



2021 XtendFlex Technology Cotton Variety Trial – Lonestar Gin

**Rod Carver Farm
Brinkman, OK**

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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, nine 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 (ST 4993 B3XF) to a low of 515 lb/acre (NG 5711 B3XF), and averaged 574 lb/acre. These differences were statistically significant. Average Loan value for varieties from commercially ginned and classed bales varied from a high of \$0.5750/lb (DP 1948 B3XF) to a low of \$0.5178/lb (DP 2022 B3XF). Average Loan value for the trial across all entries was 0.5513/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. ST 4993 B3XF had the highest net value at \$403/acre, and DP 2022 B3XF had the lowest at \$306/acre, a difference of \$97/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 September 24, and a visual estimate of storm resistance at harvest. Final plant height of varieties ranged from a low of 24.9 inches (NG 4098 B3XF) to a high of 31.3 (NG 5711 B3XF), and averaged 28.9. NACB values for varieties ranged from a low of 2.1 to a high of 4.1, and averaged 3.2, indicating excellent maturity for all entries in late September. Visual storm resistance ratings (1 to 9 scale with 9 tightest) ranged from a low of 4.0 (NG 4190 B3XF) to a high of 6.3 (NG 4098 B3XF), and averaged 5.0.

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 good to excellent and ranged from 1.0 (NG 5711 B3XF) to 3.4 (NG 4098 B3XF), with an average of 2.1. Staple ranged from an average high of 37.4 (DP 1948 B3XF and NG 4098 B3XF) to an average low of 34.5 32nds inch (DP 2022 B3XF), and averaged 35.7. Average micronaire values ranged from a low of 3.5 (NG 4098 B3XF) to a high of 4.5 (ST 4993 B3XF) with an average of 4.0. No bark contamination was noted in any of the commercial bales. Fiber strength ranged from a high of 34.1 g/tex to a low of 26.5 g/tex. Uniformity ranged from a high of 81.4% to a low of 78.1%.

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: 1690 ft

Previous crop: wheat

Tillage system: no-till

Planted: June 10

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: 26,000 seed/acre

Days from planting to first bloom: 50 (July 29)

Total rainfall May through September: ~12.7 inches

May – 5.7, June – 2.9, July – 1.7, August – 2.2, September 0.2

Oklahoma Mesonet weather data for the Mangum recording station (about 13 miles southeast of the trial site) is provided in the Appendix

Fertility management: 6 gallons of 20-20-1-2 with a 2x2 fertilizer applicator mounted on planter

Chemical Applications:

Preplant burndown – (April 8) 8 oz/acre dicamba + 1 qt/acre RT3 Roundup + 2 oz/acre of flumioxazin

Preplant: (May 27) 1 qt/acre Roundup RT3 + 1pt/acre diuron

Post emergence – (July) glyphosate and dicamba

Plant growth regulators: 5 oz/acre chloride on July 8

Insecticides: 8 oz/acre acephate on July 8

Harvest aid applications: 32 oz/acre ethephon + 6.4 Ginstar on October 7

Harvesting: November 11 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 Rod Carver 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, 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

**Rod Carver Farm
Brinkman, OK**

**Dr. Randy Boman
Cotton Agronomics Manager**

Variety Descriptions from Company Literature and Websites

DP 1948 B3XF Roundup Ready Flex (glyphosate), Liberty Link (glufosinate), and dicamba stacked herbicide tolerance technologies stacked with Bollgard 3 Bt technology. Mid-full maturity. Semi-smooth leaves, medium plant height, storm resistance 5.0 (on scale of 1 = tight, 9 = loose). ~ 39 staple, strength ~31.2 g/tex. Disease ratings: Fusarium wilt – moderately susceptible, Verticillium wilt – moderately susceptible, Bacterial blight – resistant.

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 2022 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 3.5 (on scale of 1 = tight, 9 = loose). ~ 36.8 staple, strength ~29.3 g/tex. Disease ratings: Fusarium wilt – moderately resistant, Verticillium wilt – 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 to 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 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, Carver Farm, Brinkman, 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
----- % -----									
----- lb/acre -----									
ST 4993 B3XF	34.7	41.9	1931	669	810	0.5568	372	30	403 a
NG 4936 B3XF	30.9	43.2	1907	589	824	0.5599	330	33	362 b
DP 1948 B3XF	31.6	42.3	1815	573	768	0.5750	330	29	359 b
DP 2012 B3XF	32.4	42.2	1825	591	769	0.5548	328	29	357 b
NG 4098 B3XF	29.9	43.1	1974	591	850	0.5481	324	33	357 b
NG 4190 B3XF	33.5	42.1	1739	583	731	0.5603	326	27	354 b
DP 2123 B3XF	28.4	45.7	1891	538	864	0.5420	291	37	329 c
NG 5711 B3XF	33.4	44.3	1542	515	683	0.5468	281	28	310 d
DP 2022 B3XF	28.4	45.6	1833	521	835	0.5178	269	36	306 d
Test average	31.5	43.4	1829	574	793	0.5513	317	31	349
CV, %	--	--	3.0	3.1	3.0	--	3.1	2.9	3.1
OSL	--	--	0.0001	0.0001	0.0001	--	0.0001	0.0001	0.0001
LSD	--	--	78	25	34	--	14	1	15

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, Carver Farm, Brinkman, OK, 2021.

Entry	Final population	Stand establishment	Vigor	Nodes above white flower		Prebloom	Plant height		Nodes above cracked boll	Storm resistance
				Early bloom	Mid bloom		Early bloom	Final		
plants/acre	%	1-5 visual scale, 5 best		count			inches		count	1-9 visual scale, 9 tight
30-Jun	30-Jun	30-Jun		3-Aug	18-Aug	26-Jul	3-Aug	24-Sep	24-Sep	11-Nov
DP 1948 B3XF	17,642	70.6	3.0	7.8	4.1	18.7	23.5	29.4	4.1	5.5
DP 2012 B3XF	17,424	69.7	4.0	6.8	2.8	19.8	22.4	27.3	2.1	4.5
DP 2022 B3XF	15,682	62.7	3.0	8.3	4.5	18.2	23.1	29.0	3.2	5.0
DP 2123 B3XF	16,988	68.0	3.3	7.4	3.5	18.3	23.1	29.9	2.9	4.7
NG 4098 B3XF	19,384	77.5	4.5	5.8	2.9	17.3	20.3	24.9	2.6	6.3
NG 4190 B3XF	17,642	70.6	3.8	7.4	3.0	21.9	26.1	30.7	2.9	4.0
NG 4936 B3XF	13,721	54.9	3.5	7.1	3.5	18.5	21.8	27.6	3.0	4.3
NG 5711 B3XF	13,286	53.2	3.2	7.3	4.5	18.9	23.7	31.3	4.1	5.0
ST 4993 B3XF	13,939	55.8	3.3	7.3	3.1	20.7	23.0	30.2	3.5	5.5
Test average	16,190	64.8	3.5	7.2	3.5	19.1	23.0	28.9	3.2	5.0
CV, %	12.1	12.1	6.6	5.2	15.5	4.7	4.7	4.5	11.3	5.0
OSL	0.0150	0.0149	0.0001	0.0001	0.0049	0.0003	0.0009	0.0005	0.0001	0.0001
LSD	2,799	11.2	0.3	0.5	0.8	1.3	1.5	1.9	0.5	0.4

