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Cotton Insights Newsletter

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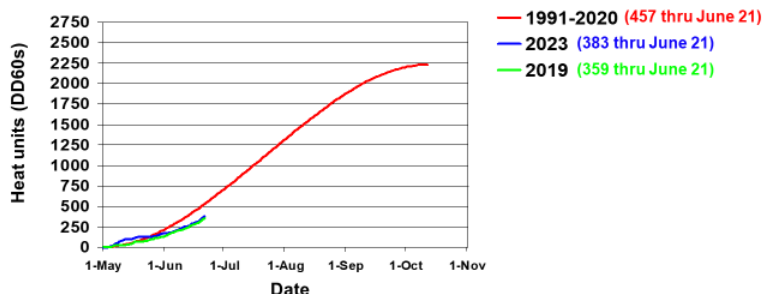
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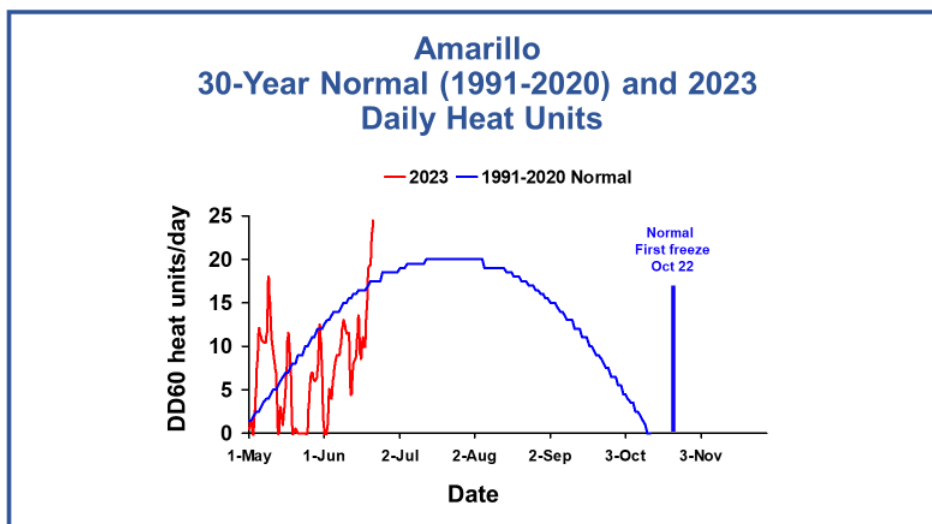
Growers “Picking Up the Pieces” After One of the Most Difficult Starts Since at Least 2000

The last 7 weeks have been extremely challenging to say the least. The 2023 crop year start was first hot and dry and then shifted to cool and wet, with numerous incessant thunderstorm events across the area. It could be described as going from “famine to gluttony” with respect to rainfall. This resulted in loss (or severe damage), seedling disease issues, and crop setbacks on perhaps hundreds of thousands of acres in the region. Many early planted cotton fields have gone under the “crop insurance knife” and are now planted to corn or sorghum. With all of the rain beginning in mid-May, many growers had to cease planting operations. With the continued rainfall and cotton insurance final plant dates near, after fields dried, growers shifted gears and moved on to sorghum or corn. Analyzing Amarillo weather data from NOAA going back to the year 2000, it is readily apparent that from May 1 through June 21, we experienced the second most difficult cold start since 2000 (383 DD60s). In actuality, the worst 7-week period was experienced just a few years ago in 2019 (359 DD60s). Growing conditions are somewhat turning around in late June and recovery for most surviving cotton acres is being triggered. Forecast highs indicate at least 90 degrees to triple digits for the next several days. Some sick stands are still being considered for insurance adjustment.

Amarillo 30-Yr Normal (1991-2020) vs. 2019 and 2023 Cotton Heat Unit Accumulation From May 1

