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Cotton Insights Newsletter

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Perspective – The Challenging Month of May by the Numbers

With insurance final planting dates looming, many growers are rightly concerned about the conditions that the month of May brought to the cotton production table. May has been extremely challenging with respect to cotton stand establishment and early season growth. Rainfall amounts across the area have been variable, but extremely high in some areas. Planting progress was slow due to high rainfall in places and flooding of some fields. West Texas Mesonet data indicate that thus far for the month of May total rainfall amounts have been as high as nearly 7 inches at Stinnett, around 4 inches near Amarillo, 3 inches at Pampa, and 4 inches at Clarendon. Farther south, Plainview has recorded over 4 inches, and Tulia over 3 inches. For the last 30 days the Oklahoma Mesonet is reporting from 3 to nearly 8 inches in the Oklahoma panhandle, and amounts of over 12 inches just east of the 100th meridian near Erick. Overall, the moisture situation is great, but the cool temperatures and high rainfall amounts have resulted in the irrigated crop either being late or lost due to these conditions. This soil moisture will be excellent for dryland crop prospects, assuming growers can get the fields planted in a timely manner.

To see the distribution of May rainfall provided by the West Texas Mesonet, click on the link below: http://www.mesonet.ttu.edu/May19rain.htm

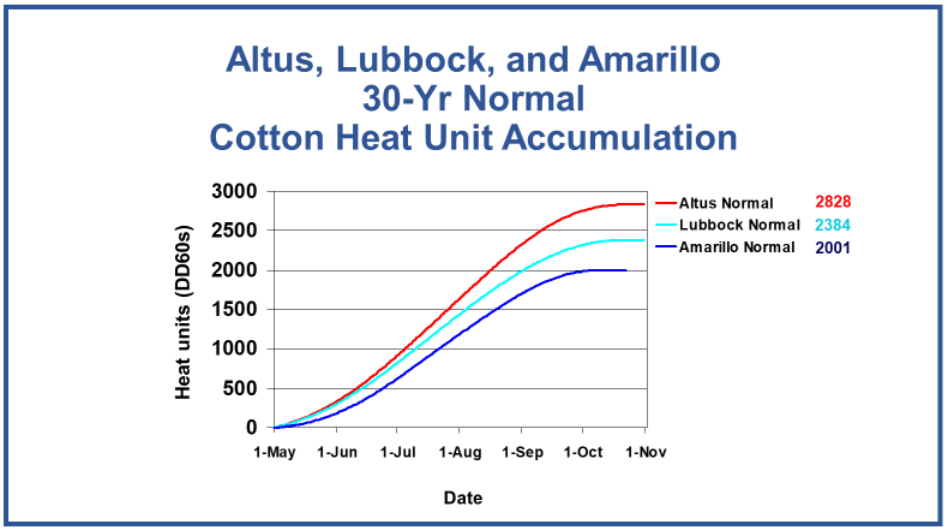
To see the distribution of rainfall for the past 30 days provided by the Oklahoma Mesonet, click on the link below:

https://www.mesonet.org/index.php/weather/map/30_day_rainfall_accumulation/rainfall

