2022 NexGen 3406 B2XF Nitrogen Rate Trial – Adobe Walls Gin

Ag Partners – Field 307-01
Gruver, TX

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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. Seed weights are captured for each variety and thus seed value is determined. Net gin credit includes seed value and is calculated by subtracting the ginning cost from the seed value. 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.

Excess nitrogen (N) can have a very significant negative impact on crop maturity and quality but has been poorly researched in this region. Since many growers in our service area are rotating to cotton following corn, N rate trials have been established for the past three growing seasons. In 2022, an N management trial was planned and executed in cooperation with Ag Partners (growers) and Kyle Kight (manager) with Ag Ingenuity, Gruver.

On January 10, the trial area was deep sampled to a depth of 48 inches by Ag Ingenuity. Approximately 20 soil cores were taken, and each partitioned into increments of 0-6, 6-12, 12-18, 18-24, 24-36, and 36-48 inches. Soil for each increment was combined across cores. Therefore, six total samples were submitted to Servi-Tech Laboratory in Amarillo for nitrate-N analyses. The 0-to-24-inch profile contained a total of 104 lb/acre residual nitrate-N, and the 0-to-48-inch profile contained a total of 196 lb/acre residual nitrate-N. Using current Extension recommendations of 50 lb N/bale of yield goal, a total of 150 lb N/acre would be required for 3-bale/acre production. Once the 0-to-24-inch profile nitrate-N is subtracted from that amount, a typical N fertilizer recommendation would be 46 lb N/acre.

This trial included an unfertilized control (0 N) and rates of 50, 100, and 150 lbs N/acre. Four replicates of N rates were applied in a scientifically valid randomized complete block experimental design. The previous crop was corn, and land preparation included strip tillage for N fertilizer rate application. On April 29, N rates were band applied by strip-till injection and 32-0-0 (urea-ammonium nitrate or UAN) was used as the N source. NexGen 3406 B2XF variety was planted May 19 at 65,000 seed/acre rate using the grower's planter. This field was center-pivot irrigated.

Minimal crop damaging weather events during the growing season were noted, and growing conditions were such that outstanding yield and excellent quality were obtained. This project escaped hail and other assorted weather events that occurred in the surrounding area. The experiment was able to stay on track with growth and development, and excellent observational, yield, and quality data were obtained.

Harvest results indicated that no statistically significant differences were observed among N rates. Lint yields ranged from a low of 1993 lb/acre with the 0 lb/acre N rate to a high of 2017 lb/acre for the 50 lb/acre N rate treatment (Table 1). In this field in 2022, a statistically significant lint yield response to N fertilization did not occur. When averaged across all commercially ginned and classed bales for each N rate, Loan value for lint varied from a low of $0.5124/lb for the 150 lb N rate to a high of $0.5547/lb for the 0 N treatment. Overall average Loan value for the trial across all treatments was $0.5296/lb. Net value/acre includes the sum of lint Loan value on a per acre basis and net gin credit/acre and then subtracting N fertilizer cost/acre. **N cost was determined based on $515/ton for 32-0-0 (UAN) on the date of application.** Differences in net value/acre were statistically significant among N treatments. Due to the extremely expensive 32-0-0 price, net value/acre value was highest for the 0 N/acre rate, and was reduced by lack of positive yield response and high N cost by increasing N rates. The values in $/acre were 1526, 1437, 1357, and 1301, for the 0, 50, 100, and 150 lb/acre N rates, respectively. Therefore, N fertilization resulted in no improvement in net returns in this trial, and in fact it reduced net value/acre significantly. High N fertilizer cost, and lower quality reduced the net value/acre of the 50, 100, and 150 lb N/acre rates compared to the unfertilized control treatment. **The 0 N/acre rate essentially maximized potential profitability ($1526/acre). Therefore, the higher fertilizer prices encountered in the spring of 2022 would indicate that from the profit potential perspective, the 0 N fertilizer rate would not necessarily be a bad management decision in this trial.**

Table 2 presents in-season data including stand establishment percentage, vigor, nodes above white flower (NAWF) and plant height on three sampling dates, leaf tissue N concentration at both early bloom and cutout, and nodes above cracked boll (NACB) on October 13. Many of the plant vigor parameters were statistically different among N rates for mid- to late-season measurements. Although typically relatively small plants were produced due to the extremely high mepiquat chloride regime, plant heights for higher N rates were significantly greater than the control beginning as early as late July and this difference remained for the rest of the season. The final plant height measurements taken on October 6th indicated that the average plant size across all N rates was just over 23 inches. The 0 N/acre rate produced the smallest plants at 21.3 inches tall, and the largest was measured at 24.3 inches tall for the 150 lb N/acre rate.

Late-bloom period NAWF were higher, compared to the 0 N check, as a result of higher N rates. By September 8th, all N rates had almost bloomed through the terminal (cutout), and N fertilization did not result in delayed cutout as represented by statistically similar NAWF at that time. **The excellent plant management afforded by timely high mepiquat chloride application resulted in fairly uniform cutout across N rates.**

A total of 35 leaf blade tissue samples were taken from each plot in 3 of the 4 field replicates and submitted to the Servi-Tech Laboratory at Amarillo for tissue nutrient concentration analyses. Leaf blade N concentration was significantly increased by N fertilization by the early bloom growth stage, with the unfertilized check having the lowest (4.9%) versus N fertilized treatments having 5.2%. By the cutout sampling date of September 8, the unfertilized check had 4.3% leaf N concentration compared to 4.4% or higher for N fertilized treatments. **Although not extreme, the late season elevated N concentration arising from N fertilization likely had some effect on fiber maturity.**

On October 6th, significant differences among N rates were noted in nodes above cracked boll or NACB (a quantitative measure of crop maturity). The unfertilized check had fewer NACB (denoting earlier maturity) with 2.1. The higher N rates exhibited from 3.0 to 3.7 NACB. Overall, the higher N rates had statistically significant later maturity than the unfertilized control. **Later maturity typically results in lower micronaire due to fiber immaturity.**

Table 3 provides the USDA-AMS classing results from each bale for each N rate treatment and the averages of 13 commercially ginned bales per treatment. Averages indicate that color grades were all 11 (highest possible quality). No apparent differences in color grades were noted across N rates. The unfertilized check had the best leaf grades with an average of 1.7. Leaf grades of 1.8, 2.1, and 2.0 were noted for the 50, 100, and 150 lb-N rates, respectively. No apparent major differences were noted with respect to leaf grades across N rates. Average staple was over 34 32nds inch, with minimal impact of N fertilization observed.

Average micronaire values were highest in the unfertilized check (3.49) and generally decreased with higher N rates. Micronaire averages were 3.37, 3.39, and 3.28 for the 50, 100, and 150-lb N rates, respectively. This is a likely a result of the difference in NACB as determined on October 6th. Higher N rates had greater NACB, therefore this resulted in somewhat delayed maturity and likely impacted micronaire. Loan chart micronaire discounts are triggered at values of 3.4 and lower. **Therefore, the higher N rates resulted in lower micronaire values and thus Loan rate discounts were encountered in the 50, 100, and 150 lb/acre N rate treatments.**

No bark contamination was noted in commercial bales in any of the N treatments. Average fiber strength ranged from 29.6 to 30.1 g/tex, and appeared unaffected by N fertilization. Uniformity ranged from 81.3 to 80.6% and also appeared to be unaffected by N fertilization. Overall negative impacts on various fiber quality parameters are integrated into the CCC Loan value. Average Loan values were 55.47, 52.33, 52.80, and 51.24 cents/lint-lb for the unfertilized check, 50, 100, and 150-lb N rates, respectively. **Therefore, in this commercial field trial, negative CCC Loan value impacts due to N fertilization were documented.**

Although an extremely high and effective mepiquat chloride regime was utilized successfully to keep plants rather small (less than 24.5 inches for all treatments), it is worth noting that excellent plant growth regulator management was unable to overcome the physiological effects of excess N on crop maturity and micronaire. This is an important and profound observation in this excellent applied research field trial.

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

Elevation: 3215 ft

Previous crop: 255 bu/acre corn harvested in 2021

Tillage system: strip tillage

N application method and date: strip tillage applied using grower's rig on April 29

Planted: May 19

Replicates: 4 replicates of 0, 50, 100, and 150 lb N/acre in a randomized complete block design

Plot width: 12 rows with N rate application, 12 rows harvested

Plot length: fertilized plot length ~2000 ft, harvested plot length ~1,200 ft (varied by plot)

Variety planted: NexGen 3406 B2XF

Seeding rate: 65,000 seed/acre

30-inch rows under center pivot irrigation

Total rainfall: ~6.2 inches (April through September)

April – 0.4, May – 1.2, June – 2.5, July – 1.5, August – 0.3, September 0.3

Total irrigation: ~17.5 inches

March – 1.5, April – 1.5, May – 2.7, June – 2.4, July – 4.1, August – 4.1,

September – 1.2

Herbicide management:

Preplant burndown (Mar 13) - 2 oz/acre flumioxazin + 12 oz/acre 2,4-D LV6 + 8 oz/acre dicamba

Preemergence (May 23) - 1 qt/acre Gramoxone + 1 qt/acre diuron + 1 qt/100 gal NIS

Post emergence (June 7) – 1 qt/acre Roundup Powermax + 1 pt/acre Outlook + 10 oz/acre clethodim + 6 oz/acre acephate + 17 lb/100 gal ammonium sulfate

Post emergence (June 23) – 1 qt/acre Roundup Powermax + 12.8 oz/acre Engenia + 17 lb/100 gal ammonium sulfate

Post emergence (Aug 11) –1 qt/acre Roundup Powermax + 12.8 oz/acre Engenia + 16 oz/acre Outlook + 12 oz/acre clethodim + 17 lb/100 gal ammonium sulfate

Insecticides: 6 oz/acre acephate (June 7), 0.7 oz/acre Intruder (Jul 8), 0.7 oz/acre Intruder (Jul 15)

Fertilizer: None applied except N rates to experimental units within trial

Harvest aids: 42 oz/acre ethephon + 24 oz/acre Folex (Oct 11)

Harvesting: Oct 31 using a 12-row John Deere CS770, with harvested area determined by utilizing a measuring wheel to determine harvested length in each plot. Approximately 1200 ft of plot length was harvested in one round module per individual plot. Round modules were weighed using the CS770 scale, and all round modules (from each of 4 replicates = 4 total) for each fertilizer treatment were weighed at the Adobe Walls Gin.

