

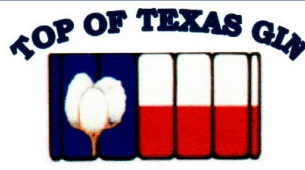


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Cotton Insights Newsletter

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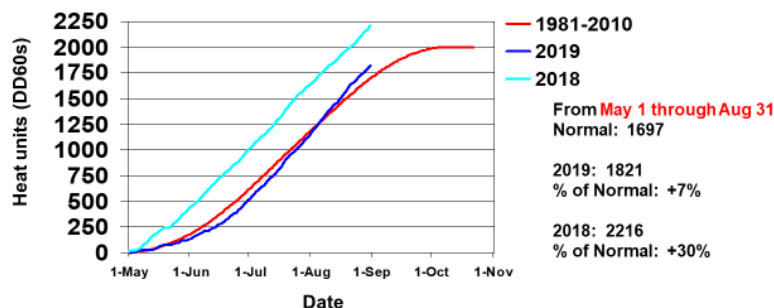
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September 3, 2019

Crop Update

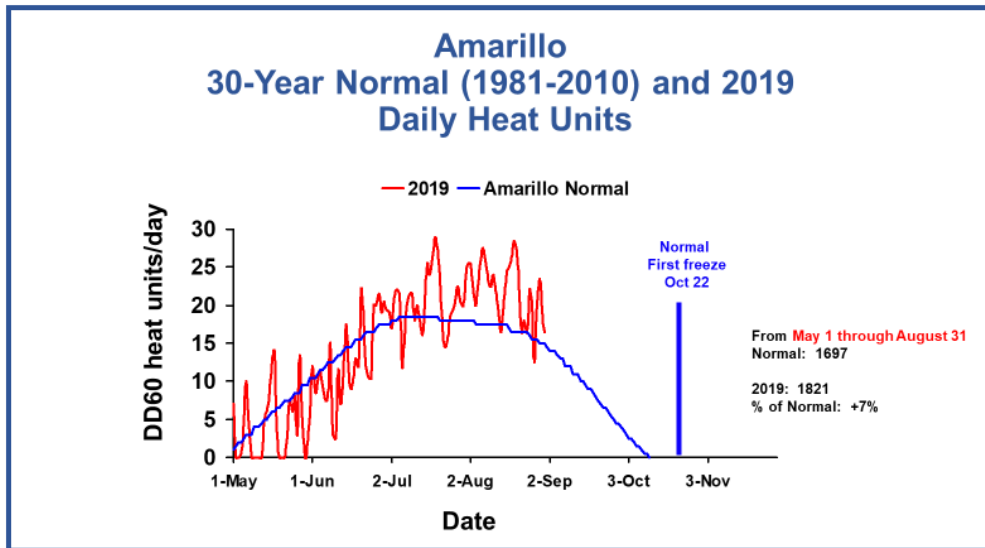
The month of August ended well above normal with respect to cotton heat unit accumulation (see graph below). This has been good for cotton with adequate irrigation capacity, but in most instances that scenario doesn't play out for most fields. The higher than normal temperatures and lack of good regional rainfall events have resulted in high moisture stress levels in many dryland and lower capacity irrigated fields. For many dryland fields from Plainview north, this is not good news. However, some areas have been fortunate to be under spotty thunderstorms and have received some badly needed rainfall. Most irrigated fields have now "bloomed out the top" and the window for setting fruit that has a high probability of making a "fluffy" boll has essentially closed.

Amarillo 30-Yr Normal (1981-2010) vs. 2018 and 2019 Cotton Heat Unit Accumulation for May 1 Through August 31

