5.2
CV, %	10.4	10.4	9.5	10.0	17.0	4.3	5.8	8.1	25.5	6.8
OSL	0.0010	0.0010	0.0029	0.0257	0.0198	0.0001	0.0102	0.0046	0.0001	0.0001
LSD	2,866	11.5	0.5	1.0	0.7	0.8	1.8	3.3	0.6	0.5

CV - coefficient of variation.

OSL - observed significance level, or probability of a greater F value.

LSD - least significant difference at the 0.10 level, NS - not significant.



Table 3. Commercial classing data for the dryland XtendFlex cotton variety trial, Jacobs Farm, Frederick, OK, 2021.

Variety and Bale Number	Color Grade-Quadrant grade-quadrant	Color digit 1	Color digit 2	Leaf grade	Staple 32nds inch	Micronaire units	Extraneous matter	Remarks --	Strength g/tex	Rd %	+b %	Trash % area	Uniformity %	Length 100ths inch	Loan rate cents/lb
DG 3402 B3XF															
812875	21-2	2	1	2	37	3.9	.	.	31.4	81.9	7.5	2	82.6	114	57.85
812876	21-2	2	1	2	36	4.3	.	.	30.2	80.6	7.8	2	81.4	111	56.95
812877	31-1	3	1	2	35	4.5	.	.	26.6	80.4	8.0	2	80.8	109	54.70
812878	21-2	2	1	2	35	4.4	.	.	27.6	80.0	8.1	1	82.3	109	55.40
812879	31-1	3	1	3	34	4.5	.	.	28.9	79.8	7.7	3	82.9	107	53.00
812880	21-2	2	1	2	35	4.4	.	.	29.4	80.9	7.7	2	82.5	109	55.45
Average	--	2.3	1.0	2.2	35.3	4.3	none	none	29.0	80.6	7.8	2.0	82.1	109.8	55.56
DG 3421 B3XF															
812881	21-2	2	1	2	35	4.7	.	.	30.0	80.1	8.3	2	82.8	108	55.60
812882	21-1	2	1	2	33	4.6	.	.	27.3	79.9	8.5	1	80.9	102	51.25
812883	21-1	2	1	2	33	4.7	.	.	27.2	79.5	8.7	3	82.0	103	51.30
812884	21-2	2	1	2	33	4.7	.	.	28.1	79.3	8.6	1	80.9	102	51.25
812885	21-1	2	1	2	33	4.8	.	.	27.8	79.6	8.6	2	79.3	102	50.70
812886	21-1	2	1	1	33	4.8	.	.	27.4	79.6	8.6	1	80.8	104	51.25
Average	--	2.0	1.0	1.8	33.3	4.7	none	none	28.0	79.7	8.6	1.7	81.1	103.5	51.89
DG 3422 B3XF															
812887	21-1	2	1	2	34	4.4	.	.	27.4	81.3	8.4	1	79.8	105	53.05
812888	21-1	2	1	1	33	4.4	.	.	27.1	81.0	8.5	1	79.4	103	50.70
812889	21-2	2	1	2	33	4.5	.	.	27.8	80.4	8.4	2	80.0	102	51.25
812890	21-2	2	1	2	34	4.4	.	.	28.4	80.4	8.3	2	81.9	105	53.60
812891	21-1	2	1	2	34	4.5	.	.	27.7	81.0	8.2	2	81.8	106	53.60
Average	--	2.0	1.0	1.8	33.6	4.4	none	none	27.7	80.8	8.4	1.6	80.6	104.2	52.44



Table 3 (continued). Commercial classing data for the dryland XtendFlex cotton variety trial, Jacobs Farm, Frederick, OK, 2021.

Variety and Bale Number	Color Grade-Quadrant grade-quadrant	Color digit 1	Color digit 2	Leaf grade	Staple 32nds inch	Micronaire units	Extraneous matter	Remarks --	Strength g/tex	Rd %	+b %	Trash % area	Uniformity %	Length 100ths inch	Loan rate cents/lb
DP 2012 B3XF															
812892	21-1	2	1	1	34	4.5	.	.	26.4	81.2	8.0	1	80.4	106	53.60
812893	21-1	2	1	2	33	4.6	.	.	26.4	81.7	7.8	1	80.2	103	51.25
812894	21-1	2	1	2	33	4.4	.	.	26.1	81.4	8.0	2	81.3	104	51.25
812895	21-1	2	1	2	34	4.4	.	.	25.9	81.5	8.0	2	81.3	107	49.50
812896	21-1	2	1	2	34	4.3	.	.	27.2	81.1	8.0	2	80.0	105	53.60
Average	--	2.0	1.0	1.8	33.6	4.4	none	none	26.4	81.4	8.0	1.6	80.6	105.0	51.84
DP 2020 B3XF															
812897	21-2	2	1	1	35	4.2	.	.	26.8	80.7	7.8	1	80.9	108	55.45
812898	21-1	2	1	2	36	4.4	.	.	28.2	81.8	7.9	1	81.3	112	56.75
812899	21-1	2	1	2	35	4.4	.	.	27.8	81.6	7.9	2	79.5	108	54.80
812900	21-2	2	1	2	34	4.4	.	.	26.8	81.4	7.9	2	79.6	107	53.05
812901	21-1	2	1	2	34	4.5	.	.	28.2	82.0	7.9	1	80.5	107	53.60
Average	--	2.0	1.0	1.8	34.8	4.4	none	none	27.6	81.5	7.9	1.4	80.4	108.4	54.73
DP 2123 B3XF															
812902	21-1	2	1	2	36	4.7	.	.	31.1	81.3	8.0	1	81.3	112	57.15
812903	21-2	2	1	2	35	4.4	.	.	29.4	80.8	7.9	2	80.6	110	55.40
812904	31-1	3	1	2	34	4.6	.	.	28.5	80.4	8.0	2	80.3	106	52.95
812905	21-1	2	1	3	35	4.6	.	.	29.3	80.7	8.0	2	80.1	109	54.90
812906	21-1	2	1	2	34	4.6	.	.	28.0	80.6	8.0	2	80.4	105	53.60
Average	--	2.2	1.0	2.2	34.8	4.6	none	none	29.3	80.8	8.0	1.8	80.5	108.4	54.80



Table 3 (continued). Commercial classing data for the dryland XtendFlex cotton variety trial, Jacobs Farm, Frederick, OK, 2021.

Variety and Bale Number	Color Grade-Quadrant grade-quadrant	Color digit 1	Color digit 2	Leaf grade	Staple 32nds inch	Micronaire units	Extraneous matter	Remarks --	Strength g/tex	Rd %	+b %	Trash %	Uniformity %	Length 100ths inch	Loan rate cents/lb
NG 4098 B3XF															
812907	31-1	3	1	4	35	4.2	.	.	31.3	79.3	8.2	5	79.1	108	53.35
812908	31-1	3	1	4	36	4.1	.	.	34.6	78.2	8.3	4	79.1	111	54.55
812909	31-1	3	1	4	35	4.2	.	.	32.1	78.6	8.3	4	79.1	109	53.35
812910	21-2	2	1	3	36	4.2	.	.	31.2	78.6	8.5	4	78.2	113	56.20
812911	31-1	3	1	3	36	4.2	.	.	31.7	77.8	8.5	3	79.7	111	55.95
812912	21-1	2	1	3	35	4.3	.	.	30.8	79.5	8.5	3	78.8	110	54.40
Average	--	2.7	1.0	3.5	35.5	4.2	none	none	32.0	78.7	8.4	3.8	79.0	110.3	54.63
NG 4190 B3XF															
812913	21-1	2	1	2	34	4.5	.	.	27.9	80.9	8.0	1	80.5	106	53.60
812914	31-1	3	1	2	35	4.5	.	.	27.9	80.9	7.5	2	81.6	109	54.70
812915	21-2	2	1	1	35	4.5	.	.	28.9	81.0	7.7	1	80.3	109	55.35
812916	21-2	2	1	2	34	4.5	.	.	28.6	81.0	7.6	3	80.8	107	53.60
812917	31-1	3	1	1	34	4.6	.	.	26.4	81.0	7.4	1	82.3	106	53.00
812918	21-1	2	1	2	34	4.4	.	.	27.4	81.7	7.6	2	81.4	106	53.60
Average	--	2.3	1.0	1.7	34.3	4.5	none	none	27.9	81.1	7.6	1.7	81.2	107.2	53.98
NG 4936 B3XF															
812919	21-2	2	1	1	35	4.6	.	.	27.2	81.3	7.7	1	81.0	109	55.35
812920	21-2	2	1	1	36	4.4	.	.	28.0	81.6	7.5	1	82.1	112	56.80
812921	21-2	2	1	2	36	4.6	.	.	27.0	81.6	7.3	1	81.7	111	56.75
812922	21-2	2	1	2	35	4.5	.	.	27.2	81.6	7.4	1	80.1	109	55.35
812923	21-2	2	1	2	35	4.6	.	.	27.5	81.5	7.3	2	81.0	108	55.35
Average	--	2.0	1.0	1.6	35.4	4.5	none	none	27.4	81.5	7.4	1.2	81.2	109.8	55.92



Table 3 (continued). Commercial classing data for the dryland XtendFlex cotton variety trial, Jacobs Farm, Frederick, OK, 2021.

