# Cotton Comments

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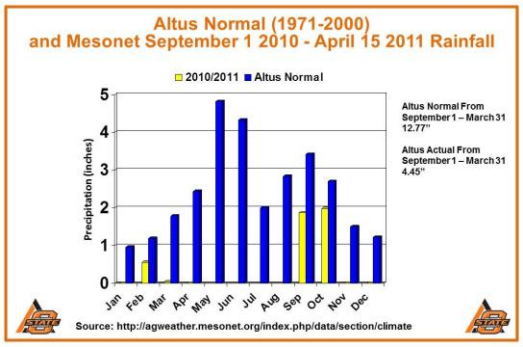
## Crop Situation

The 2011 cotton planting estimates for Oklahoma have been projected at 326,000 acres. This is well above the 285,000 planted in 2010, which produced 373,000 bales. Planted acres totaled 170,000 and 205,000 for 2008 and 2009, respectively. Thus, when compared to 2008, the 2011 planted acres are nearly double. Most of this is driven by significant improvements in the lint price outlook.

The spring of 2011 has thus far been less than desirable from a cotton producer perspective. There has been high wind, high temperatures and no rainfall. Drought continues across southwestern Oklahoma and the late fall and winter precipitation has been well below normal. The last time the Altus Mesonet stations had even close to an inch of rainfall was back on October 21 and 22, 2010. Both dates were just shy of an inch. The normal precipitation amount for Altus from September 1-March 31 is nearly 13 inches. For this same period of time from 2010 to 2011, we have received a total of 4.45 inches in various rainfall events. To put this into perspective, see the figure below.




We are rapidly approaching the peak annual rainfall period for the region. The situation is critical for those hoping to have an early planting date. If rainfall is not obtained soon, we will have a very serious cotton situation arise. Irrigation may save some of our acres, but if we don't get some excellent planting moisture soon, the outlook is not good for the dryland. A couple of timely rainfall events can significantly improve crop prospects. I highly suspect that in most areas under conventional tillage we have little subsoil moisture at this time. No-till fields are likely in better moisture condition.

The Lugert-Altus Reservoir situation is not as good at this time of year as it should be. Currently the conservation pool for the reservoir is at about 48%
To monitor this see http://www.swt-wc.usace.army.mil/ALTU.lakepage.html

Without rainfall soon, decisions will have to be made concerning water release to producers in the irrigation district for either pre-irrigation or "watering up" the crop. With substantial sub-surface drip irrigation now in the district, this may prove challenging.

**Crop Insurance Issues**

With the "zeroing out" of some dryland wheat acreage, some producers may have an interest in planting and insuring cotton following release of the wheat. Producers should be aware that if attempting to plant cotton or any other crop following failed dryland wheat acreage, the USDA-Risk Management Agency has essentially a zero tolerance for the insurability of non-irrigated cotton or other crops if the wheat has reached the heading stage of development. Check with your crop insurance agent if you have any questions.

**Soil Temperatures**

Based on the Altus Mesonet station data, over the last 120 hours (5 day), the 4" depth bare soil temperatures have been cycling about 10 degrees per day from lows in the upper 50s to highs in the lower 70s. The 4" depth bare soil temperature average for the last 3 days has been 66. Dry soils will warm up faster than moist soils. Since we continue to have roller coaster air temperatures, when we do get rainfall the soil temperatures will then be lower.

To see the state map of 3-day average 4-inch bare soil temperatures, go to:

http://agweather.mesonet.org/common/wxcode/mesonet.maps.php?product=CTB10AV3D&legend=true&caption=3-day+4-in.+Bare+Soil+Temp

To see the state map of current 4-inch bare soil temperatures, go to:

http://agweather.mesonet.org/index.php/data/section/soil_water

To see a graph of soil temperatures for a specific Mesonet site, go to:

http://agweather.mesonet.org/index.php/data/section/soil_water

then click on: Soil Temperature

then look for Graphs, and click on All Depths Soil Temp Graph

then select the appropriate Mesonet station from the drop-down menu at the top, then select the time period (Hours) for which you wish to see the graph. I suggest that you select the 120-Hour (or 5 day) graph.