Commercial ginning: Round modules for all 4 replicates of each nitrogen rate treatment were staged together and commercially ginned separately by Adobe Walls Gin. Commercial ginning included: cleaning module feeder, clearing gin stream, dumping seed rolls, capturing seed weight, and purging remnant bale in press. This process was initiated before the first module was ginned and then repeated for each nitrogen rate treatment module in the 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.

List of Tables

Acknowledgements

Adobe Walls Gin would like to thank Ag Partners for committing equipment, land, and time to conduct and manage the trial. Dylan Hatley and Kramer King with Ag Ingenuity provided excellent support and we appreciate their assistance. Tyson Price custom harvested the trial, and we thank him for his very capable harvester operational expertise and patience. Gratitude is expressed to Windstar Inc. Detailed ginning was performed by Malcom Jones, Aaron Moore, and the Adobe Walls Gin ginning crew and a big thank you is extended to this hard-working group.

Table 1. Harvest results for the center pivot irrigated NexGen 3406 B2XF nitrogen rate trial, Ag Partners Farm, Gruver, TX, 2022.

N rate	Lint turnout	Seed turnout	Bur cotton yield	Lint yield	Seed yield	Lint loan value	Lint loan value	Net gin credit	N cost	Net value	
lb/acre	---------- % ----------		----------- lb/acre -----------			$/lb	------------------ $/acre --------------------				
0	33.6	48.7	5938	1993	2892	0.5547	1106	420	0	1526	a
50	33.2	48.1	6082	2017	2923	0.5233	1056	422	40	1437	b
100	32.9	48.5	5887	1939	2855	0.5280	1024	414	80	1357	c
150	32.8	48.3	5979	1959	2887	0.5124	1004	418	121	1301	d
Test average	33.1	48.4	5972	1977	2889	0.5296	1048	419	60	1405	
CV, %	--	--	2.5	2.5	2.5	--	2.5	2.5	--	2.6	
OSL	--	--	0.3551	0.1886	0.6358	--	0.0019	0.7397	--	0.0001	
LSD	--	--	NS	NS	NS	--	34	NS	--	47	

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:
$3.40/cwt commercial ginning cost.
$430/ton for seed.
Net gin credit is defined as seed credit minus ginning expense.
N cost was determined based on $515/ton of 32-0-0 ($0.805/lb actual N)
Net value is defined as gross loan value/acre plus net gin credit minus N fertilizer cost.
Value for lint based on CCC loan value from commercial ginning and USDA-AMS classing results.

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Table 2. Plant observation results from the center pivot irrigated NexGen 3406 B2XF nitrogen rate trial, Ag Partners Farm, Gruver, TX, 2022.

N rate	Final population	Stand establishment	Vigor	Nodes above white flower			Plant height			Leaf tissue N concentration		Nodes above cracked boll
				Early bloom	+3 weeks	+6 weeks	Early bloom	+3 weeks	+10 weeks	Early bloom	Cutout	
lb/acre	plants/acre	%	1-5 visual scale, 5 best	count			inches			% N		count
	18-Jun	18-Jun	18-Jun	27-Jul	16-Aug	8-Sep	27-Jul	16-Aug	6-Oct	27-Jul	8-Sep	6-Oct
0	51,183	78.8	3.3	4.4	2.3	0.2	18.4	21.9	21.3	4.9	4.3	2.1
50	49,005	75.4	3.1	4.8	2.4	0.1	20.7	23.7	23.3	5.2	4.4	3.0
100	49,005	75.4	3.1	4.7	2.9	0.1	19.7	24.9	23.9	5.2	4.4	3.3
150	44,649	68.7	3.0	5.1	3.3	0.2	18.8	24.8	24.3	5.2	4.5	3.7
Test average	48,461	74.6	3.1	4.8	2.7	0.2	19.4	23.8	23.2	5.1	4.4	3.0
CV, %	6.6	6.6	7.5	10.7	14.9	140.0	2.8	3.6	4.3	2.2	1.4	15.6
OSL	0.0939	0.0945	0.5493	0.4907	0.0853	0.9676	0.0079	0.0168	0.0432	0.0742	0.0327	0.0294
LSD	4,170	6.4	NS	NS	0.7	NS	0.9	1.4	1.6	0.2	0.1	0.8

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 center pivot irrigated NexGen 3406 B2XF nitrogen rate trial, Ag Partners Farm, Gruver, TX, 2022.

N rate 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
0 lb N/acre															
9109705	11-2	1	1	2	37	3.5	.	.	29.4	80.9	9.0	2	80.0	114	57.00
9109706	11-1	1	1	2	37	3.5	.	.	30.4	81.0	9.2	1	82.2	115	57.15
9109707	11-1	1	1	2	37	3.5	.	.	29.6	81.5	9.3	2	81.7	114	57.00
9109708	11-1	1	1	1	36	3.7	.	.	29.2	81.8	9.4	1	82.3	113	56.55
9109709	11-1	1	1	2	37	3.5	.	.	30.1	81.7	9.4	2	82.7	115	57.15
9109710	11-1	1	1	2	37	3.5	.	.	29.9	81.6	9.4	2	80.3	115	57.00
9109711	11-1	1	1	2	37	3.4	.	.	30.2	81.5	9.4	1	81.2	115	52.35
9109712	11-1	1	1	1	36	3.4	.	.	30.1	81.8	9.3	1	81.5	113	51.80
9109713	11-2	1	1	2	37	3.4	.	.	30.3	81.2	9.1	2	81.5	114	52.35
9109714	11-1	1	1	2	37	3.5	.	.	31.1	82.0	9.1	1	81.3	116	57.25
9109715	11-1	1	1	2	37	3.5	.	.	31.6	82.0	8.9	1	81.0	116	57.25
9109716	11-1	1	1	1	36	3.4	.	.	28.9	82.7	8.7	1	79.8	111	51.15
9109717	11-1	1	1	1	37	3.6	.	.	30.7	82.5	9.1	1	81.0	114	57.10
Average	--	1.0	1.0	1.7	36.8	3.49	0/13 bales	level 1 bark	30.1	81.7	9.2	1.4	81.3	114.2	55.47
50 lb N/acre															
9109718	11-1	1	1	1	36	3.2	.	.	30.4	82.1	8.7	1	80.9	111	50.05
9109719	11-1	1	1	1	36	3.5	.	.	30.0	81.9	9.1	1	80.1	113	56.55
9109720	11-2	1	1	2	35	3.4	.	.	28.2	81.4	8.9	2	79.9	110	49.75
9109721	11-1	1	1	2	36	3.2	.	.	29.4	82.1	9.0	1	80.4	111	49.95
9109722	11-1	1	1	1	36	3.4	.	.	29.6	82.0	9.4	1	80.2	112	51.70
9109723	11-1	1	1	2	36	3.2	.	.	29.9	82.1	9.2	1	79.0	111	49.45
9109724	11-1	1	1	2	37	3.3	.	.	30.2	81.9	9.2	1	82.7	116	52.40
9109725	11-1	1	1	2	36	3.5	.	.	29.5	82.0	9.4	1	80.7	111	56.45
9109726	11-1	1	1	2	36	3.6	.	.	28.3	81.8	9.4	1	82.3	112	56.45
9109727	11-1	1	1	2	36	3.4	.	.	30.0	81.9	9.4	1	79.4	111	51.30
9109728	11-1	1	1	2	36	3.4	.	.	29.4	82.2	9.2	1	80.4	112	51.70
9109729	11-1	1	1	2	37	3.3	.	.	30.1	82.0	9.2	2	81.4	115	52.35
9109730	11-1	1	1	2	37	3.4	.	.	29.8	81.8	9.2	1	81.0	115	52.25
Average	--	1.0	1.0	1.8	36.2	3.37	0/13 bales	level 1 bark	29.6	81.9	9.2	1.2	80.6	112.3	52.33

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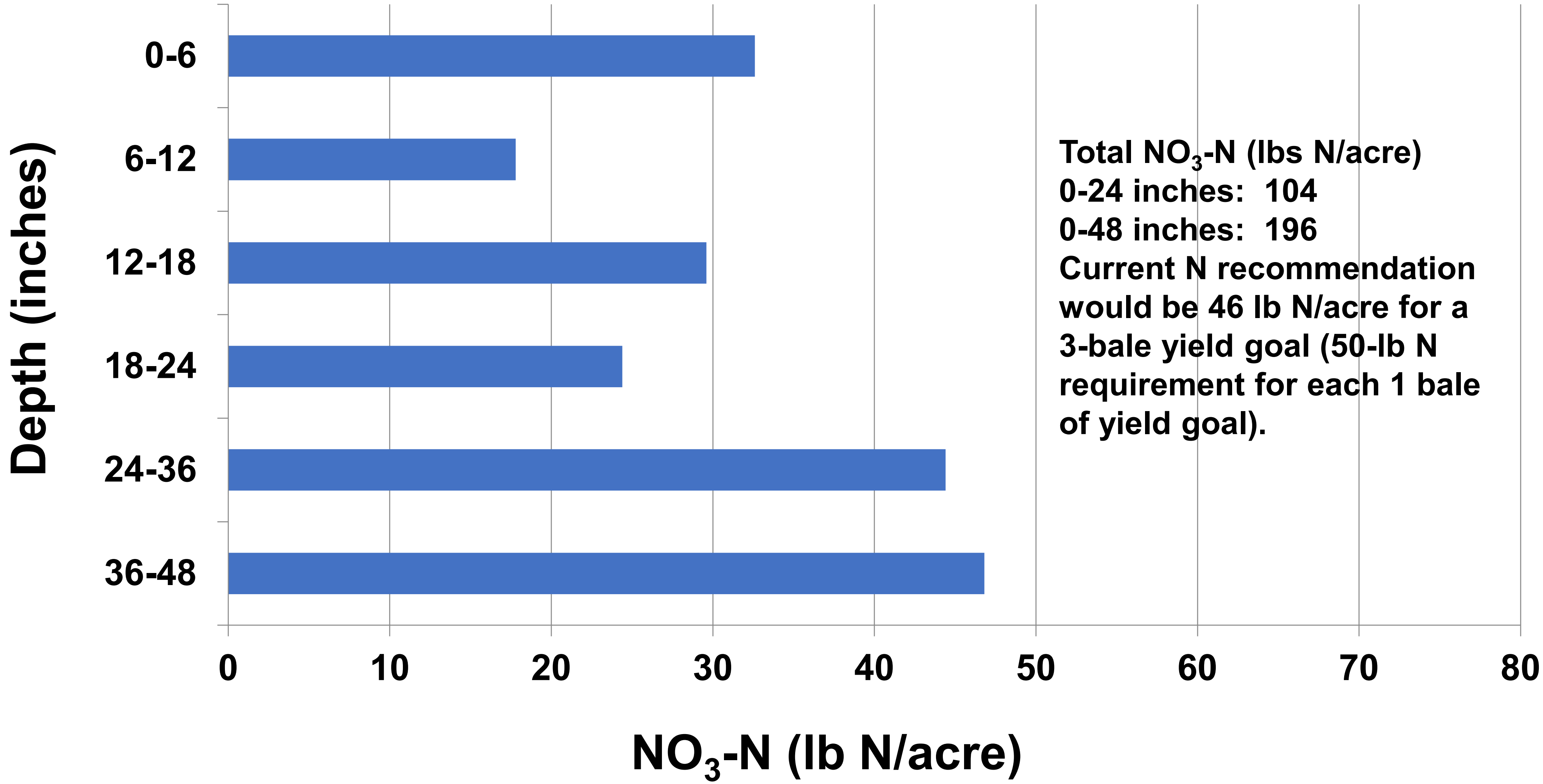
Table 3 (continued). Commercial classing data for the center pivot irrigated NexGen 3406 B2XF nitrogen rate trial, Ag Partners Farm, Gruver, TX, 2022.