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, Carver Farm, Brinkman, 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 1948 B3XF															
812939	21-2	2	1	2	37	4.0	.	.	31.8	82.3	7.3	2	81.0	115	57.80
812940	31-1	3	1	3	37	4.2	.	.	32.0	81.1	7.3	3	80.8	116	56.95
812941	21-2	2	1	3	37	4.0	.	.	33.0	81.8	7.4	3	81.3	116	57.30
812942	21-2	2	1	3	38	4.0	.	.	31.6	80.9	7.6	2	81.5	118	57.45
812943	21-2	2	1	2	38	3.9	.	.	32.8	81.2	7.7	2	82.5	120	58.00
Average	--	2.2	1.0	2.6	37.4	4.0	none	none	32.2	81.5	7.5	2.4	81.4	117.0	57.50
DP 2012 B3XF															
812944	21-1	2	1	2	36	3.8	.	.	27.6	81.8	7.6	2	79.9	113	56.30
812945	21-1	2	1	2	36	4.0	.	.	27.2	81.6	7.7	2	80.0	111	56.85
812946	21-1	2	1	2	36	4.0	.	.	27.3	81.6	7.8	2	79.0	111	56.30
812947	21-1	2	1	2	34	4.0	.	.	26.6	81.5	7.6	1	78.7	107	53.05
812948	21-1	2	1	2	35	4.1	.	.	27.0	81.6	7.7	2	79.5	110	54.90
Average	--	2.0	1.0	2.0	35.4	4.0	none	none	27.1	81.6	7.7	1.8	79.4	110.4	55.48
DP 2022 B3XF															
812949	31-1	3	1	3	34	3.6	.	.	26.1	81.7	6.8	3	78.3	106	52.30
812950	31-1	3	1	3	35	3.7	.	.	28.6	81.8	6.9	3	77.8	109	53.55
812951	31-1	3	1	3	34	3.8	.	.	24.7	82.4	7.0	3	77.5	105	47.40
812952	31-1	3	1	3	35	3.6	.	.	26.6	81.3	7.0	3	78.9	109	53.85
Average	--	3.0	1.0	3.0	34.5	3.7	none	none	26.5	81.8	6.9	3.0	78.1	107.3	51.78



Table 3 (continued). Commercial classing data for the dryland XtendFlex cotton variety trial, Carver Farm, Brinkman, 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 2123 B3XF															
812953	31-1	3	1	3	35	3.5	.	.	29.1	81.2	7.2	2	79.8	109	54.00
812954	21-2	2	1	2	36	3.9	.	.	30.5	81.1	7.6	2	79.0	111	56.50
812955	21-1	2	1	2	35	4.1	.	.	28.8	81.5	7.6	2	77.5	108	54.40
812956	21-1	2	1	2	34	3.9	.	.	27.5	81.8	7.8	2	78.0	107	53.05
812957	21-2	2	1	2	34	3.9	.	.	28.0	80.9	7.8	2	78.8	105	53.05
Average	--	2.2	1.0	2.2	34.8	3.9	none	none	28.8	81.3	7.6	2.0	78.6	108.0	54.20
NG 4098 B3XF															
812958	31-1	3	1	4	39	3.3	.	.	36.1	79.5	7.9	5	80.8	122	50.40
812959	31-1	3	1	3	37	3.5	.	.	33.3	78.7	8.2	3	78.4	115	56.25
812960	31-1	3	1	3	37	3.6	.	.	33.1	79.2	8.4	3	78.5	117	56.25
812961	31-1	3	1	4	37	3.5	.	.	31.5	78.6	8.1	5	78.4	116	54.60
812962	21-1	2	1	3	37	3.5	.	.	34.3	79.7	8.5	4	78.9	116	56.55
Average	--	2.8	1.0	3.4	37.4	3.5	none	none	33.7	79.1	8.2	4.0	79.0	117.2	54.81
NG 4190 B3XF															
812963	31-1	3	1	2	36	3.6	.	.	28.2	80.6	7.3	2	80.4	113	56.25
812964	21-2	2	1	2	35	3.9	.	.	28.5	80.7	7.9	2	79.9	110	54.90
812965	31-1	3	1	2	36	4.1	.	.	26.0	81.0	7.5	1	81.1	111	56.35
812966	21-2	2	1	2	36	4.0	.	.	27.5	81.6	7.4	1	80.7	111	56.85
812967	31-1	3	1	1	36	4.1	.	.	28.1	81.4	7.5	1	79.6	112	55.80
Average	--	2.6	1.0	1.8	35.8	3.9	none	none	27.7	81.1	7.5	1.4	80.3	111.4	56.03



Table 3 (continued). Commercial classing data for the dryland XtendFlex cotton variety trial, Carver Farm, Brinkman, 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 4936 B3XF															
812968	21-2	2	1	2	36	4.2	.	.	29.2	81.9	7.2	1	81.0	112	56.90
812969	21-2	2	1	2	36	4.1	.	.	29.5	82.0	7.3	1	80.1	112	56.90
812970	31-1	3	1	2	35	4.2	.	.	29.3	82.2	7.1	2	79.8	109	54.30
812971	21-2	2	1	2	37	4.2	.	.	29.4	82.3	7.2	2	81.0	114	57.45
812972	21-1	2	1	1	35	4.2	.	.	28.1	82.5	7.4	1	77.7	109	54.40
Average	--	2.2	1.0	1.8	35.8	4.2	none	none	29.1	82.2	7.2	1.4	79.9	111.2	55.99
NG 5711 B3XF															
812973	21-1	2	1	1	35	4.2	.	.	29.9	82.4	7.7	1	80.3	108	55.50
812974	21-1	2	1	1	35	4.2	.	.	27.9	81.9	7.9	1	79.2	108	54.90
812975	21-1	2	1	1	35	4.2	.	.	30.9	81.6	7.8	1	79.9	109	55.10
812976	21-2	2	1	1	34	4.1	.	.	29.1	81.4	7.9	1	79.4	107	53.20
Average	--	2.0	1.0	1.0	34.8	4.2	none	none	29.5	81.8	7.8	1.0	79.7	108.0	54.68
ST 4993 B3XF															
812977	21-1	2	1	1	35	4.5	.	.	33.8	81.1	8.2	1	81.5	110	55.80
812978	21-1	2	1	1	35	4.4	.	.	36.8	81.0	8.3	1	81.5	109	55.80
812979	21-1	2	1	2	35	4.5	.	.	33.1	80.6	8.0	2	80.8	109	55.80
812980	21-2	2	1	1	35	4.5	.	.	34.2	81.1	7.9	1	81.2	108	55.80
812981	21-1	2	1	1	35	4.5	.	.	32.4	81.1	8.0	1	79.7	108	55.20
Average	--	2.0	1.0	1.2	35.0	4.5	none	none	34.1	81.0	8.1	1.2	80.9	108.8	55.68