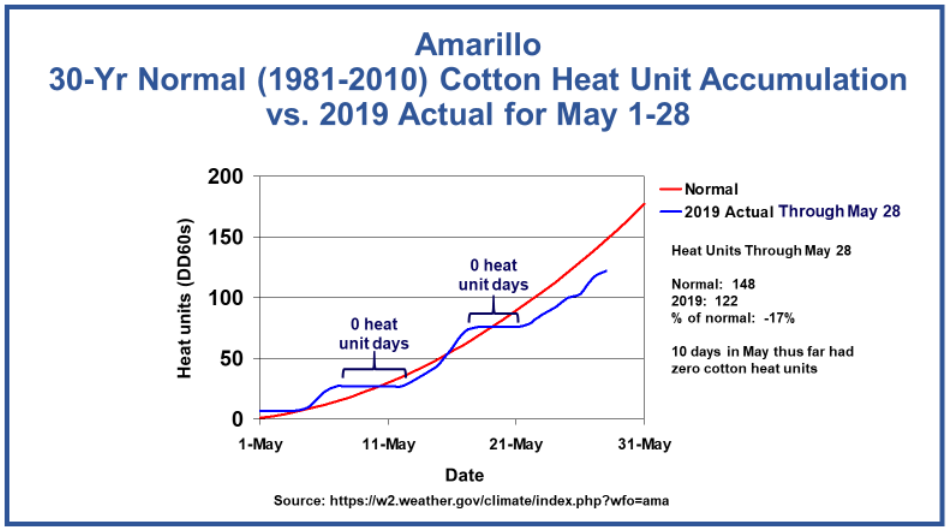
Cotton Heat Units

The heat unit concept in cotton is not an exact science, has a lot of flaws, but in my opinion is still useful to get an approximate handle on overall crop growth and development. Since the "center of gravity" for our gins tilts to the panhandle, I have acquired weather data for Amarillo. These data can be used to provide some perspective to the growing season. The degree-day 60 (DD60 or heat unit) formula, is very basic, and just uses the high and low air temperatures for the day, averages those, and subtracts the lower developmental threshold for cotton, which his 60 degrees. The daily heat units can be summed across time to provide a measure of the growing season.

Long-term (30 year "normal") temperature data for each day can be used to calculate heat units and these be summed for the growing season spanning May through October to provide some perspective (see graph below). After working in the panhandle for several years, it is very obvious that the historical heat unit concepts tend to fall apart in this area. I have said for many years that growers in this region can make more cotton per heat unit than anyone else. The big challenge is getting that cotton to acceptable maturity. August, September and October are critical months for this area. In the graph below, total seasonal DD60 accumulations for Altus, Lubbock and Amarillo are provided. Cotton planted at usual times in these areas can be extremely productive. Typically low micronaire (fiber immaturity) is not an issue at Altus, is an intermittent issue at Lubbock, and is more frequent in the Amarillo area. Elevation plays a role (Altus at ~1400 ft, Lubbock at ~3280 ft, and Amarillo at ~3700 ft), as this generally affects both high and night time low temperatures. Varieties have improved over the past 20 years, and these have helped address this issue. Yield levels certainly come into play here. Higher yielding crops (irrigated) tend to have more maturity challenges than lower yielding (dryland).



With this stated, a good start with vigorous early season growth is very important in short season environments. For our irrigated crop and perhaps some dryland, we have "stumbled at the gate" in 2019. From May 1 through May 28th, Amarillo's temperatures have resulted in 17% below normal DD60 accumulation compared to the 30-year normal. Also, 10 days during this time period have had ZERO accumulated heat units (see the graph below).



We would not expect cotton growth on the zero heat unit days, so basically this is indicating that in the Amarillo area, we lost about 1/3 of the month of May for cotton growth potential, not including any days that were lost for possible planting due to wet field conditions. A significant concern is seedling health in fields where water logged conditions existed for a considerable amount of time, or where thick soil crusts were caused by high intensity rainfall events. Hopefully we will soon get "normal" conditions with high temperatures at least in the 80s and with low temperatures in the upper 50s.

Making Replant Decisions

Generally, replanting decisions are excruciatingly difficult. One has to consider 1) remaining stand; 2) its uniformity; 3) crop condition (frank health assessment of surviving seedlings); 4) calendar date; 5) cost vs. potential benefits of replanting; 6) other considerations such as replanting early maturing varieties (and their availability), adjustment of nitrogen fertilization, protecting early season fruit set from insects, plant growth regulators, etc. My experience has been that if cotton hasn't emerged within 14 days after planting, it's time to evaluate and make some difficult decisions. A few years ago, a publication concerning stand evaluation and replant issues was generated and it can be downloaded by clicking on the link below:

https://agrilifecdn.tamu.edu/lubbock/files/2011/10/makingreplantdecisions07.pdf

Final Planting Dates for Insurance Purposes

The May 31 final planting dates are upon us, and this affects numerous counties in the Texas Panhandle as far south as Swisher. Maps of both irrigated and non-irrigated final planting dates by county are available from the USDA-Risk Management Agency. For convenience they have been provided below.