Variety and Bale Number	Color Grade-Quadrant grade-quadrant	Color digit 1	Color digit 2	Leaf grade	Staple 32nds inch	Micronaire units	Extraneous matter	Remarks --	Strength g/tex	Rd %	+b %	Trash %	Uniformity %	Length 100ths inch	Loan rate cents/lb
NG 5711 B3XF															
812924	21-1	2	1	1	32	4.5	.	.	26.3	82.0	7.8	1	79.1	101	49.00
812925	21-1	2	1	2	33	4.5	.	.	26.9	81.3	8.3	1	79.5	103	50.70
812926	21-1	2	1	2	33	4.5	.	.	26.1	80.9	8.2	1	79.9	102	50.70
812927	21-1	2	1	2	34	4.4	.	.	27.2	81.2	8.1	1	80.7	107	53.60
Average	--	2.0	1.0	1.8	33.0	4.5	none	none	26.6	81.4	8.1	1.0	79.8	103.3	51.00
ST 4990 B3XF															
812928	21-2	2	1	1	35	4.3	.	.	28.5	81.6	7.5	1	80.3	110	55.35
812929	21-2	2	1	2	33	4.6	.	.	25.5	81.5	7.3	1	79.1	104	46.60
812930	31-1	3	1	2	35	4.5	.	.	28.1	81.3	7.5	2	80.0	108	54.70
812931	21-2	2	1	2	35	4.6	.	.	28.4	81.2	7.6	2	79.4	109	54.80
812932	21-1	2	1	1	36	4.5	.	.	27.5	81.5	7.7	1	81.1	112	56.75
Average	--	2.2	1.0	1.6	34.8	4.5	none	none	27.6	81.4	7.5	1.4	80.0	108.6	53.64
ST 4993 B3XF															
812933	21-1	2	1	2	34	4.7	.	.	31.1	81.2	8.0	1	82.0	106	54.05
812934	21-1	2	1	1	32	4.9	.	.	28.3	80.9	8.4	1	80.8	100	49.55
812935	21-2	2	1	2	34	4.9	.	.	31.6	80.2	8.3	2	80.8	106	54.00
812936	21-1	2	1	1	34	4.9	.	.	29.8	80.7	8.3	1	80.5	105	53.65
812937	21-2	2	1	1	33	5.0	.	.	29.1	80.4	8.3	1	81.6	104	48.90
812938	21-1	2	1	1	33	5.0	.	.	29.5	80.5	8.3	1	80.9	104	48.90
Average	--	2.0	1.0	1.3	33.3	4.9	none	none	29.9	80.7	8.3	1.2	81.1	104.2	51.51