N rate 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
100 lb N/acre															
9109731	11-1	1	1	2	36	3.3	.	.	29.8	80.5	9.5	2	80.9	112	51.70
9109732	11-1	1	1	2	37	3.4	.	.	31.1	81.1	9.7	1	83.1	115	52.60
9109733	11-1	1	1	3	37	3.4	.	.	29.6	80.7	9.6	2	79.3	114	51.25
9109734	11-1	1	1	2	37	3.2	.	.	31.9	80.8	9.6	2	81.0	115	50.75
9109735	11-1	1	1	2	37	3.5	.	.	29.7	81.7	9.3	2	78.9	114	56.40
9109736	11-1	1	1	2	36	3.4	.	.	30.1	81.1	9.4	2	81.5	112	51.80
9109737	11-1	1	1	2	35	3.4	.	.	28.8	81.7	9.1	1	81.0	110	50.25
9109738	11-1	1	1	2	36	3.4	.	.	28.7	81.8	9.4	1	80.6	112	51.65
9109739	11-1	1	1	2	36	3.5	.	.	29.5	80.8	9.3	1	81.0	112	56.45
9109740	11-1	1	1	2	37	3.4	.	.	30.0	81.7	9.3	1	81.1	116	52.35
9109741	11-1	1	1	2	36	3.3	.	.	30.4	81.6	9.1	2	81.3	112	51.80
9109742	11-1	1	1	2	37	3.5	.	.	29.6	81.9	9.0	1	80.4	114	57.00
9109743	11-1	1	1	2	37	3.4	.	.	30.7	81.8	9.0	1	80.5	114	52.35
Average	--	1.0	1.0	2.1	36.5	3.39	0/13 bales	level 1 bark	30.0	81.3	9.3	1.5	80.8	113.2	52.80
150 lb N/acre															
9109744	11-1	1	1	1	35	3.3	.	.	28.5	82.5	9.0	1	79.3	110	49.75
9109745	11-1	1	1	2	35	3.3	.	.	30.1	81.3	9.3	1	79.4	110	49.90
9109746	11-1	1	1	2	37	3.2	.	.	30.5	81.6	9.2	2	80.7	114	50.60
9109747	11-1	1	1	2	36	3.2	.	.	30.9	81.5	9.3	2	80.6	112	50.05
9109748	11-1	1	1	2	36	3.3	.	.	30.5	81.9	9.4	2	80.5	112	51.80
9109749	11-1	1	1	2	36	3.2	.	.	27.7	81.2	9.3	2	81.6	113	49.90
9109750	11-1	1	1	2	37	3.2	.	.	30.0	81.4	9.4	2	80.2	115	50.60
9109751	11-1	1	1	2	36	3.4	.	.	29.4	80.9	9.7	2	80.5	113	51.70
9109752	11-1	1	1	2	37	3.5	.	.	30.5	80.9	9.8	2	81.8	116	57.10
9109753	11-1	1	1	2	37	3.2	.	.	30.0	80.6	9.7	2	80.8	116	50.60
9109754	11-1	1	1	2	36	3.3	.	.	30.4	80.8	9.6	1	81.5	113	51.80
9109755	11-1	1	1	3	37	3.3	.	.	29.8	81.0	9.3	2	80.5	115	51.75
9109756	11-1	1	1	2	37	3.2	.	.	30.6	81.3	9.4	1	81.6	116	50.60
Average	--	1.0	1.0	2.0	36.3	3.28	0/13 bales	level 1 bark	29.9	81.3	9.4	1.7	80.7	113.5	51.24

Appendix

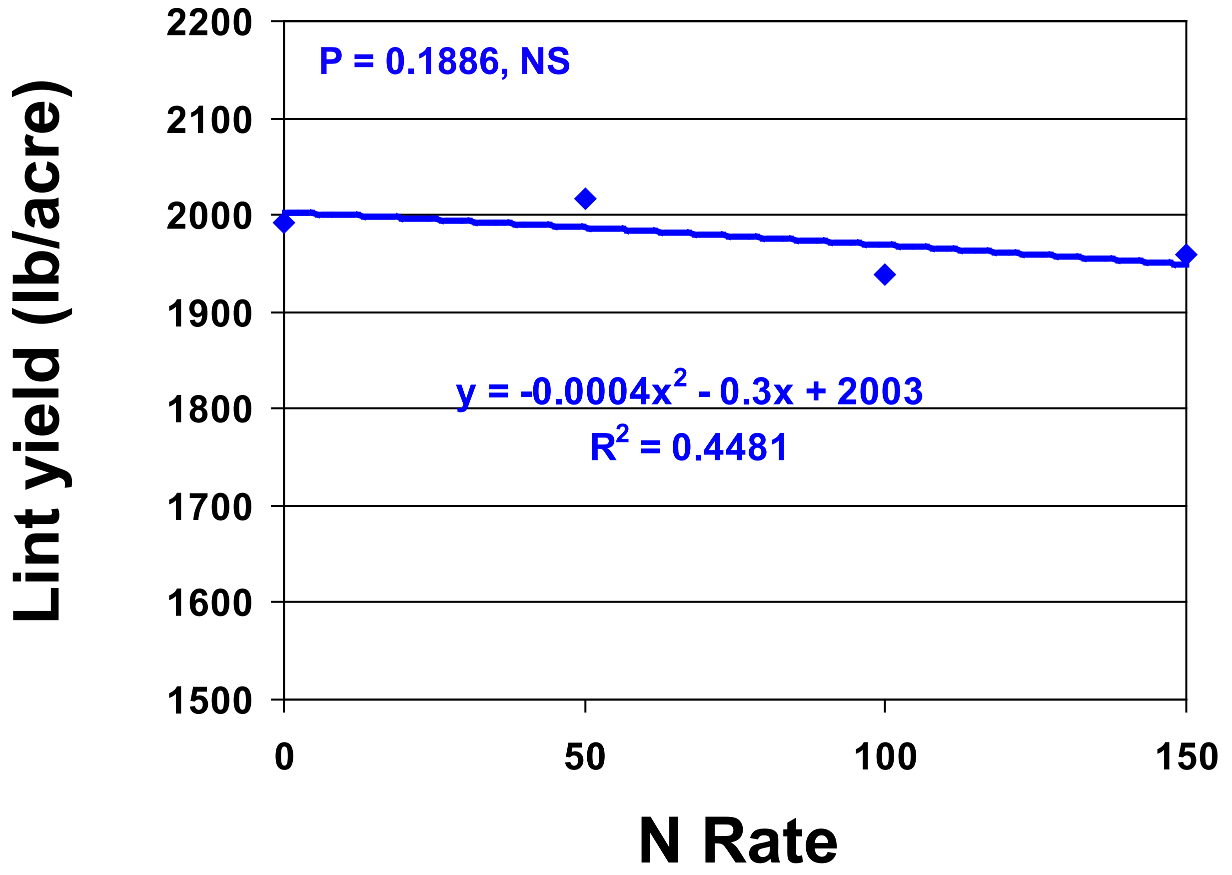
Ag Partners 2022 NexGen 3406 B2XF - N Rate Trial – Preplant residual NO_3-N in Field 307-01, lint yield quadratic regression function, net value/acre quadratic regression function, plant height, NAWF, and NACB graphs, Amarillo 2022 cotton heat units and weather data.

NO_3-N (Pounds N/Acre) vs. Depth (inches)
2022 Kight – Field 307-01



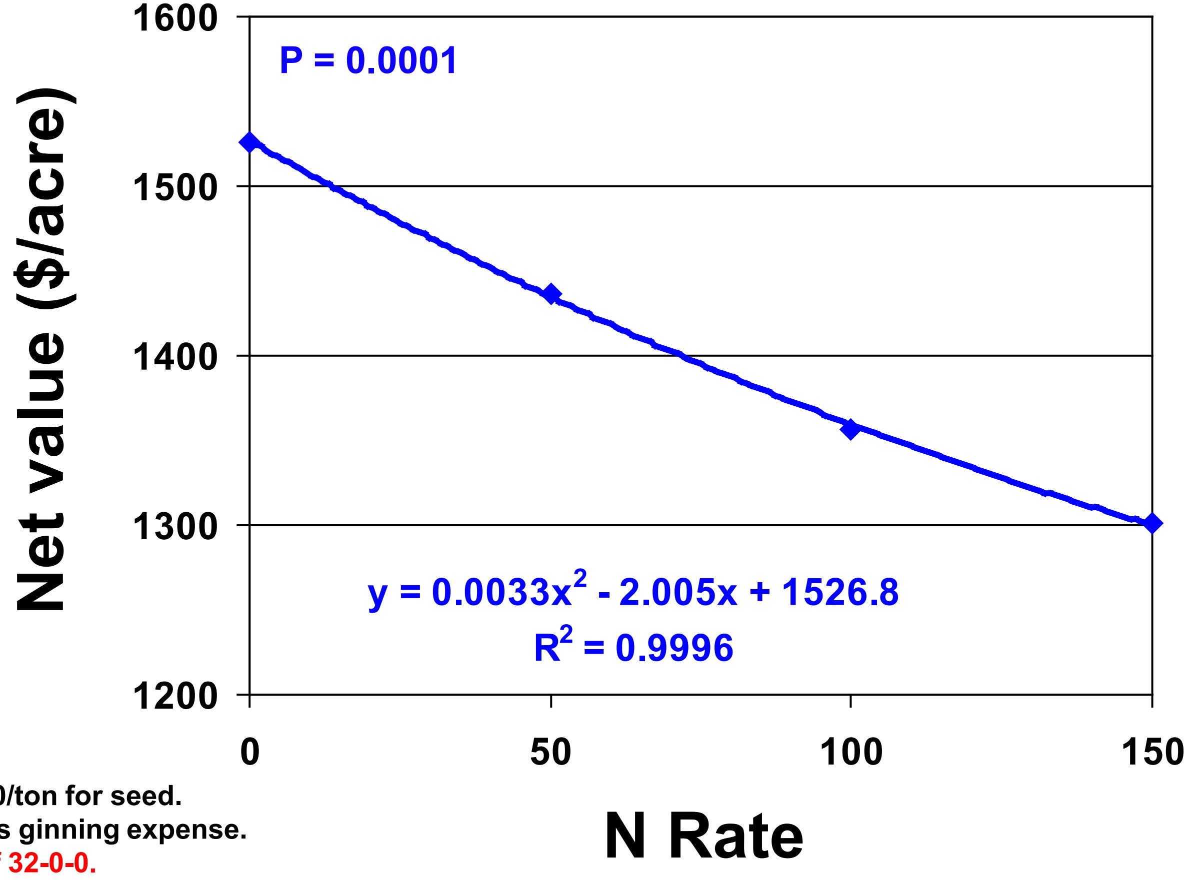
Total NO_3-N (lbs N/acre)
0-24 inches: 104
0-48 inches: 196
Current N recommendation would be 46 lb N/acre for a 3-bale yield goal (50-lb N requirement for each 1 bale of yield goal).