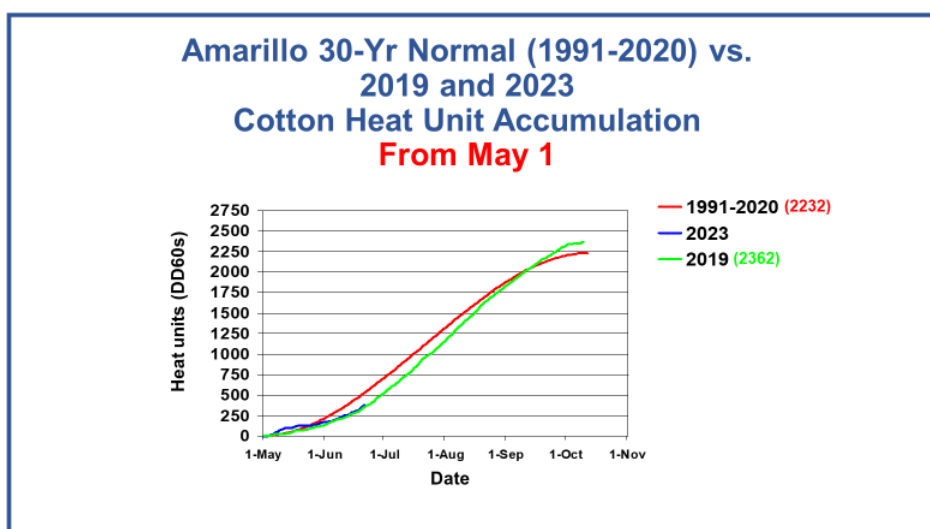


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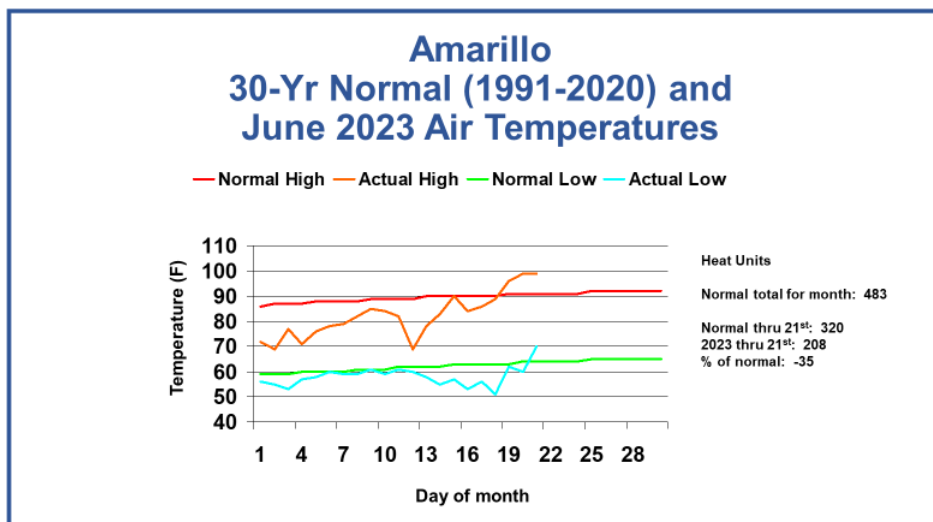
Contrasting 2019 and 2023

When using Amarillo weather data, 2019 actually had the worst May through late June 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. Interestingly enough, the 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. So, after saying all of this, it is still possible to have a great temperature finish, in spite of cooler conditions early. It's many times stated that "cotton knows its age" with respect to first bloom date. So, looking back at a couple of trials which survived the 2019 extreme conditions, and which were planted near Wildorado and Tulia, they actually hit first bloom at 66, and 65 days after planting, respectively. Those trials were planted on May 20 and May 15 at Wildorado and Tulia, respectively, and hit first bloom on July 24, and July 18, respectively.



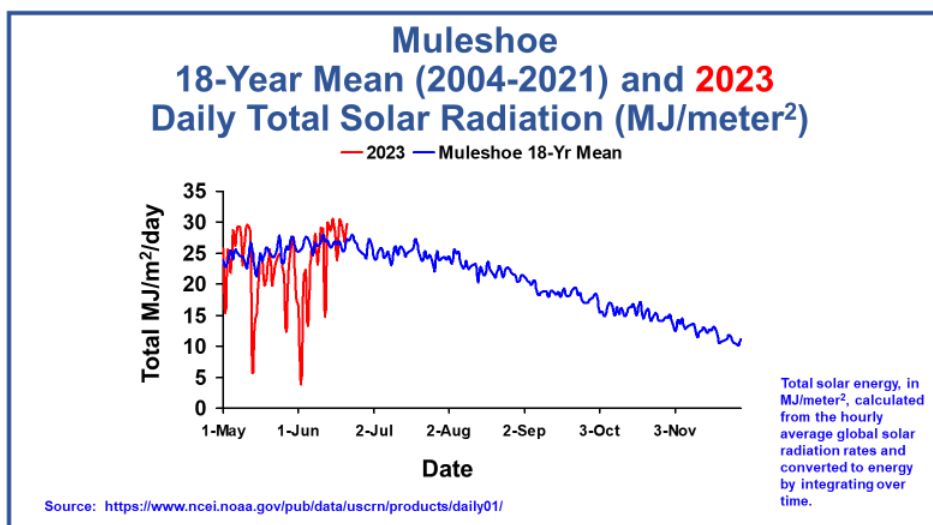
June Temperatures

At Amarillo, the month of June has been very frugal with good cotton temperatures as can be seen below. The first two weeks of June experienced substantially lower high temperatures than normal. Low temperatures were somewhat normal, but by mid-month these had too were substantially lower than normal.