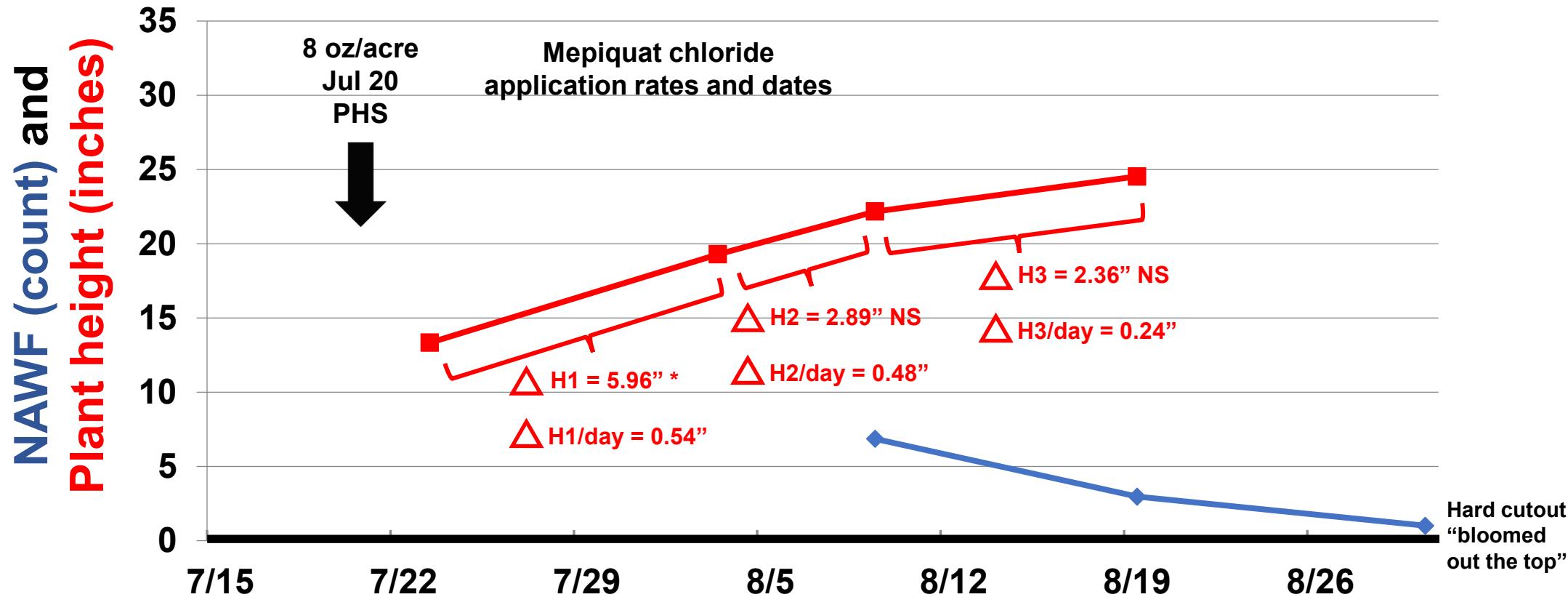
Appendix

**Jacobs XtendFlex Variety Trial - Plant Height and NAWF
Graphs, and Tipton Mesonet 2021 Weather Data**





Jacobs XtendFlex Variety Trial (Across All Entries) Frederick – 2021

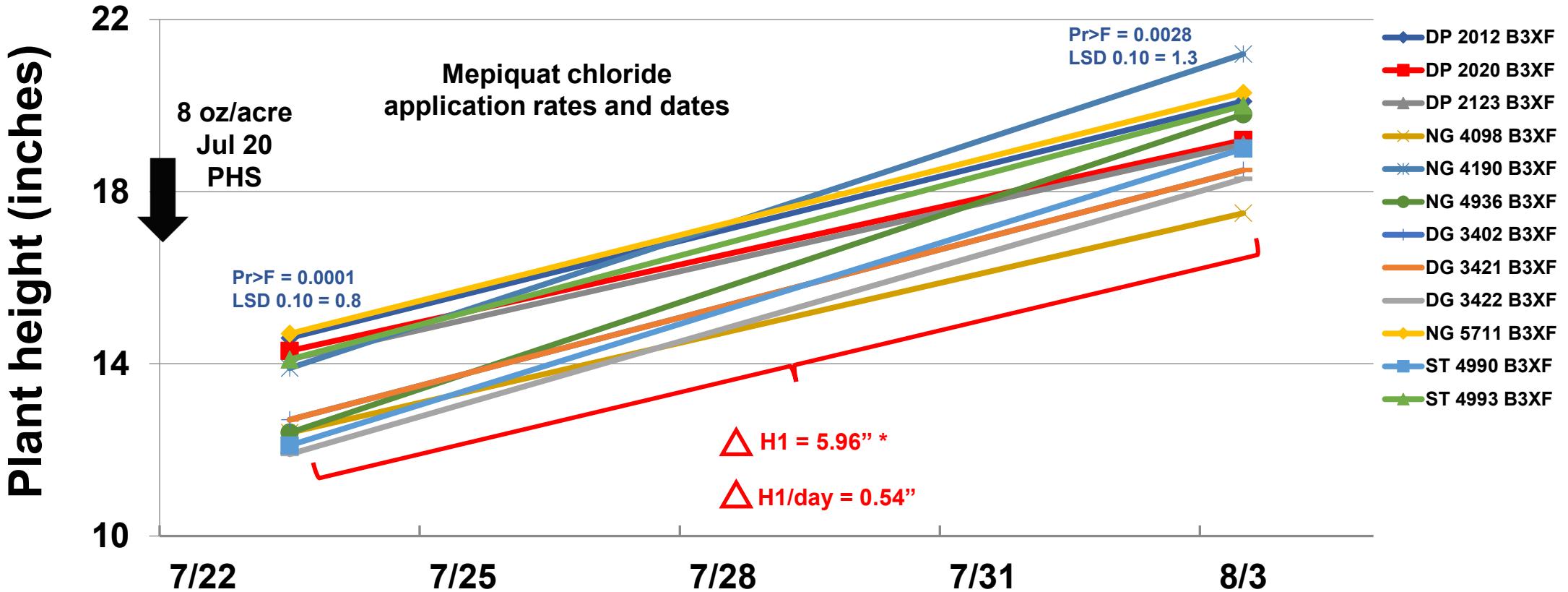


Planted: June 18
Days to bloom: 53
First bloom date: Aug 3



Jacobs XtendFlex Variety Trial

Frederick – 2021

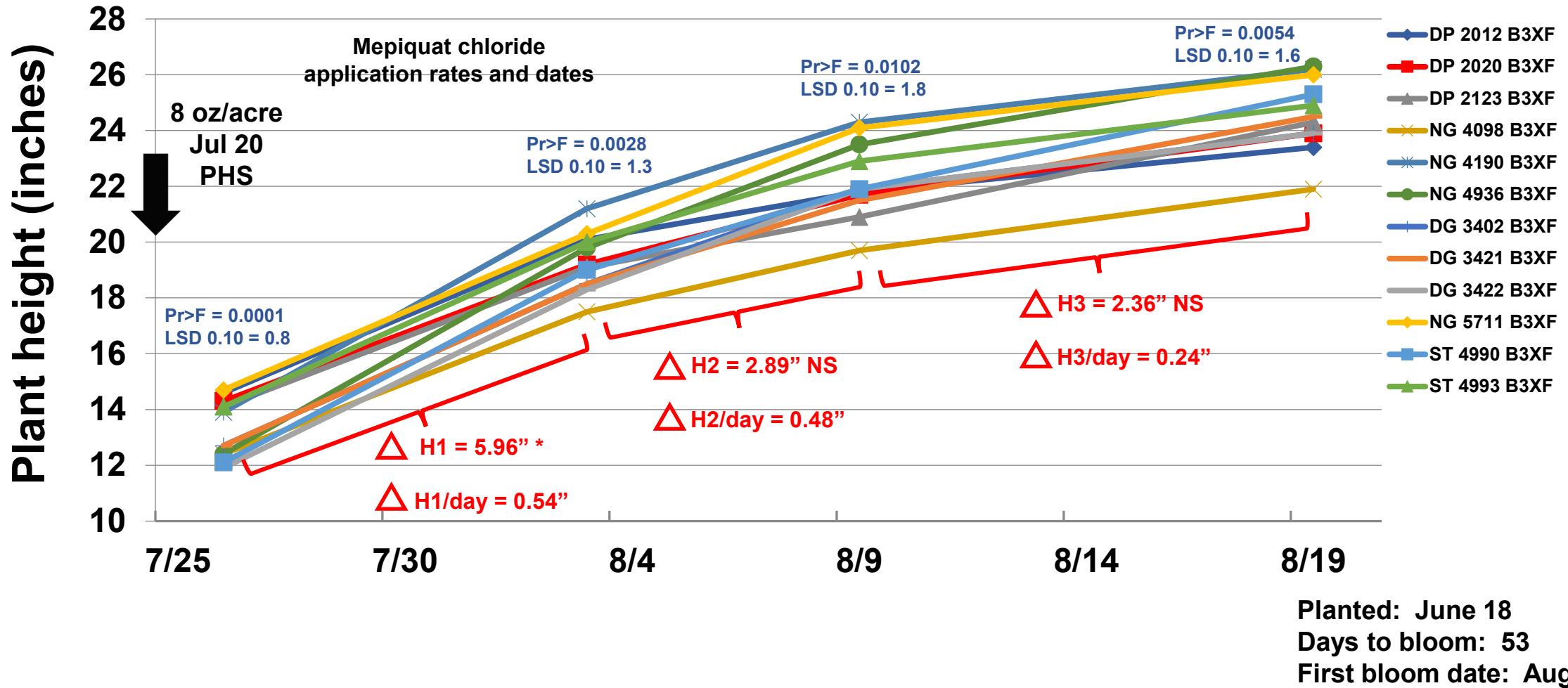


Planted: June 18
Days to bloom: 53
First bloom date: Aug 3



Jacobs XtendFlex Variety Trial

Frederick – 2021



MESONET CLIMATOLOGICAL DATA SUMMARY (TIPT) Tipton Latitude: 34-26-22								May 2021 Nearest City: 4.0 S Tipton Longitude: 99-08-15					Time Zone: Midnight-Midnight CST County: Tillman Elevation: 1270 feet							
DAY	TEMPERATURE (F)				DEG DAYS		HUMIDITY (%)			RAIN (in)	PRESSURE (in)		WIND SPEED (mph)	SOLAR (MJ/m2)	4" SOIL TEMPERATURES					
	MAX	MIN	AVG	DEWPt	HDD	CDD	MAX	MIN	AVG		STN	MSL			SOD	BARE	MAX	MIN		
1	77	60	66.0	62.5	0	3	99	64	89	0.01	28.60	29.95	SSE	8.9	21.5	10.97	65.3	66.9	71	64
2	81	63	70.0	62.5	0	7	96	54	79	0.00	28.22	29.55	SSE	13.2	28.9	22.69	66.7	70.5	79	65
3	77	58	66.9	59.6	0	2	96	58	79	0.03	28.25	29.59	N	15.8	39.5	12.73	66.5	69.1	74	66
4	72	48	60.2	47.5	5	0	89	34	66	0.00	28.66	30.01	N	14.3	34.4	26.85	65.7	69.1	78	62
5	76	43	60.8	45.1	6	0	94	33	61	0.00	28.78	30.14	SE	7.7	25.1	28.78	64.7	69.9	81	59
6	80	57	67.2	52.6	0	4	93	29	63	0.04	28.86	30.22	E	7.2	27.4	28.35	66.4	73.9	84	65
7	87	54	71.7	54.8	0	6	88	33	59	0.00	28.68	30.03	S	14.8	35.7	27.96	67.2	74.8	84	66
8	91	60	77.2	60.7	0	11	85	39	59	0.00	28.35	29.69	S	20.0	47.1	27.35	68.8	77.4	85	70
9	77	54	65.7	49.1	0	0	75	39	56	0.00	28.53	29.88	N	17.9	38.1	28.86	69.0	76.7	83	71
10	65	49	56.7	48.0	8	0	86	59	73	0.00	28.70	30.06	NE	10.5	29.2	11.61	66.0	69.7	73	67
11	63	51	55.6	50.0	8	0	97	69	81	0.24	28.74	30.10	NNE	14.3	36.8	7.99	64.1	65.0	69	61
12	67	48	56.3	47.6	8	0	94	50	74	0.00	28.93	30.29	NNE	9.5	25.5	20.58	63.3	64.0	71	57
13	73	44	60.1	49.2	6	0	96	42	71	0.00	28.92	30.29	SE	6.1	19.4	26.47	63.5	67.9	79	58
14	81	52	67.2	55.9	0	2	92	46	69	0.00	28.76	30.12	SE	14.7	37.1	23.10	64.8	70.7	79	63
15	80	62	70.2	62.3	0	6	91	60	77	0.00	28.64	29.99	SSE	16.3	32.5	13.89	66.1	71.9	76	67
16	81	63	69.8	64.7	0	7	98	55	85	0.88	28.56	29.90	SE	12.1	45.8	16.59	67.8	72.2	78	69
17	82	61	70.4	61.6	0	6	97	49	76	0.23	28.51	29.85	ESE	10.2	40.3	25.49	68.9	72.5	80	66
18	78	59	67.1	59.7	0	3	96	56	78	0.04	28.50	29.84	ESE	9.9	60.4	20.10	69.3	70.9	77	67
19	80	57	68.7	60.7	0	3	97	54	78	0.06	28.52	29.87	SE	7.8	21.2	26.48	69.8	72.2	80	65
20	81	63	70.3	63.1	0	7	97	56	80	0.00	28.58	29.92	SE	11.9	26.3	19.49	70.4	73.1	80	68
21	85	64	73.7	65.1	0	10	97	50	77	0.00	28.69	30.04	SE	15.6	30.7	23.97	70.8	76.1	85	69
22	84	68	73.9	67.4	0	11	97	57	81	0.01	28.80	30.16	ESE	15.0	33.2	20.42	71.7	77.7	84	73
23	75	63	69.7	66.1	0	4	96	75	88	0.04	28.75	30.11	SE	16.5	31.2	9.29	71.2	74.8	77	72
24	79	62	70.0	65.2	0	6	95	67	86	0.00	28.67	30.02	SE	14.5	32.0	12.21	70.0	72.8	78	69
25	85	63	72.8	64.9	0	9	95	59	78	0.14	28.61	29.96	SSE	11.6	39.9	22.08	71.3	75.3	84	69
26	90	68	78.3	69.3	0	14	97	51	76	0.00	28.67	30.02	SSE	12.6	30.9	20.26	73.3	79.2	87	73
27	91	68	79.7	69.9	0	14	93	51	74	0.10	28.56	29.91	SSW	15.2	38.3	24.52	75.1	82.4	91	76
28	73	60	65.7	59.6	0	2	96	55	82	0.03	28.68	30.03	NE	11.2	35.7	11.53	73.1	74.0	81	71
29	82	61	69.3	58.4	0	7	91	48	70	0.00	28.69	30.04	E	11.0	25.0	23.68	71.7	74.8	85	67
30	80	61	68.9	61.1	0	5	87	60	77	0.00	28.73	30.09	ESE	15.2	29.7	16.55	71.2	75.7	82	71
31	74	61	67.0	62.8	0	3	98	70	87	2.67	28.71	30.06	NNE	12.6	27.8	10.66	69.6	71.9	76	69
	79	58	68.0	58.9	<- Monthly Averages ->					28.64	29.99	SE	12.7	60.4	20.05	68.5	72.7	80	67	