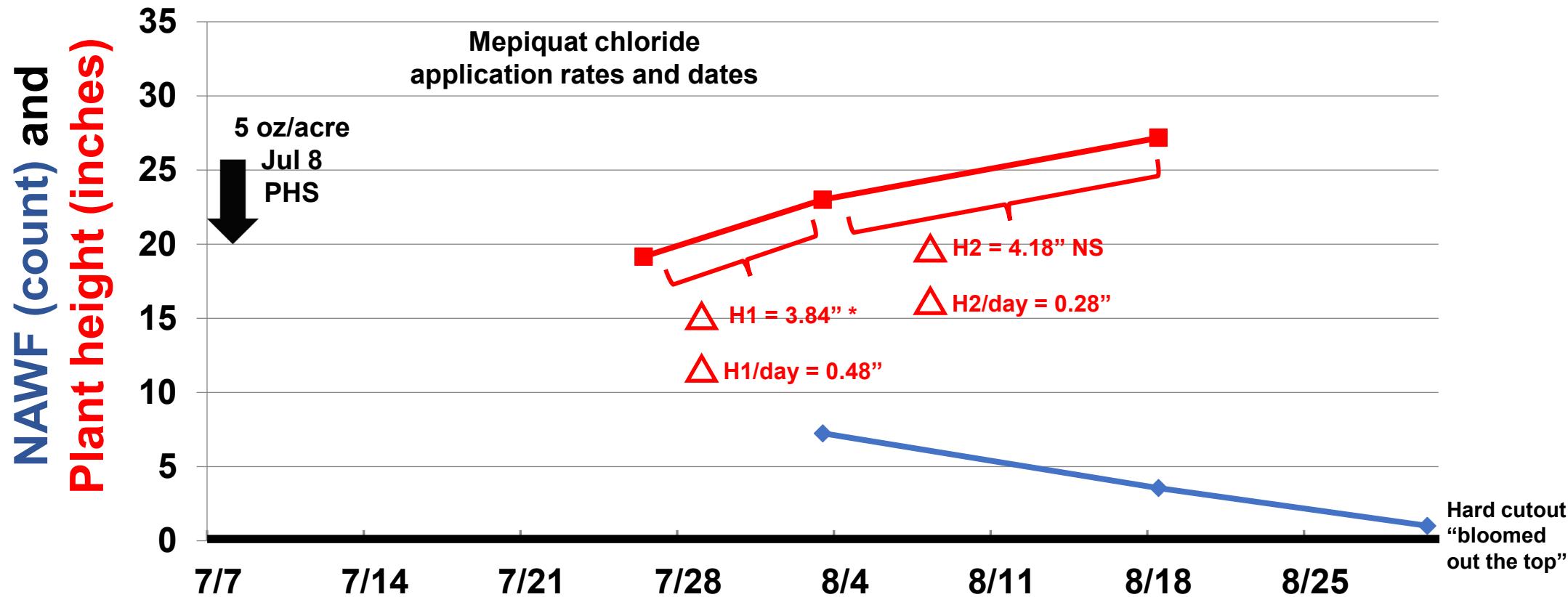
Appendix

**Carver XtendFlex Variety Trial - Plant Height and NAWF
Graphs, and Mangum Mesonet 2021 Weather Data**





Carver XtendFlex Variety Trial (Across All Entries) Brinkman – 2021

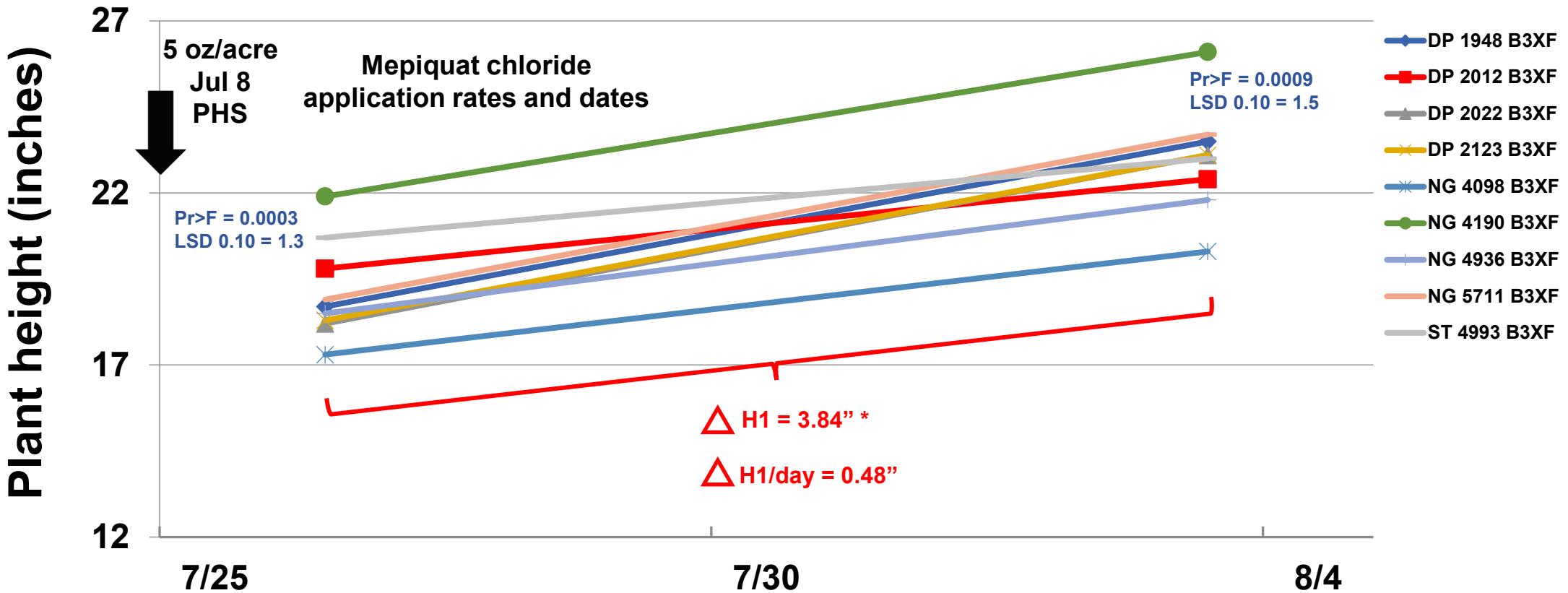


Planted: June 10
Days to bloom: 50
First bloom date: Jul 29



Carver XtendFlex Variety Trial

Brinkman – 2021

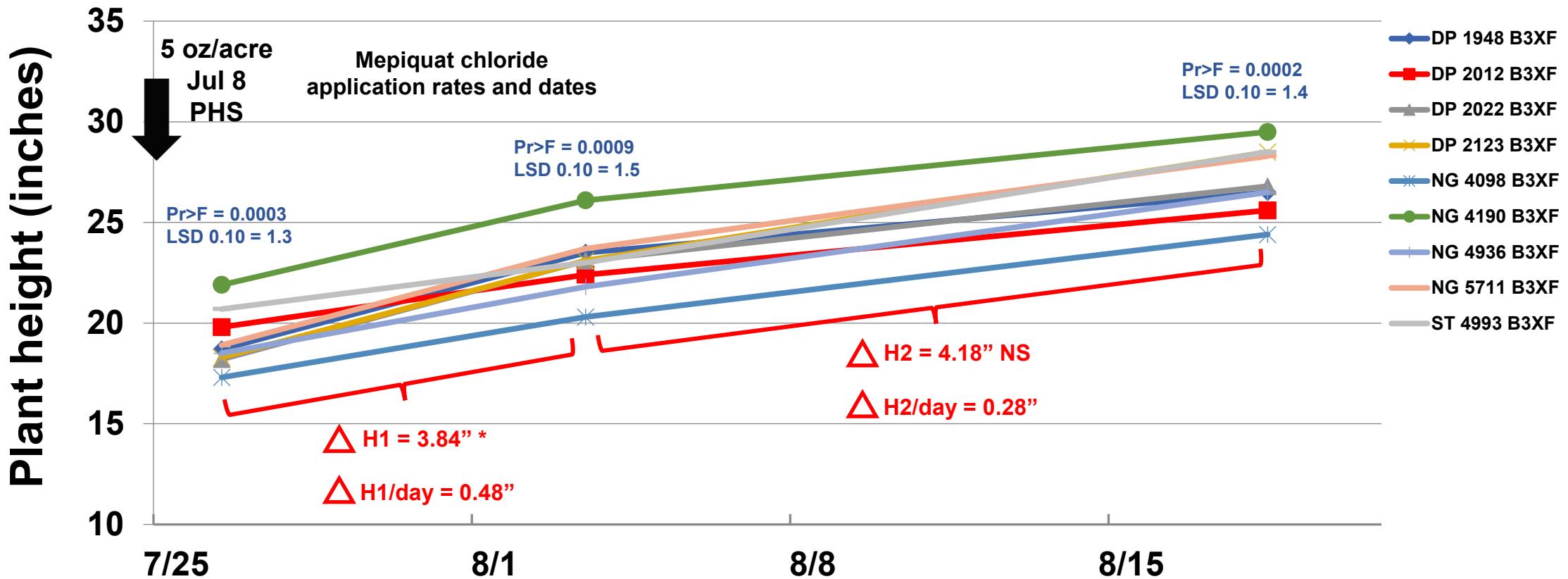


Planted: June 10
Days to bloom: 50
First bloom date: Jul 29



Carver XtendFlex Variety Trial

Brinkman – 2021



MESONET CLIMATOLOGICAL DATA SUMMARY (MANG) Mangum Latitude: 34-50-09								May 2021 Nearest City: 5.0 SE Mangum Longitude: 99-25-26					Time Zone: Midnight-Midnight CST County: Greer Elevation: 1509 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	78	48	64.4	59.3	2	0	99	56	85	0.00	28.35	29.94	SSE	8.8	24.9	11.97	65.7	68.0	73	64
2	83	63	71.0	60.9	0	8	94	45	73	0.00	27.97	29.55	SSE	13.9	29.7	23.28	68.6	71.7	79	66
3	76	56	66.5	57.0	0	1	96	53	73	0.04	28.04	29.62	NNE	15.6	38.4	9.94	67.4	69.2	72	67
4	73	41	58.9	43.5	8	0	91	27	61	0.01	28.42	30.02	NNW	11.9	27.9	24.93	66.0	68.2	77	61
5	79	37	61.0	40.3	7	0	93	26	52	0.03	28.53	30.14	SSE	7.8	24.3	28.17	65.9	68.4	78	59
6	81	54	65.7	51.4	0	3	95	29	65	0.14	28.62	30.23	E	6.1	24.8	27.06	68.3	71.6	82	63
7	89	50	71.1	53.5	0	4	89	31	58	0.00	28.42	30.02	S	13.8	35.0	26.90	68.3	72.2	82	63
8	94	61	78.4	58.7	0	12	80	30	53	0.00	28.08	29.67	SSE	18.0	43.6	27.40	71.3	75.6	83	68
9	77	53	64.3	46.5	0	0	72	33	54	0.00	28.31	29.90	N	15.9	35.0	28.45	71.2	74.4	80	69
10	62	50	55.7	46.0	9	0	80	59	70	0.00	28.47	30.07	NE	13.4	30.9	11.44	67.1	68.1	71	65
11	58	47	53.5	47.8	12	0	96	69	81	0.19	28.51	30.12	NNE	13.7	28.4	7.58	63.9	63.6	67	60
12	67	41	54.3	44.6	11	0	96	44	72	0.00	28.69	30.31	NNE	8.1	21.0	19.15	62.1	62.3	70	55
13	76	39	58.5	46.6	8	0	98	38	69	0.00	28.67	30.28	SE	6.4	20.0	24.25	63.9	66.2	77	56
14	80	49	64.6	55.4	1	0	96	48	74	0.02	28.50	30.11	SSE	12.1	38.0	11.10	64.3	66.0	69	62