NexGen 3406 B2XF - N Rate Trial
Gruver, TX – 2022
4 Replicates



Planted: May 19
Days to bloom: 62
First bloom date: Jul 20
Harvested: Oct 31

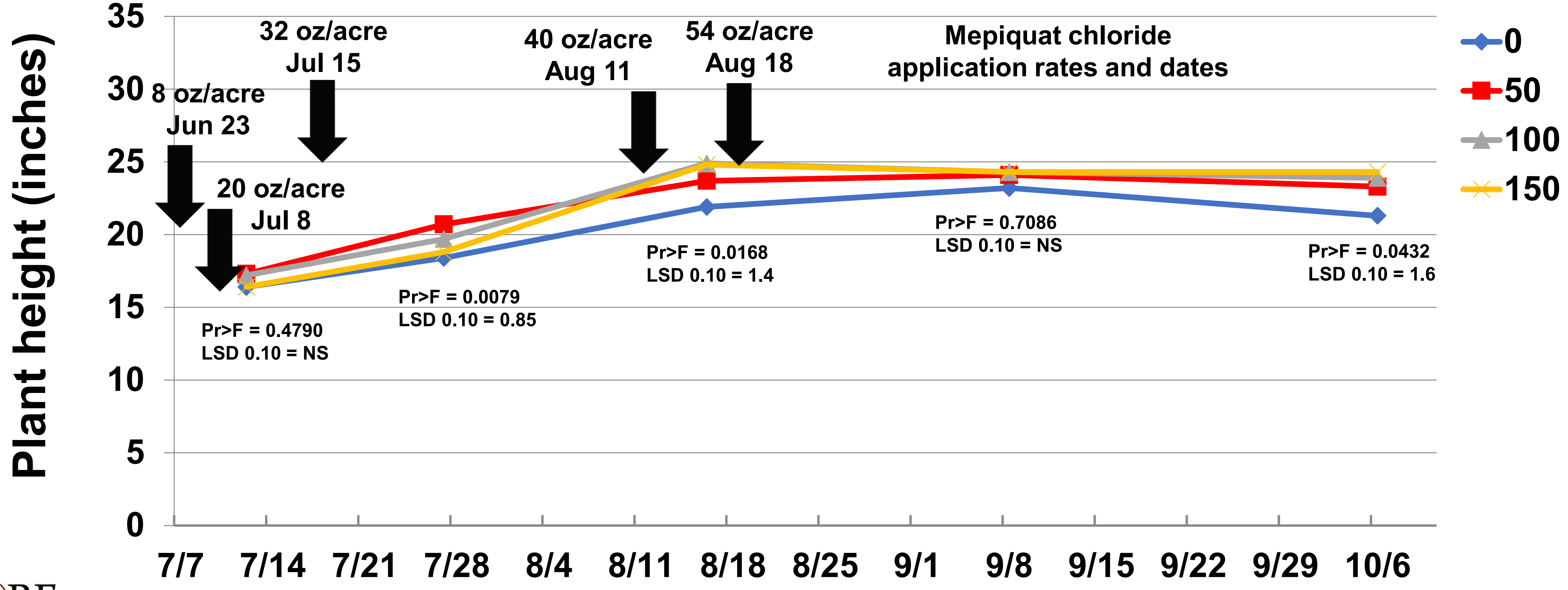
NexGen 3406 B2XF - N Rate Trial
Gruver, TX – 2022
4 Replicates
Assumes $515/Ton for 32-0-0



Assumes:
$3.40/cwt commercial ginning cost, and $430/ton for seed.
Net gin credit is defined as seed credit minus ginning expense.
N cost was determined based on $515/ton of 32-0-0.
Net value is defined as gross loan value/acre plus net gin credit minus N fertilizer cost.
Value for lint based on CCC loan value from commercial ginning and USDA-AMS classing results.

Planted: May 19
Days to bloom: 62
First bloom date: Jul 20
Harvested: Oct 31

Ag Partners NexGen 3406 B2XF - N Rate Trial
Gruver – 2022

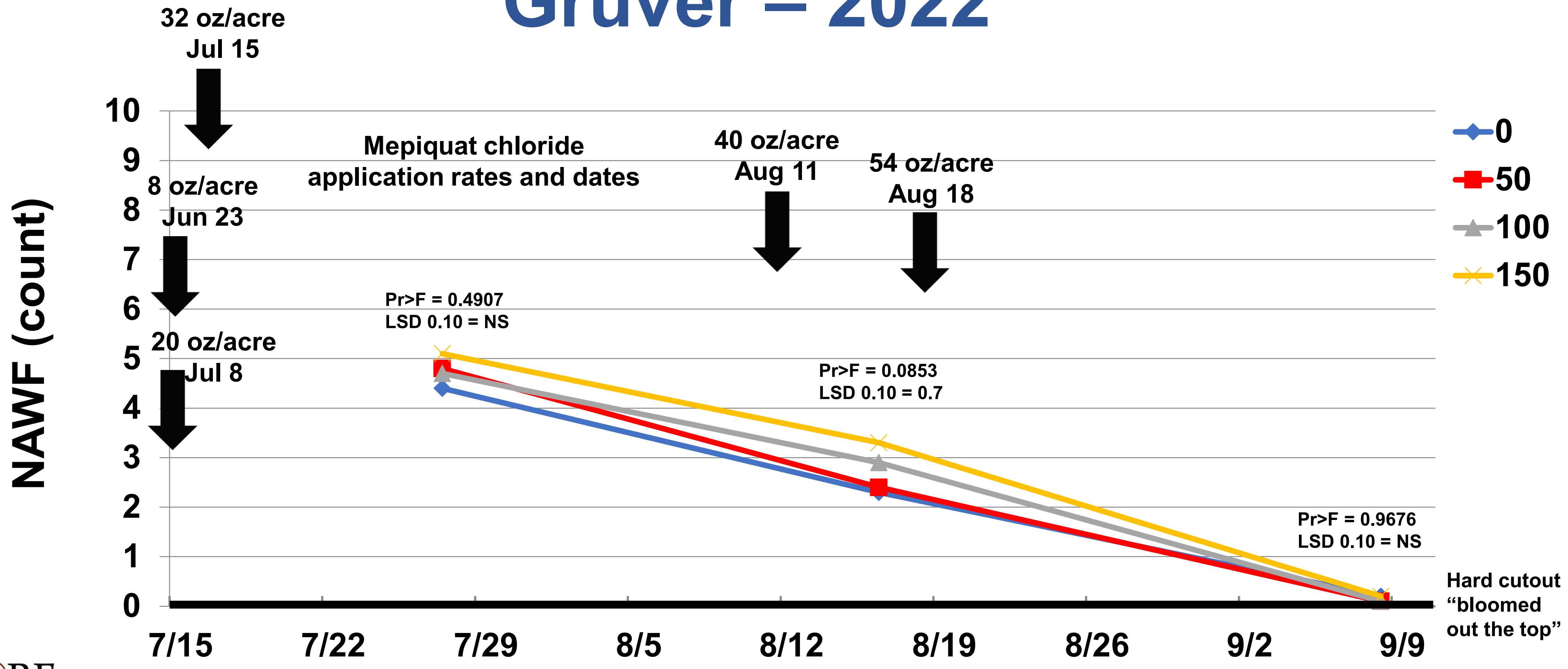


ADOBE WALLS GIN

Rainfall (inches): Apr 0.4, May 1.2, Jun 2.5, Jul 1.5, Aug 0.3, Sep 0.3 = 6.2
Irrigation (inches): Mar 1.5, Apr 1.5, May 2.7, Jun 2.4, Jul 4.1, Aug 4.1, Sep 1.2 = 17.5