Temperature - Highest: 91 Lowest: 43					Degree Days - Total HDD: 41 Total CDD: 152					Number of Days With: Tmax ≥ 90: 3 Rainfall ≥ 0.01 inch: 14 Tmax ≤ 32: 0 Rainfall ≥ 0.10 inch: 6 Tmin ≤ 32: 0 Avg Wind Speed ≥ 10 mph: 24 Tmin ≤ 0: 0 Max Wind Speed ≥ 30 mph: 19										
Rainfall: Monthly Total: 4.52 in. Greatest 24 Hr: 2.67 in.					Humidity - Highest: 99 Lowest: 29															

MESONET CLIMATOLOGICAL DATA SUMMARY (TIPT) Tipton Latitude: 34-26-22								June 2021 Nearest City: 4.0 S Tipton Longitude: 99-08-15					Time Zone: Midnight-Midnight CST County: Tillman Elevation: 1270 feet							
DAY	TEMPERATURE (F)				DEG DAYS		HUMIDITY (%)			RAIN (in)	PRESSURE (in)		WIND DIR	SPEED (mph)	SOLAR (MJ/m2)	4" SOIL TEMPERATURES				
	MAX	MIN	AVG	DEWPt	HDD	CDD	MAX	MIN	AVG		STN	MSL				SOD	BARE	MAX	MIN	
1	76	61	66.4	58.6	0	4	94	54	77	0.00	28.74	30.09	N	9.6	21.2	18.12	69.5	70.4	76	66
2	80	58	68.0	61.1	0	4	97	52	81	0.06	28.65	30.00	ESE	6.5	22.9	23.08	70.4	72.2	79	66
3	85	60	72.2	62.9	0	8	97	46	75	0.00	28.64	29.99	SE	7.4	20.8	19.69	71.3	73.4	80	67
4	87	62	74.6	61.7	0	9	97	35	68	0.00	28.65	30.00	SSE	9.0	22.3	29.24	72.9	77.4	88	69
5	80	62	71.6	64.0	0	6	97	57	79	0.00	28.54	29.88	SSE	9.5	21.4	17.20	73.1	77.2	82	72
6	89	65	76.8	67.0	0	12	97	47	74	0.00	28.42	29.77	ESE	13.1	26.7	28.33	73.9	81.1	92	72
7	86	66	75.1	67.8	0	11	99	58	79	2.69	28.45	29.79	ESE	11.4	61.6	19.24	73.2	78.4	83	73
8	93	67	79.4	66.9	0	15	95	39	69	0.00	28.51	29.86	ESE	9.1	24.4	26.84	74.8	79.3	87	73
9	94	75	83.5	75.4	0	19	97	56	78	0.00	28.55	29.90	SE	14.0	28.1	28.38	77.3	82.2	89	76
10	95	74	84.4	75.4	0	20	95	54	76	0.00	28.51	29.86	SE	13.3	27.9	28.00	79.2	85.7	95	78
11	97	73	84.8	74.4	0	20	95	51	73	0.00	28.43	29.77	S	13.9	29.8	28.12	80.2	88.5	98	80
12	94	71	82.3	72.2	0	17	96	50	73	0.07	28.59	29.94	ESE	11.6	53.4	25.92	80.4	88.6	97	81
13	90	69	76.1	67.4	0	14	93	48	76	0.92	28.66	30.01	ESE	12.1	41.9	13.81	78.6	84.1	89	78
14	95	67	80.5	68.7	0	16	96	37	71	0.00	28.68	30.03	ESE	6.3	15.6	28.34	77.7	81.5	90	75
15	96	69	82.3	67.5	0	18	95	31	66	0.00	28.70	30.06	SSE	6.1	17.7	29.76	78.9	83.7	92	76
16	96	67	82.6	66.7	0	16	95	31	63	0.00	28.68	30.03	SSE	8.0	21.4	30.12	79.3	86.1	97	76
17	98	67	83.3	64.9	0	18	93	25	58	0.00	28.64	29.99	SSE	9.6	23.8	28.49	79.5	88.2	98	79
18	97	70	84.2	64.9	0	18	83	28	56	0.00	28.56	29.91	S	12.2	25.2	29.69	79.8	89.6	99	81
19	98	69	84.1	66.2	0	18	91	30	59	0.00	28.48	29.83	SSE	11.1	26.6	29.31	80.1	90.9	100	82
20	98	72	85.1	64.1	0	20	73	28	52	0.00	28.38	29.72	S	15.1	33.0	29.22	80.1	91.0	99	83
21	78	60	70.8	60.6	0	4	91	44	71	0.03	28.59	29.94	NE	14.4	51.2	7.31	77.8	83.4	91	77
22	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00*	NA	NA	SSE*	NA	37.6*	NA	NA	NA	NA	
23	97	71	83.8	70.2	0	19	96	41	67	0.00	28.53	29.87	S	18.8	36.0	27.79	77.0	85.8	94	79
24	98	77	86.9	70.3	0	22	81	39	60	0.00	28.52	29.86	S	17.8	41.4	28.49	78.6	88.6	96	82
25	97	78	87.2	70.4	0	22	79	43	59	0.00	28.46	29.80	S	19.1	37.0	26.94	79.5	89.9	96	84
26	88	67	77.6	70.8	0	13	98	59	81	4.37	28.49	29.83	SSE	13.3	51.8	12.22	78.8	84.9	90	79
27	82	66	73.5	67.2	0	9	97	64	82	0.80	28.60	29.95	NE	8.8	28.4	18.02	75.3	77.9	82	73
28	83	69	73.4	70.1	0	11	98	69	90	0.34	28.66	30.01	NE	8.4	28.9	12.48	75.9	77.5	81	74
29	85	70	75.5	71.2	0	12	98	62	87	0.94	28.70*	30.06*	SE	6.5	18.5	17.98	76.4	78.0	83	74
30	89	71	79.9	71.6	0	15	98	54	78	0.00	28.72	30.07	S	8.3	19.7	28.01	78.3	80.8	87	75
	90*	68*	78.8*	67.6*	<- Monthly Averages ->					28.58*	29.92*	SSE*	11.2*	61.6*	23.80*	76.8*	82.6*	90*	76*	
Temperature - Highest: 98* Lowest: 58*					Degree Days - Total HDD: 0* Total CDD: 411*					Number of Days With: Tmax ≥ 90: 16* Rainfall ≥ 0.01 inch: 9* Tmax ≤ 32: 0* Rainfall ≥ 0.10 inch: 6* Tmin ≤ 32: 0* Avg Wind Speed ≥ 10 mph: 15* Tmin ≤ 0: 0* Max Wind Speed ≥ 30 mph: 10*										
Rainfall: Monthly Total: 10.22* in. Greatest 24 Hr: 4.37* in.					Humidity - Highest: 99* Lowest: 25*															