15	82	56	69.8	61.5	0	4	97	54	76	0.00	28.39	29.99	SSE	14.3	34.9	14.62	66.1	68.7	75	63
16	83	64	70.2	62.8	0	9	96	47	79	0.03	28.31	29.90	SE	9.4	24.7	16.71	68.8	71.7	79	67
17	85	58	70.5	60.3	0	6	99	39	73	0.21	28.26	29.85	E	8.4	37.4	24.25	70.4	73.9	84	66
18	80	57	66.9	57.5	0	3	96	42	74	0.44	28.26	29.85	SE	8.5	37.4	18.13	69.5	71.7	79	66
19	81	57	67.6	58.1	0	4	99	44	75	0.68	28.28	29.87	SE	7.1	22.9	26.62	69.9	71.8	80	64
20	81	56	68.8	61.9	0	3	99	53	81	0.01	28.33	29.93	SE	10.5	26.1	18.25	69.9	70.5	76	66
21	85	64	73.2	64.5	0	10	97	48	77	0.00	28.44	30.04	SE	14.8	28.5	21.53	71.2	73.4	82	68
22	84	67	73.5	66.9	0	11	96	52	81	0.22	28.55	30.16	SE	13.9	36.3	19.31	72.5	74.8	81	70
23	75	61	68.9	66.1	0	3	98	77	91	0.23	28.50	30.11	SE	15.2	28.7	7.02	70.8	71.1	73	68
24	80	61	69.0	65.1	0	5	98	66	88	0.01	28.42	30.02	SE	13.4	29.0	11.28	69.4	69.5	74	67
25	88	64	73.7	63.2	0	11	95	46	72	0.00	28.36	29.96	SE	8.8	30.8	19.98	71.3	72.9	82	67
26	90	65	77.5	68.9	0	13	98	51	77	0.01	28.43	30.03	SSE	11.5	30.9	19.12	73.9	76.8	84	71
27	94	68	79.0	68.6	0	16	97	42	73	0.01	28.32	29.91	S	12.6	28.7	20.37	75.4	79.0	87	73
28	77	57	65.5	54.8	0	2	96	40	71	0.00	28.44	30.05	ENE	10.0	34.7	17.16	72.7	74.7	80	70
29	82	57	68.7	57.1	0	4	92	45	68	0.00	28.45	30.05	ESE	8.8	18.8	23.36	72.6	75.5	84	69
30	82	60	69.6	60.5	0	6	85	57	73	0.00	28.49	30.09	SE	12.9	29.2	19.08	73.3	75.7	81	71
31	75	56	65.4	61.5	0	0	98	67	88	2.06	28.47	30.07	NNE	9.5	27.7	11.13	70.4	70.6	76	68
	80	55	67.3	57.1	<- Monthly Averages ->				28.40	30.00	SE	11.5	43.6	19.02	69.1	71.2	78	66		
Temperature - Highest: 94 Lowest: 37					Degree Days - Total HDD: 57 Total CDD: 139					Number of Days With: Tmax ≥ 90: 3 Rainfall ≥ 0.01 inch: 17 Tmax ≤ 32: 0 Rainfall ≥ 0.10 inch: 8 Tmin ≤ 32: 0 Avg Wind Speed ≥ 10 mph: 19 Tmin ≤ 0: 0 Max Wind Speed ≥ 30 mph: 13										
Rainfall: Monthly Total: 4.34 in. Greatest 24 Hr: 2.06 in.					Humidity - Highest: 99 Lowest: 26															