Solar Radiation

Using highly vetted daily solar radiation data from NOAA's Muleshoe, TX site, the graph below was generated. These data indicate that with the exception of the first couple of weeks in May and within the past week, the region's daily solar radiation has been substantially below normal. This of course coincides with the cloudy, cool, and wet conditions.



Management Concerns

- Normal to above normal temperatures are needed to keep the crop recovery moving forward.
- In many instances, growers are faced with thin or skippy stands and a late crop. Many surviving fields can be considered 2-3 weeks behind in terms of plant growth and canopy size. However, cotton plants “know their age” and although short statured due to “stacked nodes” are still progressing to the fruiting stage. One can generally find fruiting branches with squares on main stem nodes ranging from 5 through 10. Some varieties tend to initiate first fruiting branches earlier (lower mainstem nodes) than others.
- It takes about 21 days for a pinhead square to become an open bloom under normal temperatures.



Herbicides

- Over-the-top applications of various dicamba formulations on XtendFlex varieties, 2,4-D choline products (Enlist Duo and Enlist One) on Enlist varieties, and Liberty (glufosinate) are going out. It is extremely important to recognize the need to apply these products on small weeds per the label directions. The relatively stress-free conditions of many weeds should work in our favor to kill these undesirable plants.
- Getting residual products applied (e.g. metolachlor, Warrant, Outlook, etc.) will be important to prevent further weed emergence.
- Watch tank mix partners and check labels and websites for approved tank mixes with labeled auxin herbicides (e.g. 2,4-D choline for Enlist varieties and dicamba for XtendFlex types). For more information and links to company websites see the March 20, 2023 newsletter.
- Be good stewards of all herbicide products – especially auxin herbicide types. The last thing an already late crop needs is a further setback due to hormone herbicide drift onto non-tolerant varieties.

Nitrogen Fertilizer Considerations

- Although it is unknown what kind of fall we will encounter this year, being realistic and adjusting nitrogen (N) fertilizer is an important consideration.
- Reducing any further N fertilizer applications (if planned) should be seriously considered. Unless we have an exceptional fall, the last thing a late crop needs is excessive N.
- Generally speaking, for each bale of yield goal, the crop will remove from the field (found almost exclusively in seed) about 40-45 lbs of actual N per acre. Due to inefficiencies in uptake and in the soil, about 50 lbs N/acre from all sources (including applied fertilizer N, soil profile residual $\text{NO}_3\text{-N}$, any possible $\text{NO}_3\text{-N}$ in irrigation water) are generally recommended.
- It is important to not over-fertilize with N if reduced yield potential is anticipated. This is due to the fact that it makes late cotton more difficult to manage on the back side of the season.
- Late season aphid problems can be aggravated by high N status plants.
- Any further delay in crop maturity due to excessive N is nearly guaranteed to exacerbate low micronaire challenges.

Plant Growth Regulators

- Mepiquat based plant growth regulator (PGR) products will not help plants compensate for earlier weather and disease damage or for late planting. These products include such brand names as Pix Ultra, Mepex, Stance, Pentia, etc.
- Under good growing conditions, these PGRs may increase fruit retention, control plant growth and promote earliness.
- These products should not be applied if crop is under any stresses including moisture; weather; severe mite, insect, or nematode damage; disease stress; herbicide injury; or fertility stress. DO NOT use on cotton that is stressed or likely to be stressed.
- These PGRs can impact crop earliness through better early season fruit retention. A good boll load will normally help control plant growth.
- Fields with poor early-season fruit retention, excellent soil moisture, and high N fertility status may be candidates for poor vegetative/fruitlet balance and should be watched carefully. High growth potential varieties are more problematic in general, and specifically when the above conditions are encountered.
- Growth potential varies considerably among cotton varieties. Familiarize yourself with the varieties you have planted and consult seed company sales literature and agronomists to identify those with high growth potential.

Insects

- Protecting early fruit from insect damage is critical for 2023. Remain vigilant for cotton fleahoppers, lygus and other square robbing insects. It will be important to protect early fruit – remember we are racing toward a first bloom date that may be delayed by sick plants, reduced growth, etc. Hopefully the remaining cotton will provide us with a good first bloom date.
- Watch for aborted squares, especially on the first few fruiting branches. These fruiting sites need to produce bolls that become important sinks for carbohydrates later. Many growers sometimes confuse the first fruiting branches with others that are further up the main stem and younger in age. This can be due to the fact the small squares may have aborted.
- One way to determine if an observed branch is actually a fruiting branch is to look for two appendages called stipules. These arise from the branch itself and somewhat shield the developing square.
- If that square has aborted due to weather, insects, etc., then a scar – perhaps a minute one – can be found on the branch. See the photos below for clarification.