MESONET CLIMATOLOGICAL DATA SUMMARY (TIPT) Tipton Latitude: 34-26-22							July 2021 Nearest City: 4.0 S Tipton Longitude: 99-08-15					Time Zone: Midnight-Midnight CST County: Tillman Elevation: 1270 feet								
DAY	TEMPERATURE (F)				DEG DAYS		HUMIDITY (%)			RAIN (in)	PRESSURE (in)		WIND SPEED (mph)	SOLAR (MJ/m2)	4" SOIL TEMPERATURES					
	MAX	MIN	AVG	DEWPt	HDD	CDD	MAX	MIN	AVG		STN	MSL			SOD	BARE	MAX	MIN		
1	93	73	79.9	71.7	0	18	95	48	78	0.00	28.65	30.00	SSE	8.5	26.0	23.51	79.6	81.9	87	77
2	85	70	76.2	70.9	0	13	98	60	85	1.57	NA	NA	ENE	6.7	22.7	16.19	78.8	80.1	85	76
3	86	71	77.4	70.3	0	13	96	59	80	0.00	28.66	30.01	ESE	11.3	26.0	24.60	79.1	80.3	85	76
4	89	68	78.1	68.8*	0	13	95*	54*	75*	0.00	28.62*	29.97*	SE	9.4	21.0	23.99	79.0	80.1	86	75
5	90	68	78.8	68.9	0	14	94	50	73	0.00	28.62	29.97	ESE	11.6	25.6	23.62	79.2	81.4	88	75
6	90	70	79.9	69.4	0	15	94	48	72	0.00	28.64	29.99	ESE	9.1	19.8	26.49	79.7	85.1	94	77
7	92	71	79.8	70.2	0	16	97	46	75	0.13	28.61	29.96	SSW	6.6	43.8	24.98	80.4	87.7	97	80
8	93*	71*	81.9*	71.0*	0*	17*	98*	45*	72*	0.00*	NA	NA	SSE*	6.5*	18.0*	26.56*	81.0	87.5	96	79
9	91*	71*	81.3*	70.1*	0*	16*	92*	51*	70*	0.00*	28.64*	29.99*	SSE*	11.7*	27.4*	28.02*	81.1*	89.0*	97*	81*
10	93	72	82.5	71.8	0	18	96	51	72	0.00	28.59	29.94	S	12.6	41.2	22.41	80.8	88.3	95	82
11	89	69	78.4	67.2	0	14	98	39	72	1.45	28.65*	30.00*	N	7.8	45.1	28.30	79.8	84.5	89	80
12	88	66	77.0	66.8	0	12	97	50	73	0.00	28.71	30.06	SE	5.7	18.7	26.79	79.7	81.7	88	76
13	91	69	80.4	68.7	0	15	94	41	70	0.00	28.74	30.10	S	10.7	24.6	27.72	80.0	83.0	91	76
14	90*	70*	80.4*	67.7*	0*	15*	88*	47*	67*	0.00*	28.71*	30.06*	S *	15.9*	34.3*	NA	79.7*	84.8*	93*	77*
15	91	73	81.8	69.7	0	17	86	50	68	0.00	28.62	29.97	S	14.9	27.6	23.20	79.6	86.3	93	80
16	91	74	81.8	71.0	0	18	91	48	71	0.01	28.59	29.94	SE	9.9	23.5	21.89	80.2	87.1	94	81
17	94	73	81.0	71.4	0	18	93	47	75	0.00	28.65	30.00	SE	9.2	36.3	24.03	80.6	88.5	97	81
18	94	71	78.8	71.2	0	17	97	49	80	0.74	28.71	30.07	E	7.6	39.7	17.33	80.3	86.7	94	82
19	88	70	78.0	70.6	0	14	98	53	80	0.02	NA	NA	N	7.3	18.9	22.00	79.8	83.2	88	79
20	87	66	76.7	66.6	0	12	95	49	73	0.00	28.73	30.08	NNE	8.6	22.2	25.06	79.7	80.8	86	76
21	88	66	76.9	64.7	0	12	94	40	69	0.00	28.74	30.09	E	5.7	13.3	26.13	79.5	82.3	91	75
22	91	68	79.9	66.4	0	15	92	39	66	0.00	28.74	30.09	SE	9.8	25.5	26.59	79.5	84.7	94	77
23	93	71	82.1	69.9	0	17	93	46	69	0.00	28.68	30.03	SE	11.3	25.7	26.96	79.9	87.3	96	80
24	96	74	85.2	69.8	0	20	84	40	62	0.00	28.63	29.98	SE	11.5	24.9	27.16	80.6	89.5	98	82
25	100	72	84.0	69.3	0	21	87	37	64	0.01	28.60	29.94	ESE	9.0	45.5	24.33	81.2	90.4	100	83
26	97	72	83.6	68.4	0	20	94	35	63	0.00	28.62	29.97	ENE	8.6	34.9	20.17	80.9	88.9	96	83
27	99	75	87.3	68.4	0	22	88	32	57	0.00	28.63	29.98	E	9.8	22.0	25.38	81.3	91.1	99	84
28	99	74	86.2	70.0	0	22	91	36	62	0.00	28.68	30.03	SE	9.5	20.8	23.00	81.6	91.4	98	85
29	99	74	86.2	68.9	0	21	89	31	60	0.00	28.70	30.05	ESE	8.1	22.0	24.37	81.7	91.3	98	85
30	98	74	86.1	68.8	0	21	89	35	59	0.00	28.70	30.05	SE	8.0	19.7	23.58	81.7	91.4	98	85
31	100	76	87.2	68.0	0	23	80	33	55	0.00	28.66	30.01	SE	8.4	20.8	25.75	81.9	92.0	100	85
	92*	71*	81.1*	69.2*	<- Monthly Averages ->				28.66*	30.01*	SE *	9.4*	45.5*	24.34*	80.2*	86.1*	93*	80*		
Temperature - Highest: 100* Lowest: 66*					Degree Days - Total HDD: 0* Total CDD: 518*					Number of Days With: Tmax ≥ 90: 23* Rainfall ≥ 0.01 inch: 7* Tmax ≤ 32: 0* Rainfall ≥ 0.10 inch: 4* Tmin ≤ 32: 0* Avg Wind Speed ≥ 10 mph: 9* Tmin ≤ 0: 0* Max Wind Speed ≥ 30 mph: 8*										
Rainfall: Monthly Total: 3.93* in. Greatest 24 Hr: 1.57* in.					Humidity - Highest: 98* Lowest: 31*															