MESONET CLIMATOLOGICAL DATA SUMMARY (MANG) Mangum Latitude: 34-50-09							June 2021 Nearest City: 5.0 SE Mangum Longitude: 99-25-26					Time Zone: Midnight-Midnight CST County: Greer Elevation: 1509 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	76	56	65.4	57.5	0	1	97	54	77	0.00	28.50	30.10	N	6.1	17.2	18.60	70.1	70.1	75	66
2	81	53	66.8	58.4	0	2	99	42	78	0.01	28.40	30.00	ESE	4.5	18.1	23.87	71.1	72.1	81	65
3	84	58	70.8	62.0	0	6	98	47	76	0.00	28.40	30.00	SSE	6.9	21.5	21.27	72.9	75.1	83	68
4	88	60	73.8	60.6	0	9	99	35	68	0.00	28.40	30.00	SE	7.5	21.3	24.82	74.1	77.3	86	69
5	82	57	70.9	62.0	0	5	99	44	76	0.00	28.29	29.89	SSE	8.5	24.3	20.34	74.3	77.0	83	71
6	89	64	76.1	66.0	0	11	97	46	74	0.00	28.18	29.77	SE	11.1	26.0	22.04	75.1	78.2	86	72
7	87	65	76.0	67.1	0	11	96	54	75	0.20	28.20	29.79	SE	8.6	29.6	23.60	76.8	79.2	86	73
8	95	68	80.1	65.2	0	17	95	30	64	0.00	28.27	29.86	SE	8.0	22.2	25.63	77.5	81.6	91	74
9	97	74	84.6	74.5	0	21	97	49	74	0.00	28.31	29.90	SE	13.0	27.6	27.60	80.1	84.8	93	77
10	98	73	85.4	74.3	0	21	96	46	72	0.00	28.27	29.86	SSE	12.3	28.3	26.71	81.7	86.2	94	79
11	100	73	86.6	73.1	0	21	95	41	67	0.00	28.18	29.77	SE	11.8	24.7	27.99	82.6	87.1	95	80
12	94	70	81.8	70.6	0	17	91	50	70	0.00	28.36	29.95	E	9.0	50.6	25.89	82.9	87.3	94	81
13	84	64	73.1	66.7	0	9	97	57	81	1.46	28.43	30.03	ESE	8.4	39.2	8.92	78.5	79.4	87	73
14	94	63	79.9	67.2	0	14	96	37	69	0.00	28.45	30.05	SE	5.1	14.3	27.20	78.0	80.0	89	72
15	95	64	81.0	66.1	0	15	96	32	65	0.00	28.46	30.07	SE	4.3	17.0	29.03	80.1	84.1	95	75
16	98	63	81.8	64.1	0	15	97	29	61	0.00	28.43	30.04	SSE	7.1	21.7	29.18	81.0	85.8	96	76
17	99	66	82.5	62.6	0	18	98	23	59	0.00	28.39	29.99	SSE	7.9	27.0	27.82	81.5	86.2	95	78
18	99	63	83.0	62.9	0	16	93	27	56	0.00	28.31	29.91	SSE	9.2	25.9	28.72	81.8	86.5	95	78
19	99	65	84.5	64.8	0	17	97	30	56	0.00	28.23	29.83	SSE	9.9	28.3	28.27	82.7	87.6	95	80
20	100	67	85.1	62.7	0	18	89	24	52	0.00	28.13	29.72	SSE	12.1	27.9	28.20	82.9	87.4	94	80
21	80	57	70.4	58.5	0	3	91	40	68	0.08	28.36	29.96	NE	13.7	44.4	17.67	80.0	82.5	87	78
22	87	53	72.1	57.8	0	5	94	34	65	0.00	28.40	30.00	SSE	11.3	28.6	28.25	77.3	80.4	89	72
23	98*	71*	84.3*	69.4*	0*	19*	96*	37*	65*	0.00*	28.27*	29.87*	SSE*	17.3*	35.6*	NA	80.8*	84.5*	91*	79*
24	100	75	87.2	68.9	0	23	83	34	57	0.00	28.26	29.86	SSE	15.9	34.1	27.87	82.5	86.3	93	80
25	98	77	86.9	69.6	0	23	77	40	58	0.00	28.21	29.80	SSE	15.3	31.3	22.83	83.1	86.8	92	82
26	85	69	75.0	70.6	0	12	98	61	87	0.59	28.26	29.85	NE	9.0	41.1	11.86	80.8	81.8	87	78
27	80	66	72.3	66.6	0	8	99	64	83	1.70	28.37	29.96	NE	6.2	17.7	13.61	76.9	76.5	80	72
28	79	66	72.1	68.8	0	7	98	73	90	0.09	28.43	30.03	NE	6.3	21.7	10.12	76.2	76.0	79	73
29	85	69	74.7	70.6	0	12	97	63	88	0.04	28.47	30.07	SE	5.7	17.3	15.83	77.7	78.0	84	74
30	88	69	77.7	71.5	0	13	99	55	83	0.09	28.48	30.08	SE	4.6	16.2	20.18	79.5	80.0	86	74
	91*	65*	78.1*	66.0*	<- Monthly Averages ->					28.34*	29.93*	SSE*	9.2*	50.6*	22.89*	78.7*	81.5*	89*	75*	
Temperature - Highest: 100* Lowest: 53*					Degree Days - Total HDD: 0* Total CDD: 387*					Number of Days With: Tmax ≥ 90: 15* Rainfall ≥ 0.01 inch: 9* Tmax ≤ 32: 0* Rainfall ≥ 0.10 inch: 4* Tmin ≤ 32: 0* Avg Wind Speed ≥ 10 mph: 10* Tmin ≤ 0: 0* Max Wind Speed ≥ 30 mph: 7*										
Rainfall: Monthly Total: 4.26* in. Greatest 24 Hr: 1.70* in.					Humidity - Highest: 99* Lowest: 23*															

MESONET CLIMATOLOGICAL DATA SUMMARY (MANG) Mangum Latitude: 34-50-09							July 2021 Nearest City: 5.0 SE Mangum Longitude: 99-25-26					Time Zone: Midnight-Midnight CST County: Greer Elevation: 1509 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	95	70	77.9	71.5	0	17	98	43	83	0.08	28.41	30.01	NE	7.0	39.0	19.97	80.2	81.0	90	76
2	86	70	75.5	70.4	0	13	99	60	85	1.77	28.44	30.04	ENE	5.6	17.8	16.31	78.9	79.1	85	75
3	83	69	75.0	70.0	0	11	98	63	85	0.09	28.43	30.03	NE	7.2	19.7	11.56	78.2	77.9	81	74
4	88	65	76.9	68.7	0	12	98	56	77	0.00	28.38	29.98	SE	7.5	19.7	23.63	79.0	79.8	88	73
5	89	68	78.0	68.6	0	14	92	53	74	0.00	28.38	29.98	ESE	9.1	19.0	23.17	80.4	82.8	92	75
6	90	65	78.6	68.6	0	12	98	47	74	0.00	28.40	30.00	ESE	6.8	19.6	27.54	81.9	86.0	96	76
7	93	66	79.6	68.4	0	15	98	37	73	0.26	28.37	29.97	NE	3.9	22.7	28.19	83.2	87.9	99	78
8	93	66	80.5	70.1	0	15	99	48	73	0.01	28.36	29.95	SSE	5.6	19.5	27.75	83.3	86.0	95	78
9	92	69	80.8	69.4	0	15	97	48	71	0.00	28.40	30.00	SSE	10.1	26.0	27.97	83.5	87.1	97	78
10	95	71	82.4	71.7	0	18	98	45	73	0.08	28.35	29.95	S	8.4	25.7	26.05	83.9	88.3	98	80
11	89	64	77.9	63.5	0	12	98	35	66	0.00	28.42	30.02	N	7.4	23.1	28.08	83.6	87.4	96	79
12	88	60	75.8	64.7	0	9	97	46	72	0.00	28.47	30.07	SSE	5.8	18.6	27.42	82.4	86.6	96	77
13	94	64	79.4	67.3	0	14	99	39	70	0.00	28.49	30.10	SSE	9.1	30.6	25.82	83.0	86.9	94	79
14	92	67	80.1	66.6	0	14	96	41	66	0.00	28.45	30.06	S	12.6	37.0	26.62	82.7	86.1	93	79
15	92	70	81.3	69.1	0	16	91	49	68	0.00	28.37	29.97	SSE	11.9	26.5	21.00	82.9	86.2	91	81
16	93	70	80.9	70.4	0	17	97	45	73	0.00	28.35	29.95	SSE	8.2	31.3	25.52	83.8	87.3	95	81
17	96	69	79.1	70.3	0	17	98	45	77	0.00	28.41	30.01	SE	7.3	33.3	20.76	83.6	86.9	94	81
18	90	68	75.7	70.8	0	14	97	60	86	1.66	28.48	30.09	NE	6.5	35.0	14.46	81.3	82.3	88	77
19	89	67	76.9	68.4	0	13	98	49	78	0.00	28.51	30.11	NE	7.3	17.9	24.26	80.9	81.1	88	75
20	87	65	75.9	64.5	0	11	94	45	71	0.00	28.50	30.10	NE	7.1	18.3	25.71	80.7	82.1	91	74
21	87	62	74.8	64.1	0	10	97	41	73	0.00	28.50	30.10	ESE	4.5	12.5	25.91	81.2	84.2	94	75
22	90	66	77.9	66.4	0	13	96	43	71	0.00	28.50	30.10	SSE	8.6	22.3	26.40	81.7	85.4	95	77
23	92	69	81.1	70.0	0	16	96	49	71	0.00	28.44	30.04	SE	10.3	24.8	26.79	83.1	87.1	96	79
24	96	72	83.9	70.2	0	19	88	44	66	0.00	28.39	29.98	SSE	9.7	22.0	26.40	84.2	88.5	96	81
25	98	70	83.2	68.8	0	19	88	39	64	0.00	28.36	29.96	ESE	7.8	27.4	26.52	84.6	89.5	98	82
26	95	72	82.5	67.7	0	18	88	39	63	0.00	28.39	29.99	ENE	6.6	25.6	21.27	84.5	88.8	95	83
27	100	69	84.1	69.2	0	19	95	31	65	0.00	28.40	30.00	SSE	5.6	16.0	23.54	84.9	89.5	97	83
28	98	71	84.8	70.6	0	19	95	39	65	0.00	28.44	30.04	SE	8.4	20.2	26.03	85.3	90.0	97	83
29	98	69	84.0	69.2	0	18	96	37	65	0.00	28.46	30.07	SSE	6.5	17.6	26.81	85.6	90.2	97	83
30	98	68	83.7	69.0	0	18	96	32	65	0.00	28.46	30.07	SSE	6.2	18.9	26.25	85.6	90.0	97	83
31	100	68	84.5	67.7	0	19	96	32	62	0.00	28.42	30.02	SE	6.1	16.9	26.28	85.6	89.9	97	83
	92	68	79.8	68.6	<- Monthly Averages ->				28.42	30.02	SSE	7.6	39.0	24.32	82.7	85.9	94	79		
Temperature - Highest: 100 Lowest: 60					Degree Days - Total HDD: 0 Total CDD: 467					Number of Days With: Tmax ≥ 90: 22 Rainfall ≥ 0.01 inch: 7 Tmax ≤ 32: 0 Rainfall ≥ 0.10 inch: 3 Tmin ≤ 32: 0 Avg Wind Speed ≥ 10 mph: 4 Tmin ≤ 0: 0 Max Wind Speed ≥ 30 mph: 6										
Rainfall: Monthly Total: 3.95 in. Greatest 24 Hr: 1.77 in.					Humidity - Highest: 99 Lowest: 31															

