WINDSTAR GINS

Edcot Gin – Edmonson, TX
Phillip Kidd, Manager
Landon Kidd, Assistant Manager
(806) 864-3335

Top of Texas Gin – Hereford, TX
Billy Sam Borchardt, Co-Manager
Steven Birkenfeld, Co-Manager
(806) 258-7466

Adobe Walls Gin – Spearman, TX
Jerrell Key, Manager
Doug Kennedy, Assistant Manager
(806) 659-2574

Lonestar Gin – Pampa, TX
Carey McKinney, Manager
(806) 665-0677

Tule Creek Gin – Tulia, TX
Jaime Subealdea, Manager
(806) 627-4287

Lakeview Gin – Tulia, TX
Joe Borchardt, Manager
(806) 627-4227

Johnson Gin – Silverton, TX
Daniel Jenkins, Manager
(806) 823-2224

Cotton Insights Newsletter

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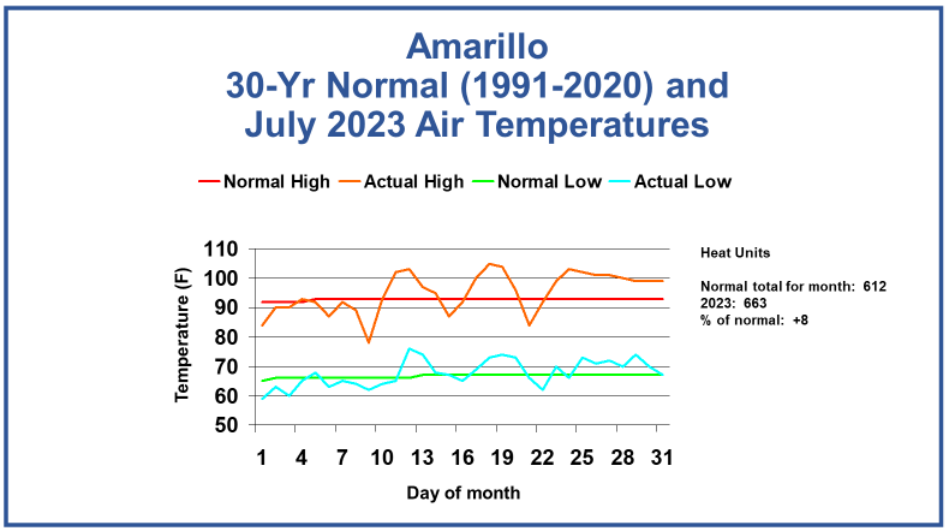
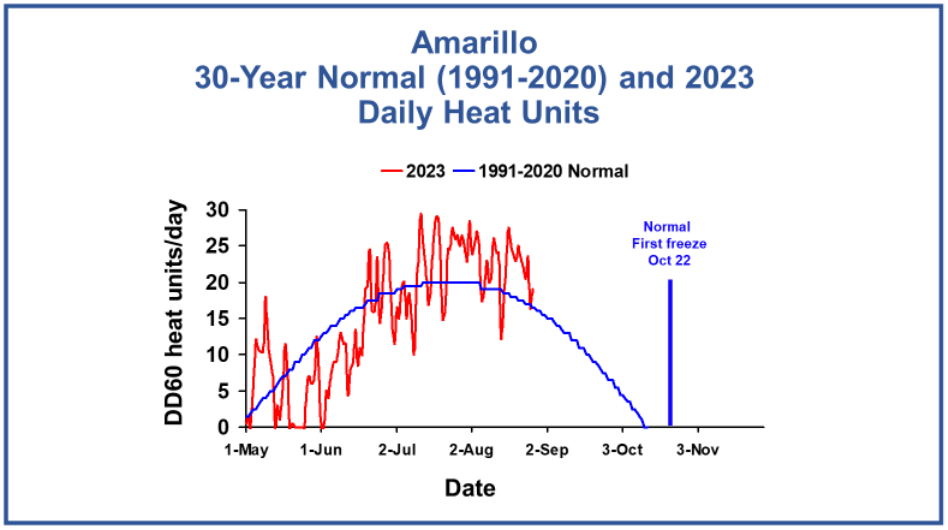
Randy Boman, Ph.D.
Windstar, Inc.
Cotton Agronomics Manager
(580) 481-4050
rboman@windstarinc.com
www.windstarinc.com