MESONET CLIMATOLOGICAL DATA SUMMARY (TIPT) Tipton Latitude: 34-26-22							August 2021 Nearest City: 4.0 S Tipton Longitude: 99-08-15					Time Zone: Midnight-Midnight CST County: Tillman Elevation: 1270 feet								
DAY	TEMPERATURE (F)				DEG DAYS		HUMIDITY (%)			RAIN (in)	PRESSURE (in)		WIND DIR	SPEED (mph)	SOLAR (MJ/m2)	4" SOIL TEMPERATURES				
	MAX	MIN	AVG	DEWPt	HDD	CDD	MAX	MIN	AVG	(in)	STN	MSL	DIR	Avg	Max	SOD	BARE	MAX	MIN	
1	87	72	78.9	70.1	0	15	95	54	76	1.18	28.72	30.07	NNE	12.0	38.6	14.58	80.7	88.8	93	84
2	85	65	75.2	64.6	0	10	96	41	73	0.00	NA	NA	NNE	9.1	23.6	26.02	79.3	82.4	87	78
3	87	60	73.7	60.8	0	8	96	32	69	0.00	28.71	30.06	ENE	6.1	19.1	26.91	78.0	79.9	87	73
4	89	63	76.7	64.7	0	11	94	40	69	0.01	28.71	30.06	ENE	5.6	14.3	19.35	77.9	80.3	87	74
5	90	70	77.1	68.8	0	15	92	45	77	0.19	NA	NA	ESE	9.4	24.9	15.17	78.2	79.8	84	77
6	96	69	82.3	67.7	0	17	95	36	65	0.00	28.61	29.96	SE	12.8	31.2	25.54	78.7	81.9	91	75
7	97	73	85.2	68.1	0	20	90	31	60	0.00	28.53	29.87	S	14.2	39.8	25.22	79.5	85.5	94	78
8	98	76	86.3	68.8	0	22	82	38	57	0.01	28.49	29.83	SSE	15.6	31.5	23.95	79.9	87.3	95	80
9	101	78	89.1	68.9	0	25	72	34	53	0.00	28.51	29.86	S	16.6	37.2	25.85	80.5	89.3	97	82
10	98	78	87.7	68.0	0	23	74	33	54	0.00	28.59	29.94	S	16.5	33.8	26.20	80.8	90.3	97	84
11	98	76	87.0	64.6	0	22	68	33	49	0.00	28.59	29.94	S	16.1	37.8	25.90	80.5	90.1	97	84
12	99	77	86.7	65.9	0	23	68	32	51	0.00	28.63	29.98	S	13.7	29.0	19.84	80.2	89.1	95	84
13	97	71	80.6	66.9	0	19	89	36	65	0.01	28.73	30.08	SSE	9.9	44.6	16.66	80.2	88.1	95	83
14	86	69	76.5	67.9	0	13	97	53	77	0.00	28.81	30.17	ESE	6.8	19.9	16.71	79.4	85.6	91	81
15	92	65	78.5	66.5	0	13	98	38	70	0.00	28.69	30.04	ESE	5.0	14.8	19.43	78.7	85.3	92	79
16	95	69	80.9	68.5	0	17	96	39	69	0.00	28.58	29.93	ESE	8.2	29.7	22.42	79.3	87.1	95	80
17	87	72	77.3	69.7	0	15	93	53	79	0.02	28.56	29.91	SE	9.4	29.4	14.86	79.3	85.9	91	82
18	90	71	78.0	71.3	0	15	96	56	82	0.02	28.60	29.94	SE	12.9	26.0	17.03	78.8	84.2	90	80
19	93	70	77.9	73.2	0	17	97	58	87	1.37	28.57	29.92	ESE	13.6	48.5	19.01	78.8	84.0	91	80
20	94	74	83.6	72.8	0	19	94	48	72	0.00	28.47*	29.81*	SSE	13.7	31.2	23.96	79.3	82.3	88	78
21	95	75	84.0	70.6	0	20	85	44	66	0.00	28.55	29.89	S	10.1	27.0	23.38	80.4	83.4	90	77
22	96	72	84.4	69.5	0	19	92	37	64	0.00	28.60	29.95	SSE	13.1	27.8	23.89	80.8	85.4	94	78
23	97	70	83.8	64.7	0	19	86	29	56	0.00	28.59	29.94	SSE	13.4	32.9	25.97	80.3	86.0	94	78
24	98*	71*	84.5*	66.0*	0*	19*	82*	34*	56*	0.00*	28.58*	29.93*	SSE*	13.0*	31.9*	NA	79.9*	87.1*	95*	79*
25	98	73	85.6	67.3	0	21	81	33	57	0.00	28.65	30.00	SSE	11.0	24.9	26.04	80.3	88.4	97	81
26	97	71	84.2	68.1	0	19	92	35	62	0.00	28.67	30.03	SE	8.9	23.5	25.61	80.6	88.8	97	82
27	95	71	83.0	68.7	0	18	93	38	65	0.00	28.61	29.96	SE	10.6	27.6	22.64	80.7	88.5	95	82
28	94	71	82.2	67.5	0	18	93	38	64	0.00	28.62	29.97	SE	12.6	29.4	24.63	80.3	88.0	95	82
29	96	71	81.6	68.6	0	18	94	36	68	0.00	28.62	29.97	ESE	9.2	26.2	23.65	80.3	88.2	95	82
30	93	69	80.9	67.9	0	16	95	41	67	0.00	28.54	29.89	ESE	5.3	17.9	21.17	80.1	88.0	95	81
31	97	71	84.5	67.8	0	19	90	35	60	0.00	28.43	29.77	SE	8.1	26.3	23.76	80.1	88.4	95	82
	94*	71*	81.9*	67.9*	<- Monthly Averages ->					28.61*	29.95*	SSE*	11.0*	48.5*	22.18*	79.7*	86.0*	93*	80*	
Temperature - Highest: 101* Lowest: 60*					Degree Days - Total HDD: 0* Total CDD: 545*					Number of Days With: Tmax ≥ 90: 25* Rainfall ≥ 0.01 inch: 8* Tmax ≤ 32: 0* Rainfall ≥ 0.10 inch: 3* Tmin ≤ 32: 0* Avg Wind Speed ≥ 10 mph: 18* Tmin ≤ 0: 0* Max Wind Speed ≥ 30 mph: 12*										
Rainfall: Monthly Total: 2.81* in. Greatest 24 Hr: 1.37* in.					Humidity - Highest: 98* Lowest: 29*															