Planted: May 19
Days to bloom: 62
First bloom date: Jul 20
Harvested: Oct 31

Ag Partners NexGen 3406 B2XF - N Rate Trial
Gruver – 2022

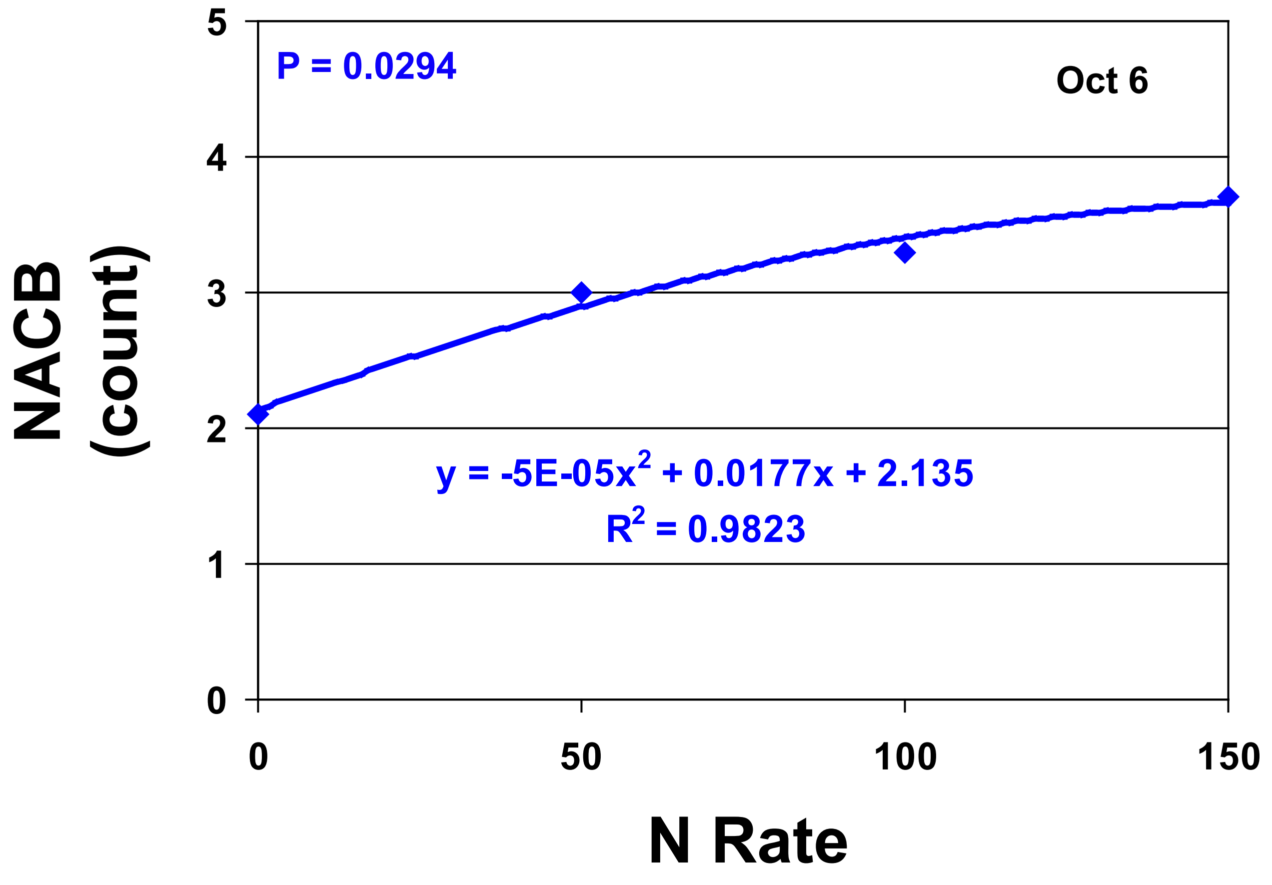


Adobe Walls Gin

Rainfall (inches): Apr 0.4, May 1.2, Jun 2.5, Jul 1.5, Aug 0.3, Sep 0.3 = 6.2
Irrigation (inches): Mar 1.5, Apr 1.5, May 2.7, Jun 2.4, Jul 4.1, Aug 4.1, Sep 1.2 = 17.5

Planted: May 19
Days to bloom: 62
First bloom date: Jul 20
Harvested: Oct 31

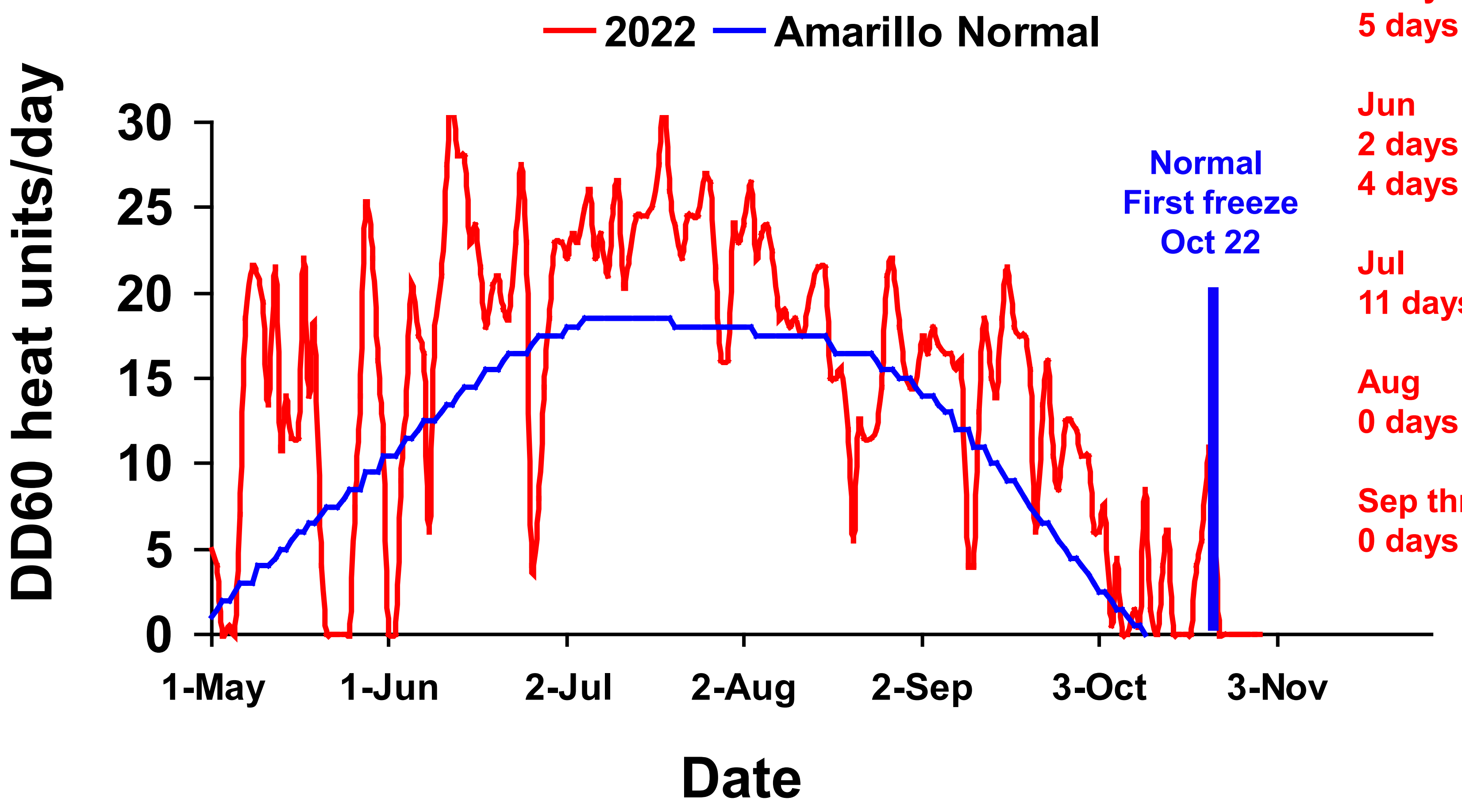
NexGen 3406 B2XF - N Rate Trial
Gruver, TX – 2022
3 Replicates



ADOBE WALLS GIN

Planted: May 19
Days to bloom: 62
First bloom date: Jul 20
Harvested: Oct 31

Amarillo
30-Year Normal (1981-2010) and 2022
Daily Heat Units



May
7 days with zero heat units
5 days of 100 degrees or greater

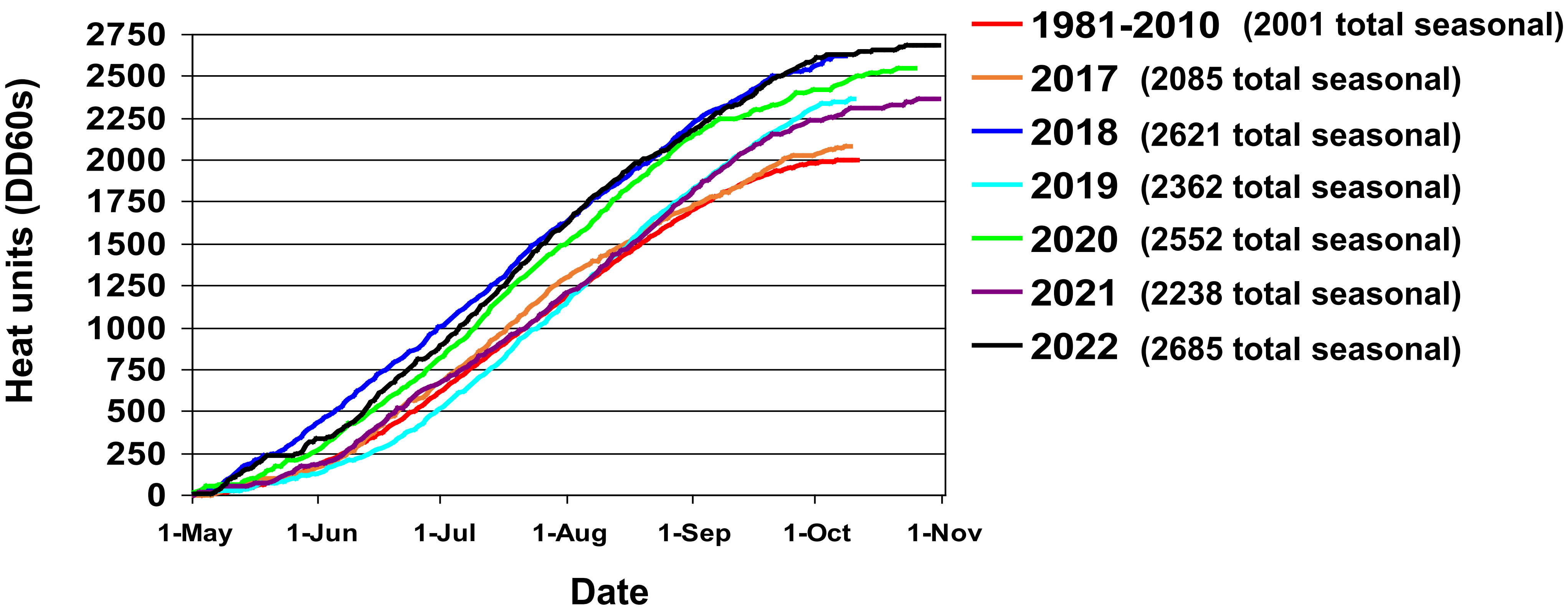
Jun
2 days with zero heat units
4 days of 100 degrees or greater