Crop Update

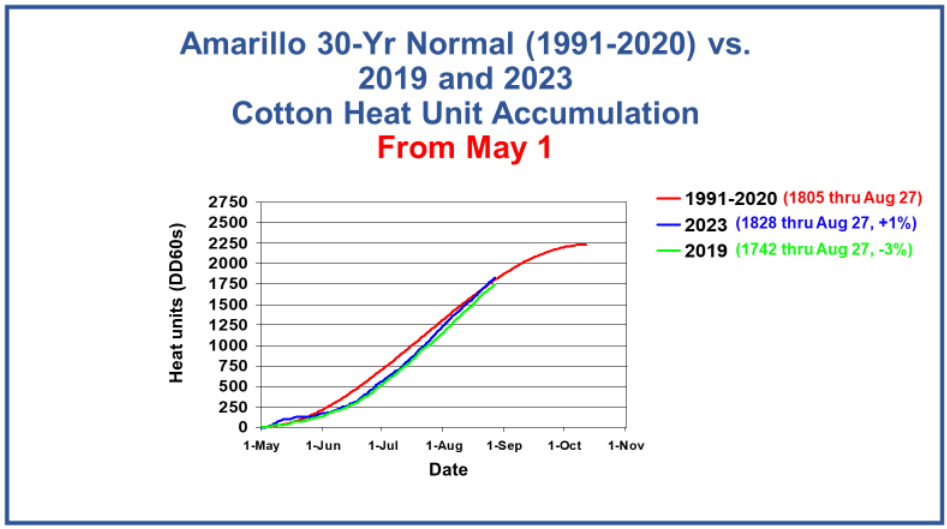
After June closed at about 20% below normal for cotton heat unit accumulation at Amarillo, temperatures flipped to oppressive heat in July and thus far into August. July had 10 days of triple digit temperatures, and August has thus far had 11 days. Hand-in-hand with the higher temperatures, precipitation essentially crashed. Therefore, overall we have entered into a significant "flash drought" in the region. Most dryland cotton in Texas and western Oklahoma has hit a wall with respect to soil moisture, and considerable crop stress has been encountered. At Amarillo, the month of July finished with about 633 DD60 heat units, which is about 8% above normal (612). Also, the daily heat unit graph (see below) indicates that we were substantially below normal for much of the growing season (from May 1), although the excessive heat has resulted in about 1% higher total heat units as of August 27th.





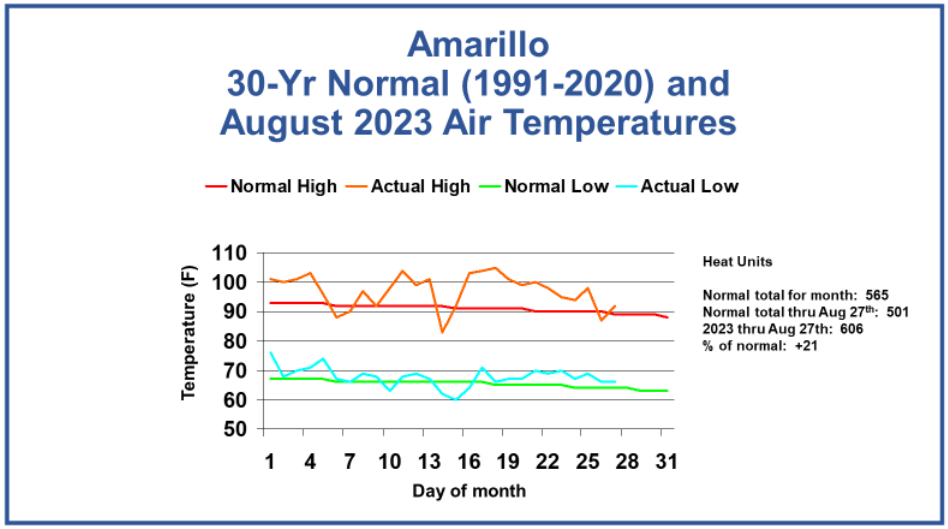
Continuing Contrast of 2019 and 2023

When using Amarillo weather data, 2019 actually had the worst May through early July start for cotton since 2000. The 2023 heat unit accumulation indicates a similar rough start, with the exception of the first two weeks of May, which exhibited warmer conditions (see graph below). The interesting thing about 2019 is that as the season progressed, temperatures were above normal, which was good for cotton production – assuming enough water was there to meet the crop needs. Daily heat units stacked up substantially higher later in the season, and by the middle of September we had reached the 30-year normal DD60 accumulation. We appear to be on a very similar track in 2023, as it surpassed 2019 in July, and have essentially paralleled it for the remainder of that month. August temperatures have resulted in a significant gain with respect to the normal as well as 2019. Currently, we are about 1% above the normal accumulation