MESONET CLIMATOLOGICAL DATA SUMMARY (TIPT) Tipton Latitude: 34-26-22							September 2021 Nearest City: 4.0 S Tipton Longitude: 99-08-15					Time Zone: Midnight-Midnight CST County: Tillman Elevation: 1270 feet								
DAY	TEMPERATURE (F)				DEG DAYS		HUMIDITY (%)			RAIN (in)	PRESSURE (in)		WIND SPEED (mph)	SOLAR (MJ/m2)	4" SOIL TEMPERATURES					
	MAX	MIN	AVG	DEWPt	HDD	CDD	MAX	MIN	AVG	(in)	STN	MSL	DIR	AVG	MAX	SOD	BARE	MAX	MIN	
1	101	72	86.5	68.0	0	22	88	31	57	0.00	28.46	29.80	SE	9.2	27.2	24.16	80.6	89.4	97	83
2	98	75	86.4	69.1	0	21	82	38	58	0.00	28.52	29.87	SE	13.5	28.7	21.40	80.8	89.5	95	84
3	98	76	86.5	68.4	0	22	80	35	57	0.00	28.55	29.90	SE	13.5	27.6	23.23	80.8	89.6	96	84
4	99	73	82.1	68.9	0	21	93	32	68	0.03	28.56	29.91	SSE	10.2	45.3	18.62	80.7	88.3	95	84
5	90	70	78.4	67.5	0	15	96	40	72	0.00	28.64	29.99	NNE	8.4	20.2	20.84	80.3	86.7	93	81
6	94	62	79.6	64.5	0	13	96	38	63	0.00	28.65	30.00	SE	7.9	21.1	23.10	79.2	86.2	94	79
7	94	71	80.9	67.0	0	17	91	39	65	0.20	28.57	29.92	S	10.0	23.4	20.85	79.3	86.0	92	81
8	94	65	78.9	58.4	0	14	90	21	54	0.00	28.67	30.02	ENE	12.5	29.2	22.82	78.8	85.6	93	79
9	92	57	75.5	53.2	0	10	90	25	51	0.00	28.70	30.05	S	9.5	23.0	22.70	76.3	82.7	90	75
10	95	64	80.2	54.2	0	15	74	26	43	0.00	28.67	30.02	SSE	12.2	31.3	19.74	75.9	82.7	89	77
11	97	64	80.4	54.7	0	16	70	24	43	0.00	28.68	30.03	S	13.5	28.1	20.59	75.9	82.7	89	77
12	94	60	77.4	54.0	0	12	79	20	49	0.00	28.70	30.05	SE	11.0	24.6	22.21	75.6	82.2	89	76
13	94	60	78.7	59.1	0	12	88	25	55	0.00	28.65	30.00	SSE	12.0	29.2	22.17	75.9	82.7	89	76
14	91*	64*	78.3*	63.2*	0*	13*	90*	37*	62*	0.00*	28.58*	29.93*	SE *	11.6*	26.0*	NA	76.5*	83.6*	91*	78*
15	91	64	77.4	63.3	0	12	95	37	65	0.00	28.59	29.94	ESE	7.8	19.6	21.32	77.2	84.1	91	78
16	92	64	78.8	62.3	0	13	92	35	60	0.00	28.57	29.91	SE	9.2	26.8	20.51	77.3	84.0	90	78
17	96	67	80.7	63.4	0	16	88	34	59	0.00	28.63	29.98	ESE	10.9	24.1	21.55	77.7	84.6	91	79
18	94	64	78.1	60.5	0	14	90	31	59	0.00	28.72	30.07	ESE	6.0	16.7	21.59	77.9	84.9	92	78
19	96	63	80.8	58.9	0	14	84	25	51	0.00	28.56	29.91	SE	10.1	32.3	22.13	77.6	84.6	91	78
20	101	72	83.7	59.6	0	21	76	26	47	0.00	28.45	29.80	SE	13.4	44.1	16.71	77.8	84.5	90	80
21	83	51	71.0	42.8	0	2	62	20	38	0.00	28.87	30.23	NNE	19.6	42.5	20.48	76.3	82.0	86	78
22	81	44	63.4	38.0	3	0	83	19	45	0.00	28.93	30.30	ESE	4.8	15.9	22.75	73.5	77.5	85	70
23	88	47	69.9	38.8	0	2	71	17	36	0.00	28.72	30.07	SE	10.8	26.0	21.89	72.7	77.1	84	70
24	89	51	70.3	42.1	0	5	69	19	39	0.00	28.68	30.03	SE	9.3	20.2	17.26	72.3	76.4	82	71
25	92	51	72.5	45.8	0	6	83	19	44	0.00	28.72	30.07	SE	7.9	20.4	21.29	72.5	77.2	85	70
26	92	60	76.0	46.5	0	11	63	19	38	0.00	28.64	29.99	S	12.2	31.3	21.35	73.0	78.4	84	72
27	93	61	76.7	50.7	0	12	61	24	42	0.00	28.57	29.92	SSE	12.4	25.9	17.30	73.3	78.8	84	73
28	94	62	74.3	59.2	0	13	92	28	64	0.54	28.48	29.82	ESE	11.8	48.6	18.05	73.8	79.0	86	74
29	89	65	74.1	66.5	0	12	96	49	79	0.01	28.45	29.80	SE	14.4	39.8	19.43	74.0	76.7	83	72
30	80	67	71.4	66.5	0	8	95	66	85	0.01	28.62	29.97	ENE	10.1	27.0	8.92	74.1	75.6	79	73
	93*	63*	77.6*	57.8*	<- Monthly Averages ->					28.63*	29.98*	SE *	10.8*	48.6*	20.52*	76.6*	82.8*	89*	77*	
Temperature - Highest: 101* Lowest: 44*					Degree Days - Total HDD: 3* Total CDD: 386*					Number of Days With: Tmax ≥ 90: 24* Rainfall ≥ 0.01 inch: 5* Tmax ≤ 32: 0* Rainfall ≥ 0.10 inch: 2* Tmin ≤ 32: 0* Avg Wind Speed ≥ 10 mph: 20* Tmin ≤ 0: 0* Max Wind Speed ≥ 30 mph: 8*										
Rainfall: Monthly Total: 0.79* in. Greatest 24 Hr: 0.54* in.					Humidity - Highest: 96* Lowest: 17*															

MESONET CLIMATOLOGICAL DATA SUMMARY (TIPT) Tipton Latitude: 34-26-22								October 2021 Nearest City: 4.0 S Tipton Longitude: 99-08-15					Time Zone: Midnight-Midnight CST County: Tillman Elevation: 1270 feet							
DAY	TEMPERATURE (F)				DEG DAYS		HUMIDITY (%)			RAIN (in)	PRESSURE (in)		WIND DIR	SPEED (mph)	SOLAR (MJ/m2)	4" SOIL TEMPERATURES				
	MAX	MIN	AVG	DEWPt	HDD	CDD	MAX	MIN	AVG	(in)	STN	MSL	DIR	Avg	Max	SOD	BARE	MAX	MIN	
1	80	63	70.0	63.6	0	7	98	53	82	0.02	28.71	30.07	ESE	6.2	19.2	14.01	73.8	75.3	82	71
2	80	60	68.5	61.3	0	5	100	47	81	0.95	28.70*	30.05*	WNW	5.7	21.7	18.26	72.6	73.7	79	69
3	84	57	68.4	57.4	0	5	99	31	73	0.00	28.72	30.08	NNW	5.6	22.7	20.03	72.1	71.6	78	65
4	86	54	69.8	53.8	0	5	98	30	62	0.00	28.71	30.07	ESE	5.2	15.6	20.03	71.5	71.7	80	64
5	84	57	68.9	50.7	0	5	83	26	57	0.00	28.74	30.09	E	9.1	21.2	19.51	71.1	72.0	80	65
6	83	51	67.9	51.0	0	2	96	29	60	0.00	28.71	30.06	ENE	5.3	19.9	19.64	70.3	72.3	81	64
7	92	60	74.8	54.8	0	11	76	27	53	0.00	28.63	29.98	SE	12.7	28.6	18.50	70.3	74.0	82	67
8	98	60	80.6	54.2	0	14	82	21	44	0.00	28.57	29.92	S	13.9	34.6	18.68	70.8	76.3	83	69
9	97	62	80.3	55.0	0	14	78	22	44	0.00	28.45	29.79	S	15.4	34.6	18.93	71.2	77.9	84	71
10	90	58	71.7	58.8	0	9	92	41	66	0.02	28.31	29.65	SE	14.8	40.6	15.44	71.3	76.9	83	72
11	81	48	65.3	46.4	0	0	95	23	57	0.00	28.49	29.83	ESE	8.9	23.9	19.21	69.8	73.1	81	66
12	86	58	71.9	60.9	0	7	92	56	69	0.68	28.41	29.75	ESE	20.4	43.1	13.10	69.2	72.7	78	69
13	76	57	65.8	55.0	0	1	96	30	71	0.83	28.42	29.76	SSE	10.0	43.7	12.18	69.7	70.5	74	67
14	78	56	65.4	60.5	0	2	100	57	86	0.01	28.48	29.83	S	8.9	22.9	14.20	69.0	68.0	73	65
15	69	45	58.3	43.8	8	0	88	31	61	0.00	28.77	30.12	N	14.8	36.1	18.49	68.1	64.8	69	61
16	72	38	54.7	37.1	10	0	97	17	60	0.00	28.99	30.35	SSE	4.9	13.7	19.12	64.7	60.4	68	53
17	75	42	58.2	38.8	7	0	93	23	53	0.00	28.88	30.24	SSW	7.9	21.6	16.22	63.5	60.2	66	54
18	77	45	60.5	43.3	4	0	89	29	57	0.00	28.68	30.03	SE	12.6	30.9	17.15	63.0	61.3	69	55
19	82	53	67.4	54.7	0	3	84	45	65	0.00	28.57	29.92	SSE	17.0	35.1	17.31	63.9	65.3	72	59
20	76	53	63.9	52.0	1	0	98	33	69	0.00	28.72	30.07	N	10.4	24.3	15.62	65.5	67.6	73	64
21	76	42	59.7	43.8	6	0	96	28	61	0.00	28.83	30.18	E	7.3	20.6	15.48	64.0	64.6	71	58
22	85	55	69.4	54.6	0	5	74	44	60	0.00	28.66	30.01	SSE	11.6	26.6	13.92	64.6	67.2	74	62
23	89	63	75.3	60.8	0	11	90	35	63	0.00	28.42	29.76	SSE	15.0	36.3	15.93	66.7	70.8	77	66
24	83	57	71.5	54.1	0	5	83	25	58	0.00	28.44	29.78	S	14.5	32.6	15.70	67.6	72.2	77	69
25	81	47	64.9	51.2	1	0	95	36	65	0.00	28.59	29.94	ESE	10.0	25.7	16.49	66.0	68.6	75	62
26	87	62	73.3	62.9	0	10	100	46	72	0.32	28.33	29.67	SSE	21.0	44.9	15.51	67.2	71.3	77	67
27	68	53	60.3	43.9	4	0	89	35	57	0.00	28.31	29.65	NNW	18.4	45.3	13.51	66.2	65.8	71	61
28	71	46	58.4	28.3	6	0	59	15	34	0.00	28.58	29.93	WNW	21.7	54.5	16.21	62.5	60.3	66	55
29	70	42	54.5	26.8	9	0	83	15	39	0.00	28.70	30.05	NW	13.8	40.4	16.94	60.5	59.3	66	53
30	78	37	56.8	35.7	7	0	90	21	52	0.00	28.56	29.91	E	9.2	24.6	16.44	59.3	59.2	67	52
31	68	49	56.8	43.1	7	0	85	44	61	0.00	28.73	30.09	NNE	14.9	33.5	15.74	60.1	61.3	67	57
	81	53	66.2	50.3	<- Monthly Averages ->					28.61*	29.96*	SSE	11.8	54.5	16.69	67.3	68.6	75	63	
Temperature - Highest: 98 Lowest: 37					Degree Days - Total HDD: 70 Total CDD: 121					Number of Days With: Tmax ≥ 90: 4 Rainfall ≥ 0.01 inch: 7 Tmax ≤ 32: 0 Rainfall ≥ 0.10 inch: 4 Tmin ≤ 32: 0 Avg Wind Speed ≥ 10 mph: 19 Tmin ≤ 0: 0 Max Wind Speed ≥ 30 mph: 15										
Rainfall: Monthly Total: 2.83 in. Greatest 24 Hr: 0.95 in.					Humidity - Highest: 100 Lowest: 15															