Jul
11 days of 100 degrees or greater

Aug
0 days of 100 degrees or greater

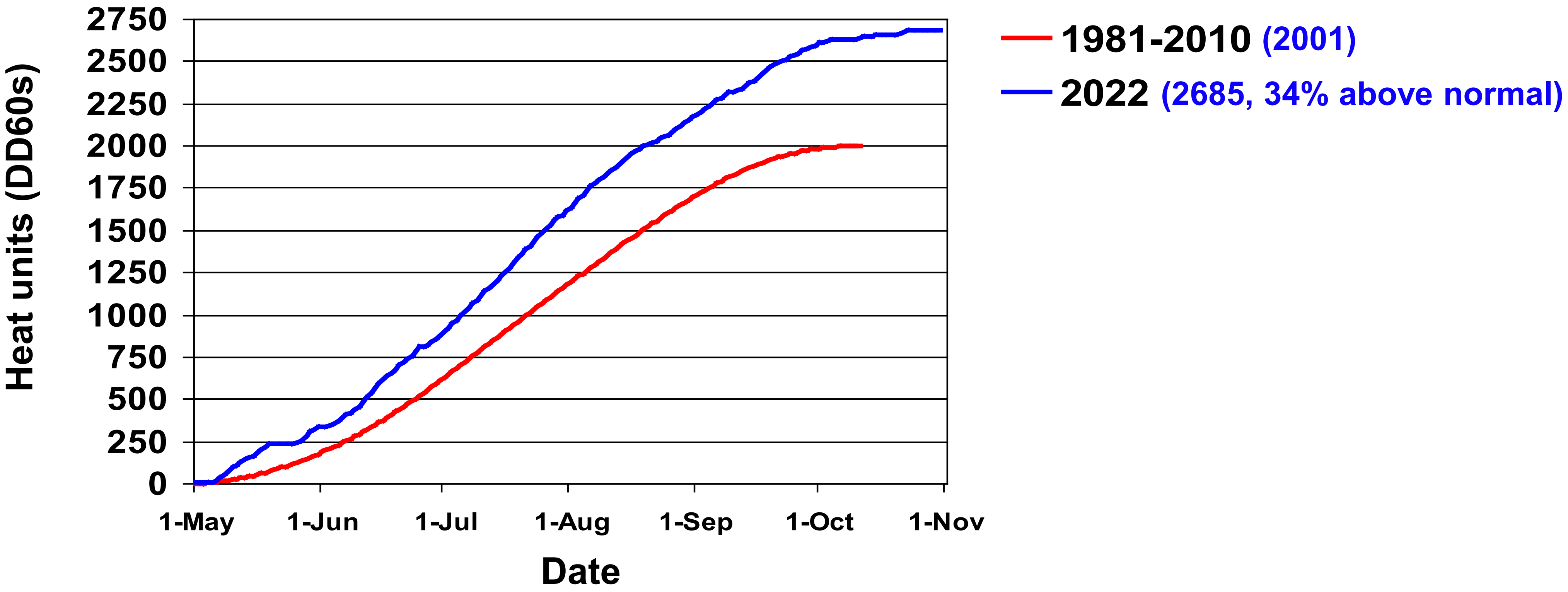
Sep thru 19th
0 days of 100 degrees or greater

Amarillo 30-Yr Normal (1981-2010)
vs. 2017, 2018, 2019, 2020, 2021, and 2022
Cotton Heat Unit Accumulation
From May 1 Through First Hard Freeze

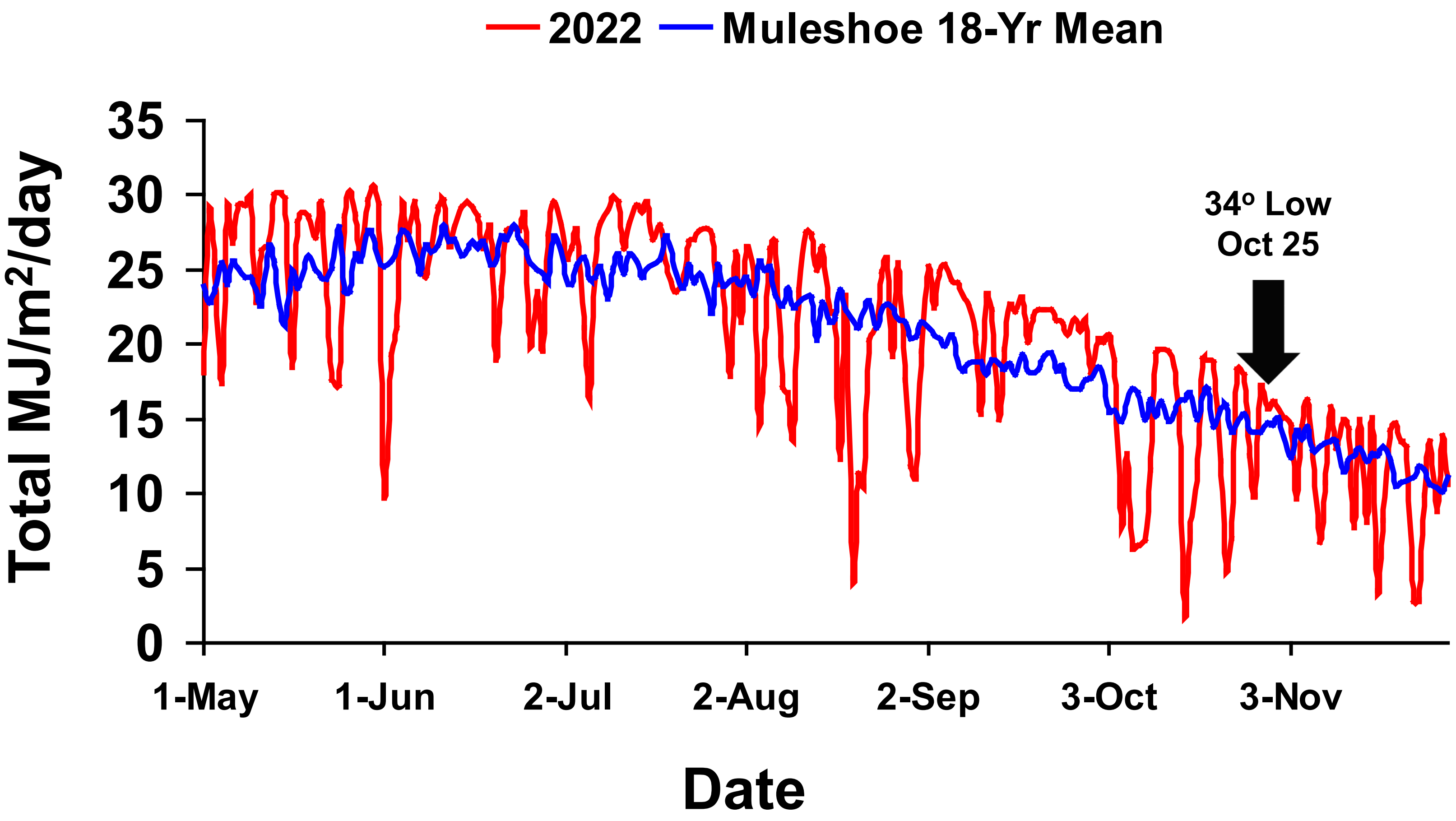


Amarillo 30-Yr Normal (1981-2010) vs. 2022
Cotton Heat Unit Accumulation
From May 1

% normal Sep 1-30	HU from May 1 thru Sep 30	% LTA from May 1 thru Sep 30	HU from May 15 thru Sep 30	% LTA from May 15 thru Sep 30	HU from May 20 thru Sep 30	% LTA from May 20 thru Sep 30
plus 49	2599	plus 31	2442	plus 26	2365	plus 24



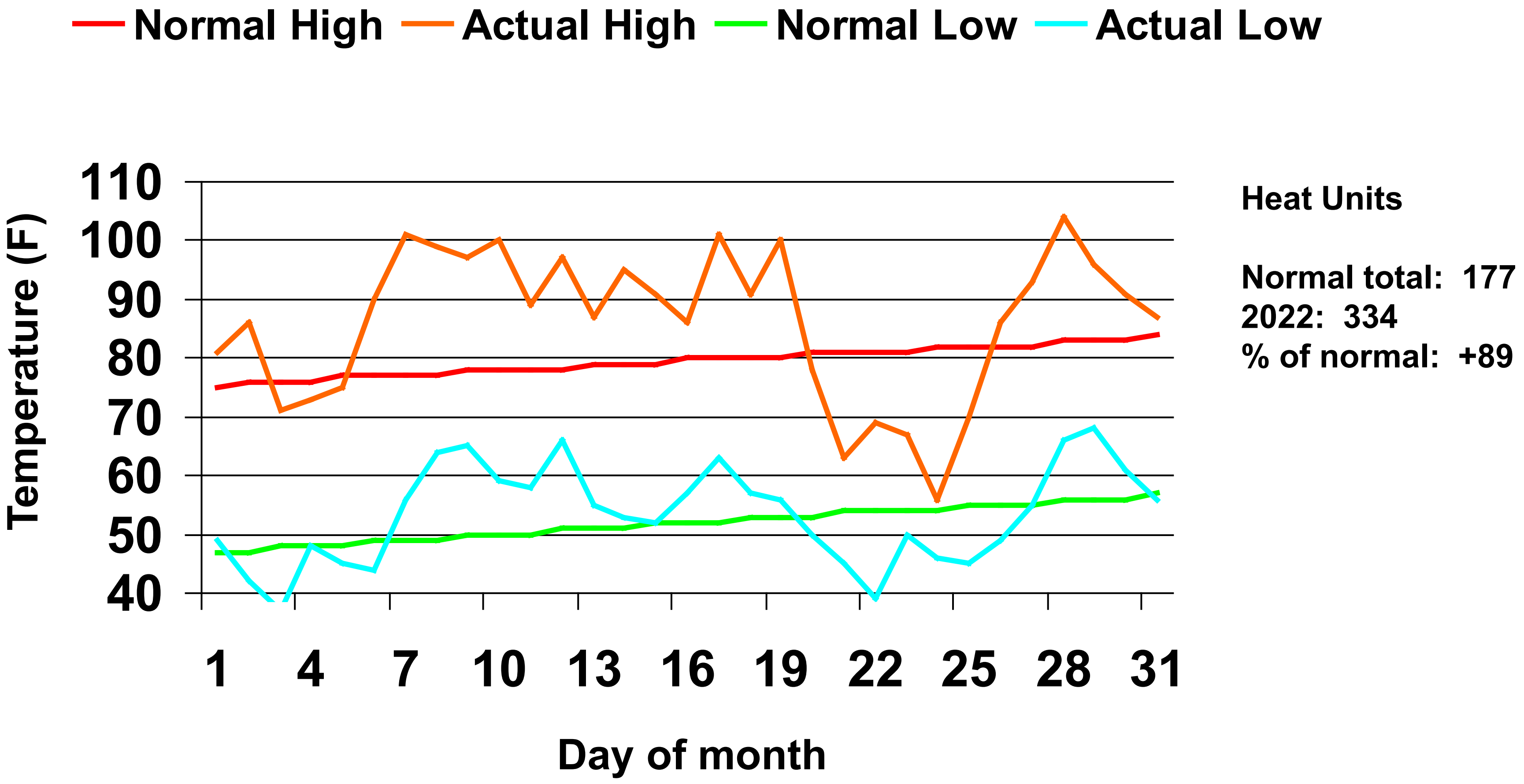
Muleshoe
18-Year Mean (2004-2021) and 2022
Daily Total Solar Radiation (MJ/meter^2)