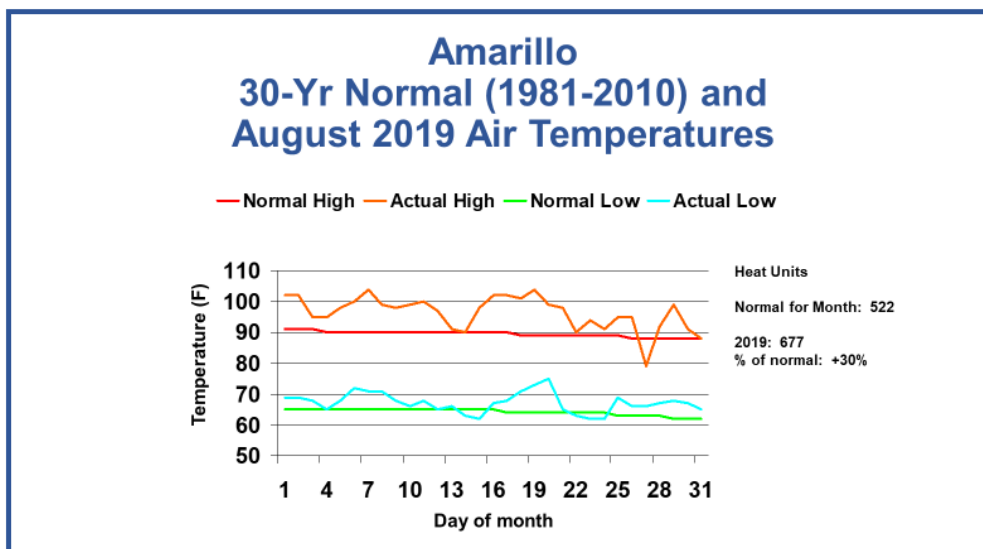


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When looking at the daily heat unit accumulation for the season (see graph below), the above normal temperatures resulted in above normal daily heat units for most of the past 60 days or so. As of September 1, based on the 30-year normal temperatures, a total of about 305 cotton heat units remain before daily heat units go to zero on October 11.



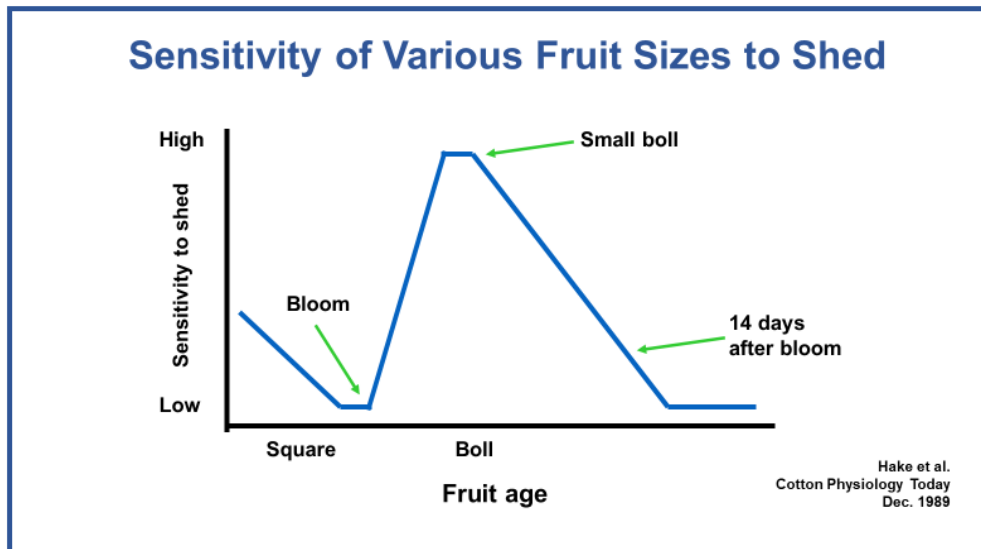
The temperatures for the month of August thus far have been mostly well above normal for both the highs and lows and this can be seen in the graph below.



Irrigation Termination Considerations

In 2019, growers are faced with serious economic challenges, and crop irrigation costs are going to be high due to little rainfall help from Mother Nature. Irrigation termination is not always an easy decision, especially under extremely dry conditions in some fields. Reflecting a bit on the crop's physiological needs can be of value.

- If the last bloom date to be able to obtain a fluffy boll is assumed, the graph below indicates that the boll will require minimal moisture stress for about 14 days to reduce the probability of abscission (shed).



- As the crop progresses from maximum bloom to first open boll, the irrigation crop coefficients drop from 0.92 to 0.55 based on the TexasET Network's High Plains data from Halfway.
- Under recent environmental conditions, that transition indicates the crop evapotranspiration (ET) rate will drop from about 2 inches per week down to about 1.25 inches per week. For a calculator, click on the following link:
<https://texaset.tamu.edu/DataSummary/Daily/120?daysInSummary=7>
- Due to the dry conditions in many areas and if temperatures remain above normal, fields which have depleted profiles will likely wilt fairly quickly once irrigation is interrupted.
- If the amount of wilting is unsuitable for the boll load and maturity, then the pivot can be passed over the field to apply an additional increment of water.
- With center pivots, low amounts of irrigation (0.75-1 inch) can be applied if the cotton is severely stressed after initial termination.
- The value of continued center pivot irrigation after bolls begin to open is probably questionable, unless record high temperatures and high ET rates are encountered and the field has a depleted moisture profile and a late boll load.
- Under warm to hot September and October temperatures, we generally observe about 2-5 percent boll opening per day **once bolls begin to open**. This implies that if the last irrigation is made at a few percent open bolls, then it should take about 10 days to reach 30-60 percent open bolls.