MESONET CLIMATOLOGICAL DATA SUMMARY (MANG) Mangum Latitude: 34-50-09							August 2021 Nearest City: 5.0 SE Mangum Longitude: 99-25-26					Time Zone: Midnight-Midnight CST County: Greer Elevation: 1509 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	83	70	75.1	69.8	0	11	97	64	84	0.65	28.50	30.11	NNE	9.1	26.6	10.53	82.9	84.1	90	79
2	86	60	74.4	60.9	0	8	95	33	67	0.00	28.53	30.13	NNE	7.4	24.2	25.80	80.5	80.1	86	75
3	89	57	72.5	56.7	0	8	97	31	63	0.00	28.47	30.08	ENE	5.7	19.4	26.46	79.4	80.9	92	71
4	89	56	73.8	60.5	0	7	96	37	67	0.00	28.47	30.08	E	4.4	14.4	24.00	79.6	82.6	93	73
5	89	68	77.5	68.1	0	14	94	51	75	0.00	28.45	30.05	SSE	9.4	21.1	19.70	81.2	84.2	92	78
6	97	67	81.3	67.8	0	17	98	37	68	0.00	28.36	29.96	SSE	11.1	23.6	24.85	82.5	85.9	95	78
7	98	71	83.4	67.2	0	19	94	30	62	0.00	28.28	29.87	SE	12.1	28.9	23.53	83.2	86.7	94	80
8	97	75	84.8	69.2	0	21	79	41	61	0.00	28.24	29.84	SE	12.6	28.0	22.92	83.9	87.4	94	82
9	101	73	86.5	68.7	0	22	80	35	58	0.00	28.26	29.86	SSE	12.6	27.8	24.95	84.6	88.2	95	82
10	99	72	85.0	68.3	0	20	87	31	60	0.00	28.34	29.94	SSE	11.9	28.8	24.72	84.9	88.3	95	82
11	99	71	84.1	65.8	0	20	78	34	56	0.00	28.34	29.94	SSE	11.5	29.9	23.31	84.6	87.6	93	82
12	98	69	83.4	66.5	0	19	81	38	58	0.00	28.38	29.98	SSE	9.3	24.3	23.36	84.5	87.6	94	82
13	98	67	76.7	66.7	0	17	94	38	74	0.33	28.50	30.10	NE	7.7	51.4	15.10	83.2	84.9	93	79
14	87	67	75.1	68.1	0	12	97	56	80	0.00	28.58	30.19	SSE	5.3	14.8	17.43	80.8	80.8	87	76
15	90	62	76.6	66.5	0	11	99	44	75	0.01	28.45	30.06	SE	4.3	15.8	25.76	81.2	83.7	95	74
16	93	65	77.6	68.6	0	14	99	44	77	0.00	28.35	29.94	SE	5.4	16.8	19.52	81.9	85.1	95	77
17	90	68	76.4	69.2	0	14	98	44	81	0.00	28.32	29.91	SE	7.9	23.4	15.76	81.9	84.4	91	80
18	89	70	76.8	71.1	0	14	98	55	84	0.04	28.35	29.95	SE	10.9	20.0	14.55	81.1	82.9	90	79
19	92	69	76.4	72.2	0	15	97	64	88	0.15	28.32	29.92	SE	10.9	39.3	14.08	81.1	83.1	92	79
20	97	70	81.8	72.2	0	18	98	43	75	0.00	28.23	29.82	SSE	9.8	26.2	19.12	81.0	82.7	91	77
21	97	70	80.8	70.4	0	19	95	43	73	0.01	28.31	29.90	SSE	7.9	33.4	20.48	82.1	NA	NA	NA
22	98	68	82.7	68.9	0	18	95	40	66	0.00	28.35	29.95	SSE	9.3	26.0	23.09	82.9	NA	NA	NA
23	99	64	81.5	64.5	0	16	98	30	62	0.00	28.34	29.94	SSE	10.4	27.0	25.10	83.0	NA	NA	NA
24	100	64	82.6	65.8	0	17	94	32	61	0.00	28.33	29.93	SSE	10.5	26.5	24.72	83.1	NA	NA	NA
25	101	66	83.1	67.2	0	18	96	31	64	0.00	28.41	30.01	SE	8.4	23.8	24.45	83.9	NA	NA	NA
26	99	68	83.0	67.4	0	18	95	33	64	0.00	28.43	30.04	SE	8.5	21.0	24.27	84.3	NA	NA	NA
27	96	67	82.1	68.4	0	16	98	36	67	0.00	28.37	29.97	SE	9.0	22.4	23.81	84.7	NA	NA	NA
28	95	70	81.7	67.8	0	18	95	38	66	0.00	28.38	29.98	SE	11.3	24.3	23.77	84.9	NA	NA	NA
29	96	67	79.4	68.4	0	16	98	40	72	0.05	28.39	29.99	SE	6.8	23.0	21.73	84.3	NA	NA	NA
30	94	65	79.3	67.3	0	15	98	41	70	0.00	28.31	29.91	E	5.0	16.2	22.34	83.0	NA	NA	NA
31	101	66	81.7	66.9	0	19	93	32	65	0.00	28.19	29.78	SE	6.3	38.4	22.15	83.5	NA	NA	NA
	95	67	79.9	67.3	<- Monthly Averages ->				28.37	29.97	SE	8.8	51.4	21.66	82.7	84.6*	92*	78*		
Temperature - Highest: 101 Lowest: 56					Degree Days - Total HDD: 0 Total CDD: 493					Number of Days With: Tmax ≥ 90: 24 Rainfall ≥ 0.01 inch: 7 Tmax ≤ 32: 0 Rainfall ≥ 0.10 inch: 3 Tmin ≤ 32: 0 Avg Wind Speed ≥ 10 mph: 11 Tmin ≤ 0: 0 Max Wind Speed ≥ 30 mph: 4										
Rainfall: Monthly Total: 1.24 in. Greatest 24 Hr: 0.65 in.					Humidity - Highest: 99 Lowest: 30															