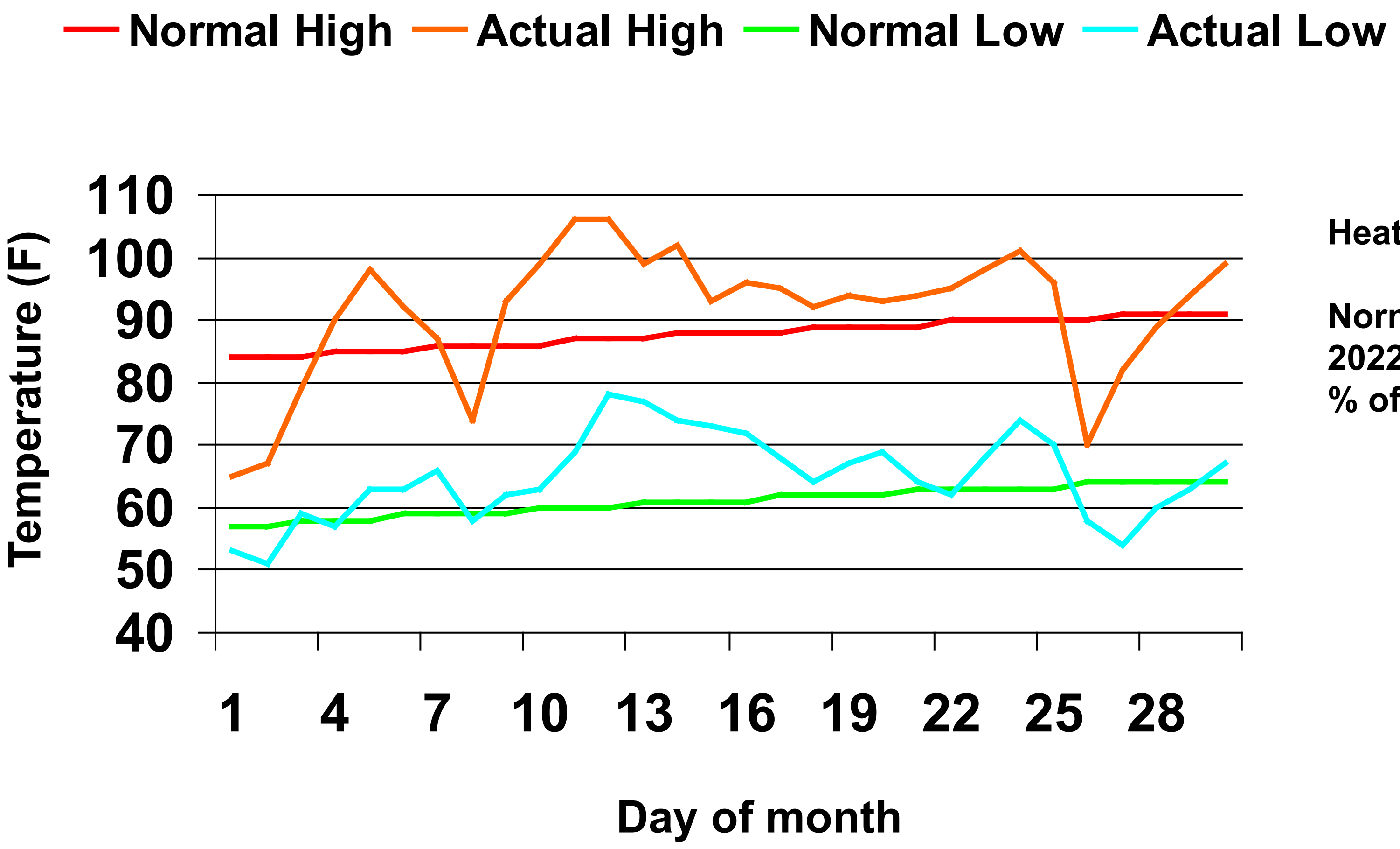
Total solar energy, in MJ/meter^2, calculated from the hourly average global solar radiation rates and converted to energy by integrating over time.

Source: https://www.ncei.noaa.gov/pub/data/uscrn/products/daily01/

Amarillo
30-Yr Normal (1981-2010) and May 2022 Air Temperatures



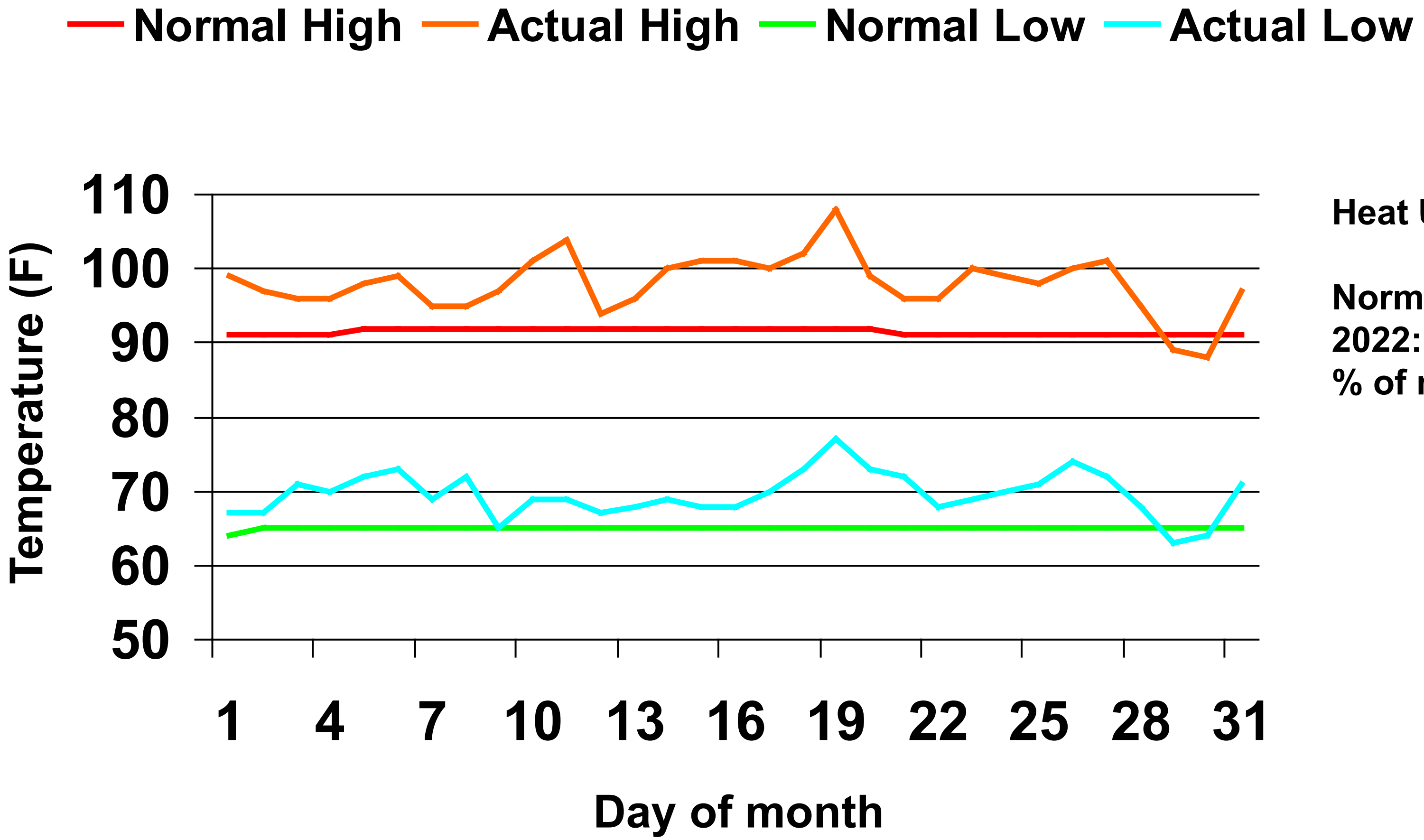
Amarillo
30-Yr Normal (1981-2010) and June 2022 Air Temperatures