MESONET CLIMATOLOGICAL DATA SUMMARY (TIPT) Tipton Latitude: 34-26-22								November 2021 Nearest City: 4.0 S Tipton Longitude: 99-08-15					Time Zone: Midnight-Midnight CST County: Tillman Elevation: 1270 feet							
DAY	TEMPERATURE (F)				DEG DAYS		HUMIDITY (%)			RAIN (in)	PRESSURE (in)		WIND SPEED (mph)	SOLAR (MJ/m2)	4" SOIL TEMPERATURES					
	MAX	MIN	AVG	DEWPt	HDD	CDD	MAX	MIN	AVG		STN	MSL			SOD	BARE	MAX	MIN		
1	67	42	54.4	43.1	11	0	93	45	67	0.00	28.85	30.21	NE	8.9	27.1	15.17	60.2	61.4	68	56
2	49	44	46.2	41.3	18	0	98	73	83	0.06	28.95	30.31	NNE	11.9	25.7	2.60	59.2	58.1	62	55
3	48	43	45.5	43.4	20	0	98	83	93	0.02	28.95	30.31	NNE	8.6	19.4	2.71	57.8	54.1	55	53
4	55	42	47.9	44.5	17	0	97	69	88	0.00	28.91	30.27	SE	6.2	16.3	5.65	57.7	54.7	58	53
5	63	39	49.3	42.1	14	0	99	50	79	0.01	28.83	30.18	SE	11.5	23.3	14.75	57.0	54.2	61	49
6	73	39	53.7	44.0	9	0	95	38	73	0.00	28.81	30.17	SE	10.8	23.0	15.08	57.3	56.3	64	50
7	80	45	60.1	45.3	2	0	95	22	64	0.00	28.73	30.08	SE	14.8	32.4	15.27	58.2	59.0	66	53
8	78	48	61.6	50.2	2	0	94	40	69	0.00	28.72	30.08	SE	13.5	27.8	14.11	59.1	60.7	67	55
9	73	53	61.3	53.3	2	0	91	51	76	0.00	28.72	30.07	ESE	6.4	16.8	12.59	60.7	63.6	70	60
10	76	47	61.3	52.7	3	0	98	43	76	0.00	28.50	29.84	SE	12.8	31.5	7.14	60.8	62.3	66	60
11	66	42	53.0	37.6	11	0	91	30	60	0.00	28.75	30.10	NNW	6.9	19.3	13.24	59.4	59.7	66	55
12	63	34	49.5	25.3	16	0	79	13	45	0.00	28.86	30.21	NNW	11.6	43.8	14.57	57.8	57.5	63	53
13	71	31	49.7	27.1	14	0	82	18	48	0.00	28.80	30.16	S	9.0	26.8	14.50	55.5	55.0	62	49
14	66	37	51.8	33.0	14	0	85	25	52	0.00	28.77	30.12	ESE	8.4	40.0	13.76	56.1	57.2	64	52
15	80	36	56.5	39.1	7	0	85	23	56	0.00	28.69	30.04	SE	7.6	19.0	13.70	56.1	57.4	64	51
16	88	48	66.0	42.2	0	3	95	13	51	0.00	28.44	29.79	S	15.0	36.2	13.92	57.6	60.1	66	54
17	64	41	54.6	31.2	12	0	82	25	43	0.00	28.65	30.00	N	17.9	42.9	12.50	57.9	59.9	63	57
18	58	32	43.3	14.2	20	0	53	14	33	0.00	29.12	30.48	N	8.7	18.8	13.82	55.5	54.9	60	50
19	66	31	48.1	22.5	17	0	63	18	38	0.00	28.90	30.26	SSE	13.7	34.2	12.50	53.7	52.7	58	47
20	78	40	55.5	35.7	6	0	79	22	51	0.00	28.62	29.97	SSW	10.3	25.8	12.77	54.7	55.8	62	50
21	64	32	50.9	31.5	17	0	76	24	50	0.00	28.85	30.21	N	14.5	38.1	8.47	55.4	56.4	60	53
22	70	27	46.9	27.5	17	0	85	22	52	0.00	28.92	30.28	S	7.9	26.8	13.26	53.3	52.6	59	47
23	75	37	56.6	29.2	9	0	65	17	38	0.00	28.65	30.00	S	14.4	35.8	12.76	53.7	54.4	60	49
24	70	50	59.2	39.0	5	0	67	28	48	0.00	28.56	29.91	SSW	14.6	38.4	4.48	55.3	57.2	60	55
25	53	28	42.0	22.6	24	0	66	24	48	0.00	29.05	30.42	N	15.4	41.1	12.88	54.3	54.5	58	51
26	67	21	44.3	18.6	21	0	81	15	43	0.00	28.87	30.22	SSW	9.0	27.4	12.87	51.6	50.1	56	44
27	63	36	50.0	24.0	15	0	69	21	38	0.00	28.68	30.03	S	6.2	16.7	4.95	52.4	52.2	55	50
28	65	33	48.3	28.1	16	0	71	24	48	0.00	28.88	30.24	N	6.9	16.7	12.65	52.3	52.0	59	47
29	76	36	53.3	32.8	9	0	75	20	49	0.00	28.72	30.08	SSW	7.0	18.9	12.56	52.7	53.4	60	48
30	79	38	56.0	37.6	7	0	80	23	54	0.00	28.64	29.99	SSW	7.3	22.7	12.53	53.7	55.2	62	50
	68	38	52.6	35.3	<- Monthly Averages ->				28.78	30.13	SE	10.6	43.8	11.59	56.2	56.4	62	52		
Temperature - Highest: 88 Lowest: 21					Degree Days - Total HDD: 357 Total CDD: 3					Number of Days With: Tmax ≥ 90: 0 Rainfall ≥ 0.01 inch: 3 Tmax ≤ 32: 0 Rainfall ≥ 0.10 inch: 0 Tmin ≤ 32: 7 Avg Wind Speed ≥ 10 mph: 15 Tmin ≤ 0: 0 Max Wind Speed ≥ 30 mph: 11										
Rainfall: Monthly Total: 0.09 in. Greatest 24 Hr: 0.06 in.					Humidity - Highest: 99 Lowest: 13															