MESONET CLIMATOLOGICAL DATA SUMMARY (MANG) Mangum Latitude: 34-50-09								September 2021 Nearest City: 5.0 SE Mangum Longitude: 99-25-26					Time Zone: Midnight-Midnight CST County: Greer Elevation: 1509 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	102	67	84.7	67.8	0	20	95	29	62	0.00	28.22	29.81	SE	7.7	22.2	22.99	84.4	NA	NA	NA
2	99	72	85.3	68.9	0	20	90	37	61	0.00	28.28	29.87	SE	11.4	25.2	19.15	85.1	NA	NA	NA
3	101	72	85.8	68.0	0	21	90	34	59	0.00	28.31	29.90	SSE	10.8	26.0	21.75	85.4	NA	NA	NA
4	99	69	81.9	69.0	0	19	94	35	68	0.00	28.33	29.92	NNE	8.6	24.9	19.86	85.3	NA	NA	NA
5	92	62	77.9	62.2	0	12	86	30	62	0.00	28.41	30.01	NNE	7.8	19.3	18.89	84.7	NA	NA	NA
6	95	57	77.7	62.6	0	11	96	33	64	0.00	28.41	30.01	SSE	6.7	20.2	22.60	82.9	NA	NA	NA
7	99	68	82.5	65.4	0	18	88	32	60	0.00	28.33	29.92	SSE	7.7	20.5	21.89	84.3	NA	NA	NA
8	94	62	78.4	53.0	0	13	77	19	46	0.00	28.44	30.05	NE	11.3	29.2	22.18	84.2	NA	NA	NA
9	94	53	74.6	52.4	0	9	84	27	50	0.00	28.46	30.06	SSE	8.0	23.9	21.58	81.7	NA	NA	NA
10	97	63	78.7	55.3	0	15	74	27	48	0.00	28.41	30.01	SSE	10.1	27.0	18.83	81.7	NA	NA	NA
11	99	63	78.9	55.6	0	16	74	24	48	0.00	28.43	30.03	SSE	11.3	26.5	19.57	81.5	NA	NA	NA
12	97	55	75.8	54.7	0	11	93	23	54	0.00	28.45	30.05	SSE	9.5	24.9	21.64	81.2	NA	NA	NA
13	96	59	76.8	58.3	0	12	90	26	58	0.00	28.40	30.00	SE	9.8	29.0	21.22	81.2	NA	NA	NA
14	92	63	77.4	63.4	0	13	96	37	66	0.00	28.34	29.93	SE	10.2	27.3	21.80	81.8	NA	NA	NA
15	91*	66*	75.5*	64.9*	0*	13*	97*	38*	73*	0.12*	28.36*	29.96*	SE *	5.5*	18.0*	NA	81.5*	NA	NA	NA
16	94	60	77.8	62.5	0	12	97	34	64	0.00	28.32	29.92	SE	8.0	24.3	20.20	79.3	82.5	91	74
17	97	66	80.6	63.6	0	17	89	33	60	0.00	28.39	29.99	SE	9.0	20.8	20.77	80.1	84.1	93	77
18	95	62	78.1	60.2	0	14	94	27	59	0.00	28.48	30.09	E	4.9	19.3	21.22	81.3	84.9	93	77
19	98	59	79.1	58.0	0	13	92	25	54	0.00	28.32	29.91	SSE	7.7	21.3	21.10	80.8	83.5	91	76
20	99	69	82.7	57.7	0	19	82	24	47	0.00	28.23	29.82	SSE	12.3	36.5	20.40	81.6	84.4	91	78
21	83	51	69.9	42.0	0	2	57	21	38	0.00	28.65	30.26	NNE	16.7	38.4	20.60	80.2	81.7	86	77
22	82	45	63.0	38.5	1	0	80	19	46	0.00	28.69	30.30	NW	5.0	15.1	21.82	77.1	77.5	85	69
23	88	44	66.7	39.0	0	1	78	17	42	0.00	28.47	30.07	SSE	7.7	25.1	20.81	76.1	76.5	84	69
24	92	50	67.9	42.4	0	6	77	17	44	0.00	28.43	30.03	SSE	6.6	20.2	16.63	75.5	75.8	82	69
25	93	55	72.2	46.7	0	9	73	18	45	0.00	28.48	30.08	SSE	7.8	21.5	20.48	76.2	77.2	85	70
26	95	51	73.3	45.5	0	8	81	16	43	0.00	28.39	29.99	SSE	8.7	27.4	20.25	76.4	77.3	84	70
27	94	56	74.6	51.6	0	10	73	26	47	0.00	28.32	29.92	SE	8.8	23.2	14.85	76.8	78.0	83	72
28	95	58	73.5	57.8	0	11	99	24	62	2.75	28.24	29.83	SE	9.3	49.8	16.40	76.7	77.1	84	62
29	89	64	73.6	65.3	0	12	96	47	77	0.12	28.21	29.80	SE	12.4	33.0	16.50	73.3	71.9	80	64
30	83	65	70.7	64.6	0	9	97	52	82	0.05	28.39	29.99	SE	9.8	25.8	10.29	74.0	73.4	78	70
	94*	60*	76.5*	57.2*	<- Monthly Averages ->					28.39*	29.98*	SSE*	9.0*	49.8*	19.87*	80.4*	79.0*	86*	72*	
Temperature - Highest: 102* Lowest: 44*					Degree Days - Total HDD: 1* Total CDD: 366*					Number of Days With: Tmax ≥ 90: 25* Rainfall ≥ 0.01 inch: 4* Tmax ≤ 32: 0* Rainfall ≥ 0.10 inch: 3* Tmin ≤ 32: 0* Avg Wind Speed ≥ 10 mph: 9* Tmin ≤ 0: 0* Max Wind Speed ≥ 30 mph: 4*										
Rainfall: Monthly Total: 3.04* in. Greatest 24 Hr: 2.75* in.					Humidity - Highest: 99* Lowest: 16*															

MESONET CLIMATOLOGICAL DATA SUMMARY (MANG) Mangum Latitude: 34-50-09								October 2021 Nearest City: 5.0 SE Mangum Longitude: 99-25-26					Time Zone: Midnight-Midnight CST County: Greer Elevation: 1509 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	79	63	68.9	62.4	0	6	96	54	81	0.00	28.47	30.08	NNE	4.4	16.8	9.66	73.8	73.1	78	69
2	79	57	67.1	59.6	0	3	99	46	79	1.57	28.46	30.07	NNW	5.6	29.2	17.31	72.3	70.2	78	64
3	85	54	67.8	53.9	0	5	97	28	67	0.00	28.48	30.09	NNW	5.8	19.3	19.81	71.9	70.5	78	64
4	89	50	68.2	53.0	0	4	97	27	64	0.00	28.47	30.07	ESE	5.1	14.1	19.42	71.8	70.4	79	63
5	86	52	68.3	49.2	0	4	88	26	56	0.00	28.50	30.11	ENE	5.9	16.3	19.15	71.9	70.8	79	64
6	84	50	65.8	50.5	0	2	93	28	63	0.00	28.47	30.07	ESE	3.9	10.8	19.01	71.7	70.7	80	63
7	91	56	71.8	55.0	0	9	89	29	60	0.00	28.39	29.99	SE	8.9	24.8	15.43	71.9	71.6	79	65
8	97	57	75.6	55.2	0	12	93	22	56	0.00	28.32	29.91	SSW	8.6	26.7	18.10	72.7	73.5	83	65
9	97	59	78.5	55.3	0	13	88	23	50	0.00	28.19	29.78	SSE	11.9	29.3	18.37	73.6	75.5	84	68
10	85	56	68.8	57.2	0	6	94	39	69	0.34	28.08	29.66	SSE	11.0	35.8	13.87	73.7	74.1	82	68
11	80	46	63.8	47.7	2	0	94	28	61	0.00	28.24	29.83	ESE	6.8	17.2	18.65	70.5	68.4	76	61
12	84	56	70.0	60.4	0	5	90	58	72	0.02	28.15	29.74	SE	16.6	40.7	10.00	69.8	68.5	75	63
13	76	52	64.4	50.8	1	0	97	22	66	0.58	28.17	29.76	SSE	8.3	32.1	12.28	69.8	68.2	72	65
14	80	49	64.3	56.0	1	0	99	43	77	0.01	28.24	29.83	S	8.2	18.9	15.44	68.9	67.4	75	61
15	69	40	57.3	38.7	10	0	85	27	52	0.00	28.54	30.14	N	12.7	30.5	18.04	67.5	65.5	72	60
16	73	35	53.4	34.0	11	0	92	19	56	0.00	28.73	30.35	NW	5.2	15.3	18.44	64.7	62.1	72	54
17	76	36	54.8	36.8	9	0	89	21	57	0.00	28.63	30.24	SSE	5.8	20.8	16.37	64.1	61.8	71	54
18	78	41	59.3	42.3	6	0	92	26	58	0.00	28.42	30.02	SSE	11.4	29.0	14.66	63.8	62.1	70	54
19	82	53	66.7	54.1	0	3	86	45	65	0.00	28.31	29.91	SSE	14.4	30.2	16.68	66.3	66.3	75	59
20	76	48	61.4	46.3	3	0	98	26	62	0.00	28.48	30.08	NNE	9.5	24.9	17.16	67.3	67.1	75	61
21	75	40	58.3	42.4	7	0	93	28	60	0.00	28.58	30.19	E	5.7	16.4	13.18	65.6	64.4	73	57
22	85	52	67.0	54.3	0	4	85	46	65	0.00	28.41	30.01	SSE	8.6	26.5	14.00	66.9	67.3	76	61
23	92	58	73.3	59.5	0	10	96	26	67	0.00	28.16	29.75	SSE	12.1	31.4	14.71	69.0	70.3	78	63
24	80	49	69.0	53.3	0	0	89	33	60	0.00	28.19	29.78	S	10.1	27.2	15.24	70.1	71.4	78	67
25	81	45	63.2	49.5	2	0	96	35	65	0.00	28.35	29.95	SE	8.4	21.6	16.14	67.8	67.6	77	60
26	88	60	72.8	61.9	0	9	99	45	71	0.03	28.07	29.66	SE	16.8	43.3	13.13	69.6	71.0	79	65
27	69	52	59.4	40.1	5	0	96	30	52	0.00	28.07	29.66	NNW	15.2	39.7	14.33	67.5	66.3	71	61
28	71	51	59.2	25.6	4	0	43	14	29	0.00	28.34	29.94	NNW	18.3	47.9	15.92	64.7	63.1	70	58
29	70	36	54.4	25.0	12	0	76	17	35	0.00	28.46	30.06	NNW	11.6	32.9	16.44	63.8	61.8	70	56
30	79	32	54.3	32.9	10	0	89	20	51	0.00	28.31	29.91	SSE	7.8	20.9	15.97	62.8	60.8	70	53
31	66	47	54.2	41.4	9	0	82	44	63	0.00	28.51	30.11	NE	14.0	32.4	15.26	63.5	61.5	69	56
	81	49	64.6	48.5	<- Monthly Averages ->				28.36	29.96	SSE	9.6	47.9	15.88	68.7	67.8	76	61		
Temperature - Highest: 97 Lowest: 32					Degree Days - Total HDD: 92 Total CDD: 94					Number of Days With: Tmax ≥ 90: 4 Rainfall ≥ 0.01 inch: 6 Tmax ≤ 32: 0 Rainfall ≥ 0.10 inch: 3 Tmin ≤ 32: 1 Avg Wind Speed ≥ 10 mph: 13 Tmin ≤ 0: 0 Max Wind Speed ≥ 30 mph: 11										
Rainfall: Monthly Total: 2.55 in. Greatest 24 Hr: 1.57 in.					Humidity - Highest: 99 Lowest: 14															