Heat Units

Normal total: 433
2022: 544
% of normal: +26

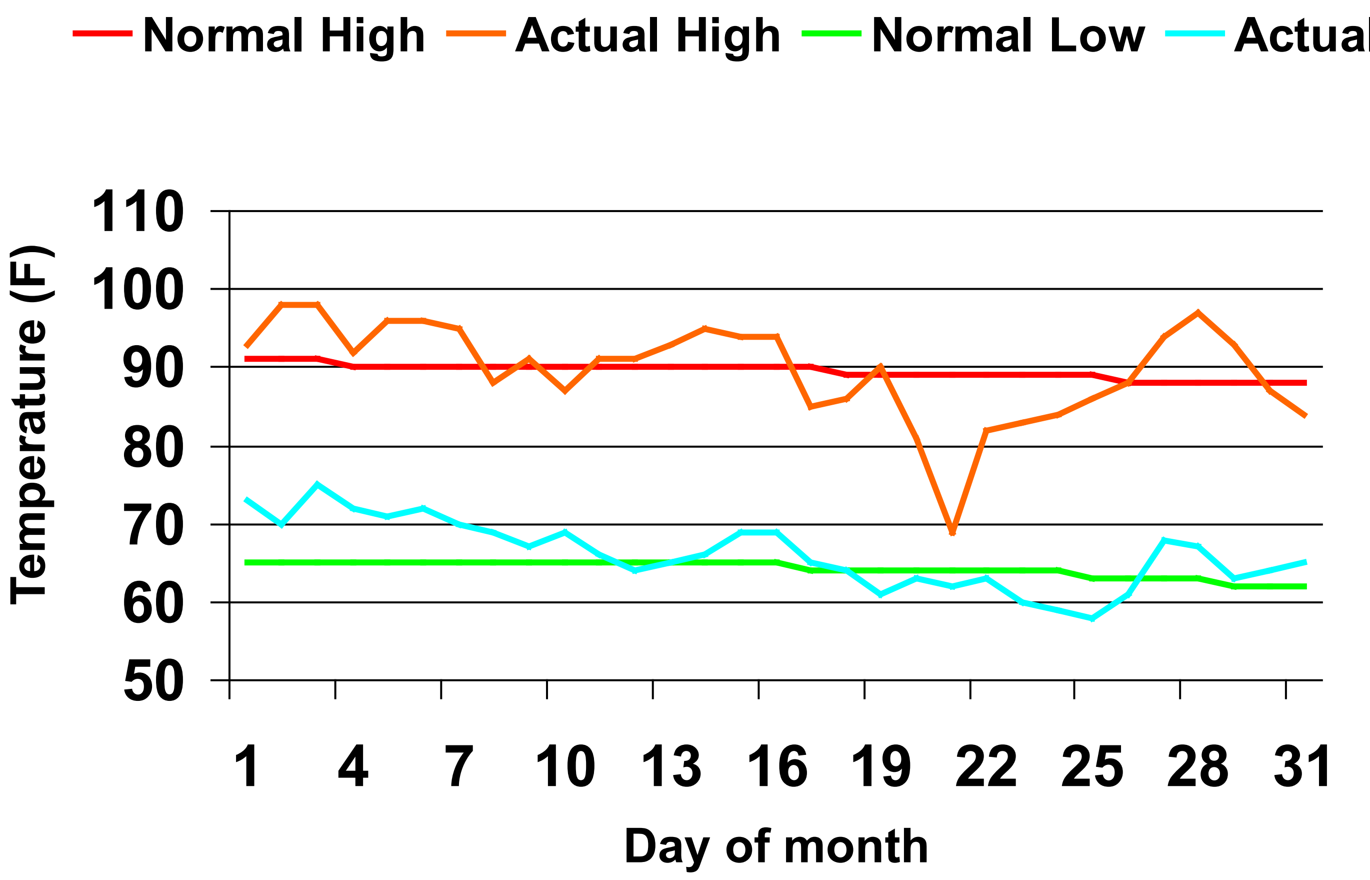
Amarillo
30-Yr Normal (1981-2010) and July 2022 Air Temperatures



Heat Units

Normal total: 566
2022: 738
% of normal: +31

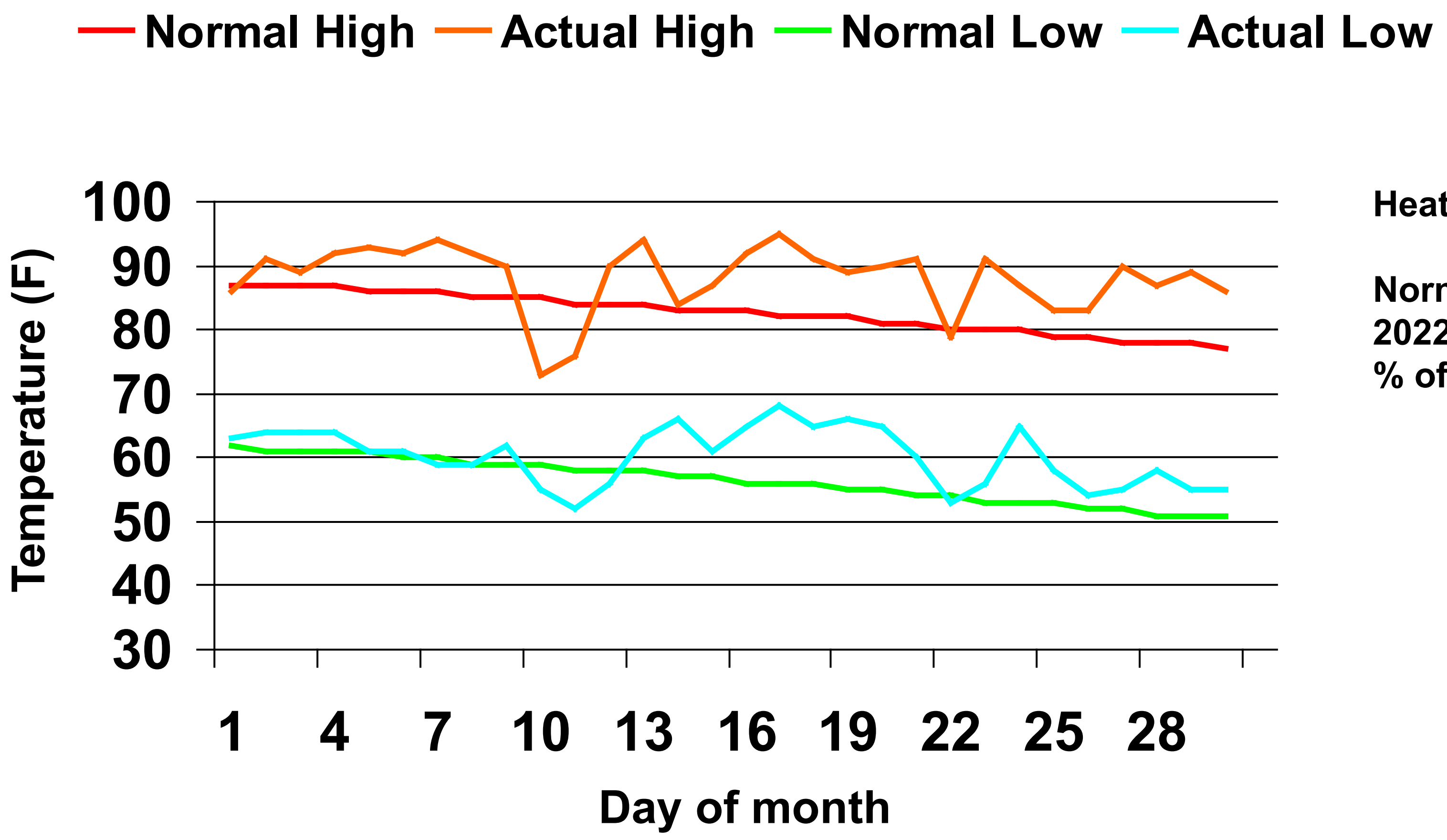
Amarillo
30-Yr Normal (1981-2010) and August 2022 Air Temperatures



Heat Units

Normal total: 522
2022: 556
% of normal: +7

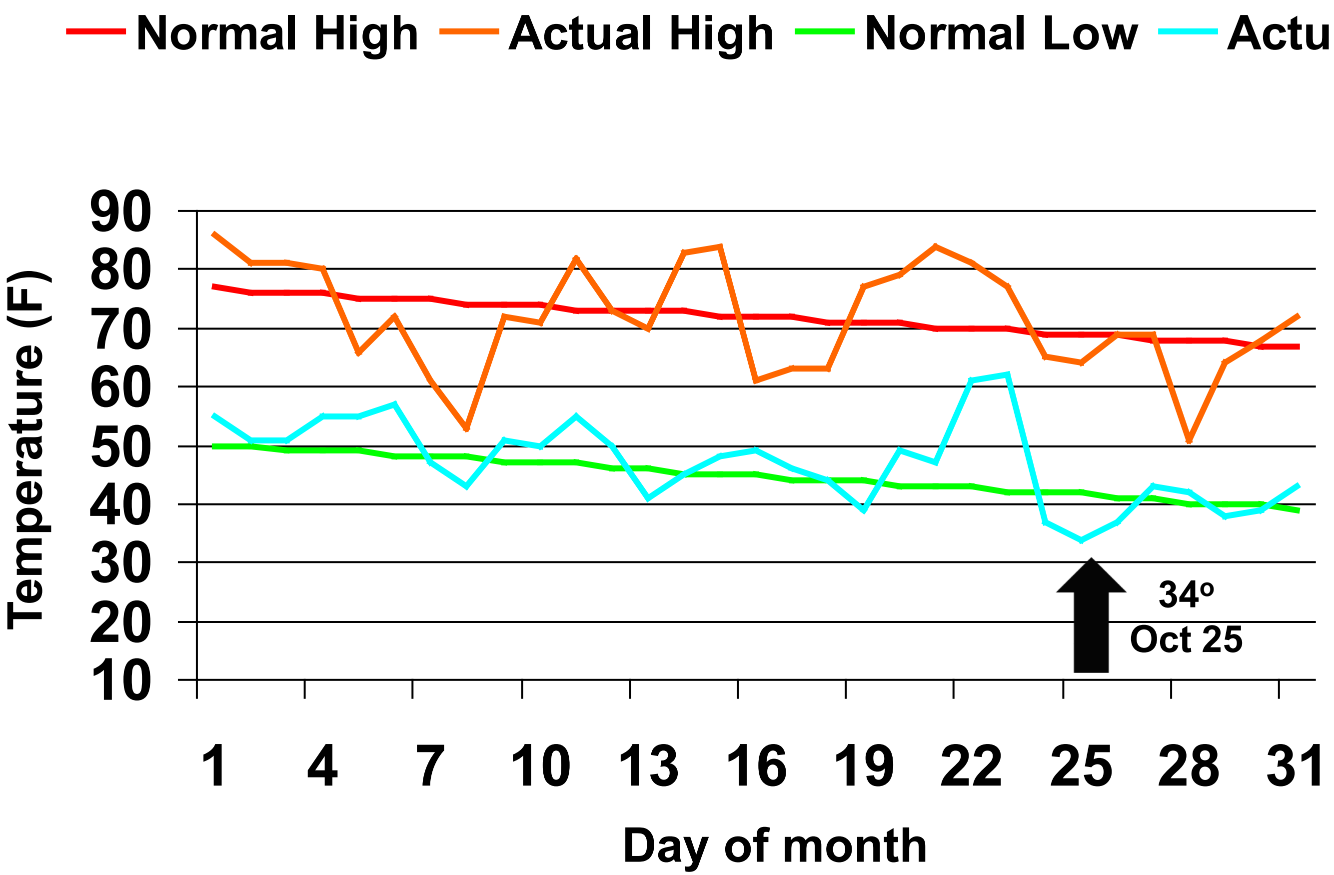
Amarillo
30-Yr Normal (1981-2010) and September 2022 Air Temperatures



Heat Units

Normal total: 286
2022: 427
% of normal: +49

Amarillo
30-Yr Normal (1981-2010) and October 2022 Air Temperatures



Heat Units

Normal total: 19
2022: 87
% of normal: +358

First freeze on Nov 4 (29 degrees)
Hard freeze on Nov 11 (22 degrees)