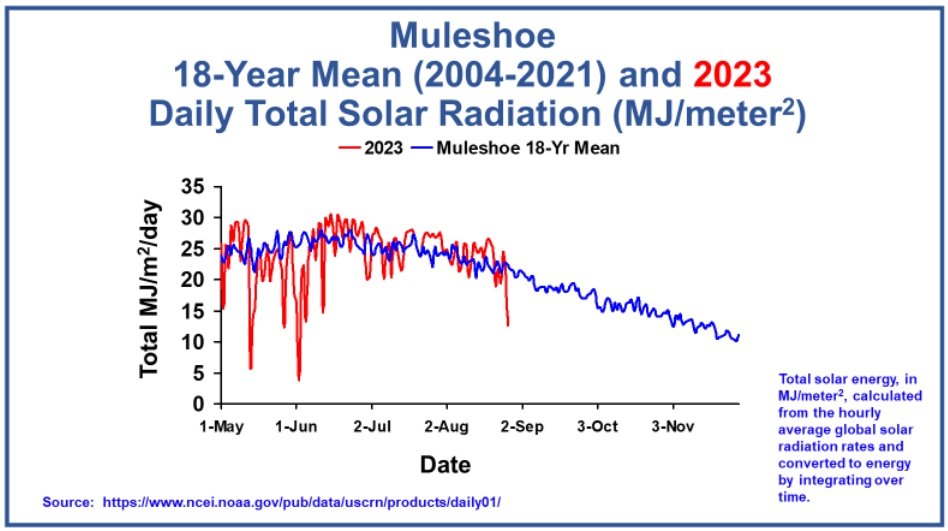
August Temperatures

At Amarillo, thus far, the first 27 days of August have been very hot, with cotton heat units calculating about 21% above normal for that period.



Solar Radiation

Using highly vetted daily solar radiation data from NOAA's Muleshoe, TX site, the graph below was generated. These data indicate that after "below normal" solar radiation from about mid-May through mid-June, it returned to "normal" or slightly above "normal" and essentially remained there until this past weekend.



Days to First Bloom

- Days to first bloom for surviving trials was wide ranging in 2023. These first bloom dates reflect the overall conditions under which the stand was established, overall plant health, and cool or warm growing conditions, cloud cover, etc. A good average for most cotton growing areas is to reach first bloom at around 60-65 days after planting.

Texas

- Stratford XtendFlex variety trial - planted May 10, first bloom (July 28) or about 79 days after planting (excessively saturated soils due to high rainfall and cloudy conditions, plant health issues due to seedling disease, cool growing conditions in May and June)
- Tulia pivot irrigated PhytoGen variety trial - planted May 6, first bloom (July 17) or about 72 days after planting (excessively saturated soils due to high rainfall and cloudy conditions, plant health issues due to seedling disease, cool growing conditions in May and June)
- Tulia drip irrigated PhytoGen variety trial - planted May 17, first bloom (July 26) or about 70 days after planting (excessively saturated soils due to high rainfall and cloudy conditions, plant health issues due to seedling disease, cool growing conditions in May and June)

Oklahoma

- Custer City dryland PhytoGen variety trial - planted May 31, first bloom (July 25) or about 55 days after planting (rapid plant growth due to warmer growing conditions, excellent profile moisture and open skies, occasional thunderstorm/rainfall, slight hail damage).
- Hobart dryland XtendFlex variety trial – planted June 20, first bloom (August 10) or about 47 days after planting (rapid plant growth due to warmer growing conditions, excellent profile moisture and open skies).

Anomalous August 11 Thunderstorm Damage Near Altus, OK

I was informed that a lightning laden thunderstorm with a large dust cloud affected cotton mostly south of Altus on August 11. Growers began noticing significant leaf damage and blackened terminals after the storm. It appears this damage was related to the storm, and apparently plant moisture stress was a factor. Prior to the storm event, some plants in fields were less moisture stressed and these appeared to either escape damage or had much less symptomology. **I have never seen this type of damage associated with a thunderstorm this late in the season.** Blackened terminals in these fields resembled what I always referred to as “environmental damage” but simply called “static damage” by others. This symptomology is typically seen when cotton plants are small. These symptoms arising from this storm event were not caused by biotic stressors (leaf disease, leaf damage due to salinity issues, etc.), and so the only remaining explanation is abiotic stress damage due to the thunderstorm. I have assembled several photographs that were taken about 6 days after the weather event. Blowing dust and heavy lightning were likely the source of the damage, although that is inconclusive. It is strongly not believed herbicide applications were related to this damage.

Photos of Blackened Terminal Leaves

Necrotic Leaf Tissue