MESONET CLIMATOLOGICAL DATA SUMMARY (MANG) Mangum Latitude: 34-50-09								November 2021 Nearest City: 5.0 SE Mangum Longitude: 99-25-26						Time Zone: Midnight-Midnight CST County: Greer Elevation: 1509 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	66	44	52.7	39.4	10	0	81	43	62	0.00	28.62	30.22	NE	10.3	29.3	13.38	63.3	61.3	69	57
2	46	41	43.4	39.0	21	0	97	73	85	0.03	28.71	30.32	NE	11.8	25.8	2.19	61.5	56.7	60	54
3	47	41	44.0	42.2	21	0	98	86	93	0.02	28.70	30.32	NNE	7.3	16.1	2.79	59.4	53.9	56	52
4	59*	37*	47.2*	42.8*	17*	0*	98*	57*	86*	0.00*	28.65*	30.26*	SE *	5.5*	16.8*	NA	60.1*	56.9*	64*	54*
5	64	35	47.3	40.8	16	0	99	45	81	0.00	28.56	30.17	SE	8.8	29.5	13.76	59.1	56.0	65	50
6	72	35	51.7	42.4	11	0	98	37	75	0.01	28.56	30.16	SE	8.1	21.4	15.03	59.4	56.9	66	49
7	80	38	58.0	43.7	6	0	99	26	66	0.00	28.47	30.07	SSE	10.6	27.6	15.12	60.5	58.8	68	51
8	78	44	61.0	48.9	4	0	97	36	68	0.00	28.46	30.06	SE	10.7	24.6	14.04	61.6	60.7	69	53
9	73	46	58.5	50.1	6	0	96	45	76	0.00	28.47	30.08	NNE	6.3	21.6	12.82	63.2	63.2	71	59
10	75	45	59.2	49.8	5	0	98	34	75	0.00	28.25	29.84	SSE	10.3	25.9	7.42	62.4	61.2	67	58
11	67	39	51.9	35.4	12	0	90	24	58	0.00	28.49	30.10	NW	6.0	15.6	13.51	61.2	59.4	67	54
12	63	30	48.4	23.3	18	0	70	12	43	0.00	28.61	30.22	NNW	10.3	39.8	14.62	59.5	56.7	64	52
13	73	26	47.6	25.0	15	0	85	17	47	0.00	28.54	30.15	S	7.3	23.5	14.10	57.8	54.7	63	47
14	66	32	49.7	31.8	16	0	85	26	53	0.00	28.53	30.13	NNE	7.7	36.4	13.69	58.5	56.6	65	51
15	80	31	53.4	36.4	10	0	92	22	58	0.00	28.44	30.04	SSW	5.2	16.5	13.73	58.3	56.6	66	49
16	90	40	60.5	37.4	0	0	99	12	54	0.00	28.18	29.77	S	8.7	32.4	14.21	59.2	58.7	68	51
17	60	36	49.8	23.8	17	0	67	19	39	0.00	28.42	30.02	NNE	14.2	39.8	10.36	58.4	56.2	61	52
18	57	28	41.3	11.2	22	0	53	14	31	0.00	28.86	30.49	NNW	5.9	19.4	13.95	56.6	53.2	61	47
19	65	24	46.0	21.6	21	0	69	17	41	0.00	28.63	30.24	S	10.8	31.3	12.61	54.9	51.3	59	44
20	74	40	54.8	32.0	8	0	72	19	46	0.00	28.37	29.96	NNE	8.1	19.4	12.32	57.1	55.6	64	49
21	65	31	50.6	30.0	17	0	78	22	48	0.00	28.62	30.23	N	11.7	34.0	7.33	58.0	56.2	60	52
22	71	25	46.6	26.9	17	0	86	20	52	0.00	28.66	30.27	NW	6.9	24.1	13.29	55.4	52.5	61	45
23	74	30	53.5	29.0	13	0	80	17	44	0.00	28.39	29.99	SSE	10.9	34.1	12.83	55.5	53.8	61	46
24	70	49	57.8	35.2	6	0	57	23	44	0.00	28.31	29.90	SSE	12.7	34.5	5.31	57.9	57.2	61	54
25	55	23	41.0	21.0	26	0	73	23	47	0.00	28.80	30.42	N	12.5	39.8	13.15	56.7	53.8	59	49
26	70	18	42.1	18.3	21	0	84	15	45	0.00	28.60	30.21	SSE	6.7	23.7	13.07	53.5	49.6	58	42
27	68	34	50.0	24.8	14	0	62	19	40	0.00	28.43	30.03	SSE	4.4	17.8	8.87	54.7	52.7	59	48
28	65	30	47.8	26.6	18	0	74	23	46	0.00	28.63	30.24	NNE	5.1	18.9	12.69	55.2	53.2	61	47
29	78	28	50.4	29.3	12	0	85	17	50	0.00	28.47	30.07	S	3.9	13.9	12.63	54.8	53.0	62	46
30	79	31	52.8	33.5	10	0	91	17	55	0.00	28.39	29.99	NW	3.8	16.4	12.69	55.5	54.3	63	47
	68*	34*	50.6*	33.0*	<- Monthly Averages ->				28.53*	30.13*	SSE*	8.4*	39.8*	11.78*	58.3*	56.0*	63*	50*		
Temperature - Highest: 90* Lowest: 18*					Degree Days - Total HDD: 409* Total CDD: 0*					Number of Days With: Tmax ≥ 90: 1* Rainfall ≥ 0.01 inch: 3* Tmax ≤ 32: 0* Rainfall ≥ 0.10 inch: 0* Tmin ≤ 32: 14* Avg Wind Speed ≥ 10 mph: 12* Tmin ≤ 0: 0* Max Wind Speed ≥ 30 mph: 9*										
Rainfall: Monthly Total: 0.06* in. Greatest 24 Hr: 0.03* in.					Humidity - Highest: 99* Lowest: 12*															