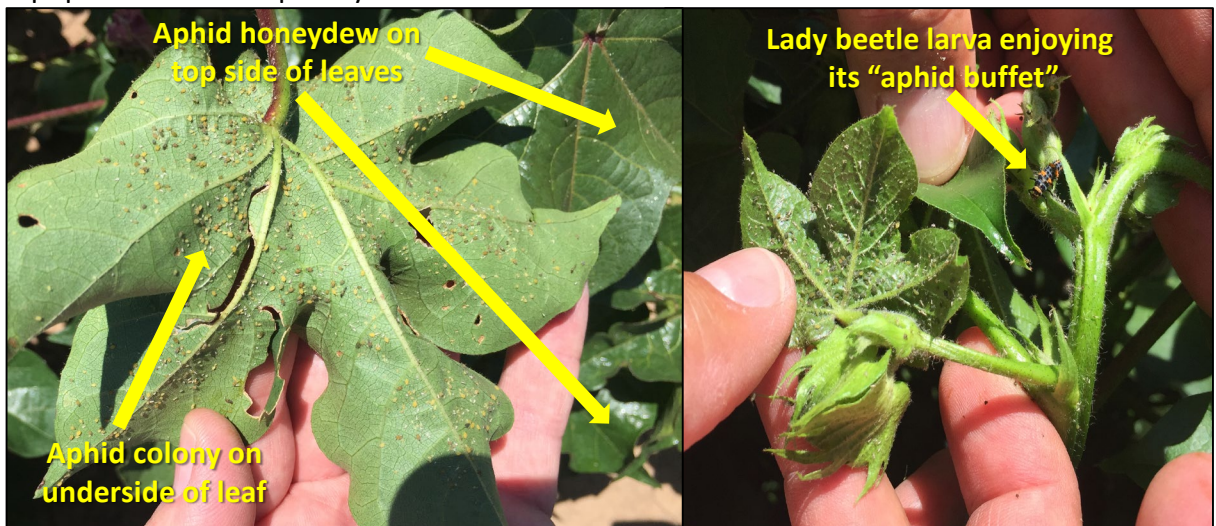
Verticillium Wilt Observed

- Although the temperatures thus far have not been highly conducive to this disease and its development, we found some symptoms in fields east of Amarillo.
- Verticillium wilt is caused by the fungus *Verticillium dahlia*. This disease is commonly found in fields that have previously produced cotton, as the fungus can lie dormant in the soil for some time. This disease overwinters as a microsclerotia reproductive body, and it then germinates and infects plants the next summer.
- As noted by the name, this is a wilt disease, which means the fungus essentially germinates in the soil and infects the plant via the root system. The disease then plugs the water conveying tissue (xylem) as the fungal hyphae grow up through the plant. This choking of the water supply in turn causes the plant to wilt.
- Lower leaves show the first symptoms which later move up the plant, impacting younger leaves. This disease causes severe wilting and can eventually prematurely defoliate the plant, which in turn reduces the photosynthetic capacity and fiber development.
- Production can be severely reduced under high disease pressure. Both boll weight and quality are negatively affected.
- Where good crop rotation is practiced the disease pressure can be significantly reduced.
- Cotton varieties vary greatly with respect to tolerance to the disease. If fields have significant disease pressure, variety selection is important, and currently it is the only economical method to manage this production challenge.
- For the 2018 report provided by Dr. Terry Wheeler, Research Plant Pathologist at the Texas A&M AgriLife Research and Extension Center at Lubbock, click on the link here:
<https://lubbock.tamu.edu/files/2019/02/Verticillium-wilt-variety-trials-revised-2018.pdf>



Aphid Observations

- In some fields, aphid populations have crashed thanks to the beneficial arthropod natural predators. It is important to conserve these beneficial arthropods by not using non-selective insecticides to control any other pests.
- “Sticky cotton” can arise from high populations of aphids excreting large amounts of honeydew that drips onto leaves and open cotton bolls. If unabated, this can cause significant ginning and marketing issues. We have excellent aphid insecticides available, but these can be pricey.
- Significant aphid colonies were observed in a field east of Panhandle late last week and despite a recent rainfall event the previous weekend, honeydew was dripping from some leaves in some areas of the field by Monday afternoon. This can be seen in the photo below. Honeydew is causing the leaves to have a “shiny appearance.” It appeared that lady beetle larvae and adults were winning the biological control war, and aphid populations will hopefully crash soon.



- For more information, refer to the Texas A&M AgriLife Extension Service publication entitled “2019 Cotton Insect Control Suggestions.” For a copy, click on the following link: https://lubbock.tamu.edu/files/2019/08/2019-Cotton-Insect-Control-Suggestions_ENTO090.pdf

Windstar Affiliated Gins Meetings and Dates:

Edcot Gin – Mixed Technology Trial, Bobby Byrd Farm, Plainview, September 24

Top of Texas Gin – PhytoGen Enlist Trial, Braden Gruhlkey Farm, Wildorado, September 25

Lonestar Gin – Open House, Pampa, 5:00 pm to 8:00 pm, September 25

Upcoming Industry Field Days:

NexGen Field Day, Texas Tech Quaker Farm, Lubbock, 10:30 am, September 18

BASF/FiberMax/Stoneville Field Day, Lubbock, September 26

PhytoGen Field Day, Lubbock area, October 2; Plainview area, October 3