**Note that the 5 cm soil depth is equivalent to 2 inches, and the 10 cm depth is equivalent to 4 inches**.

A total of 4 lines will be generated. The legend for the graph is on the far right. You can de-select the Sod Temperatures for both the 5 and 10 cm depths, and Bare Soil

temperature at the 5 cm depth by right-clicking while over the icon, then select Hide. Once you have gone through this procedure, you will be able to see the 4-inch depth Bare Soil record for the time period which you have selected.

**Successful Planting Strategy**

The single most important issue to recognize is that cotton seedlings can be damaged by cool, wet soils. Although soil temperatures are high now, we will likely see them drop, especially if precipitation is obtained and a cold front pushes through the region. Best management practices for cotton planting under normal soil moisture conditions would be to delay planting until:

1) The 3-day Mesonet soil temperatures at the 4" depth are at least 65 degrees

2) The 5-day forecast calls for dry weather and a minimum of 25-50 DD60 heat units. The normal calculation for cotton DD60 heat units is:

   ((maximum air temperature + minimum air temperature)/2) - 60

   Essentially, the average air temperature for the day is determined and the 60 degree developmental threshold for cotton is subtracted. The DD60s for each day are then totaled. If you have faith in your local forecast, then the projected high and low for the following several days can be used to calculate DD60s.

3) Low temperatures are forecast to remain above 50 degrees for the 5 days following planting.

If we recognize that equipment constraints and large acreages generally require producers to plant during less than optimum conditions, they should realize that seed quality and seeding rate become very important. The seeding rate can be adjusted on the planter. However, with transgenic seed prices and technology fees being expensive, increasing seeding rate is not a palatable option for most producers. Therefore, seed quality becomes very important.

The Texas Cool Germination test was developed to specifically test cotton seed under cool soil temperature conditions. This germination data is NOT required on the state seed tag. The state seed tag indicates Standard Germination data and is performed in a different manner. It is usually guaranteed on the seed tag at a minimum of 80%. Texas Cool Test data are obtained from a test conducted at 64 degrees F with seedlings counted after 7 days. The Texas Cool Test data may be obtained from most seed companies upon request. Higher Cool Test data indicate higher vigor under temperature stressed conditions. If the Cool Test data for a specific lot of cotton seed is known, then potentially more

vigorous seed lots can be identified. This can be used to determine the planting sequence and possible planting date. Producers should begin planting with higher vigor seed under cooler temperatures, and finish up with lower vigor seed under warmer temperatures. Planting conditions for rapid germination and emergence include:

1) high quality seed with good to excellent Cool Germination Test data (>60%)

2) a favorable 5-day forecast

3) minimum air temperature of at least 50 degrees

4) maximum air temperature ~80 degrees

5) plant into a firm, moist seedbed 1-2 knuckles deep

6) proper and uniform seeding rate of no more than 4-5 seeds per foot in 40-inch rows.

**Imbibitional Chilling Injury**

This injury occurs when cotton seed is subjected to cold conditions during the first 2-3 days after planting, or during the period of time when the seed is imbibing moisture from the surrounding soil. Cotton seed contains lipids which must be converted to energy during germination. The cell membranes must properly develop. Soil temperatures around the seed of 50 degrees F or below can damage seedlings during this time. Soil temperatures of 41 degrees F or less may kill or severely injure the seedling.

The three seedlings below were subjected to chilling temperatures during the imbibition phase. During the first six hours of imbibition, the damaged seedlings were exposed to a temperature of 40 degrees F. After the chilling period they were moved to a chamber set at 86 degrees F for two to four days. The curling, shortening and thickening of the roots are typical of imbibitional chilling injury. The chilling during this phase of imbibition injures and typically kills the root tip meristematic tissue. This results in cessation of normal taproot growth. Subsequently, lateral roots develop to compensate for this loss. Typically these seedlings may survive and produce productive plants if additional stresses such as water deficit or disease are not encountered.

The two seedlings below show normal root development. When the two groups are compared it may be noted that seedlings injured by chilling are often short with thickened hypocotyls and radicles, dead root

tips, and show some signs of lateral root growth.

## Seeding Rate

Cotton has a remarkable capacity to compensate yield across a fairly wide range of plant populations. Recent seeding rate studies have indicated that within the FINAL plant stand rage of 1.5 to 4.5 plants per row-ft. in 40-inch rows, lint yield can remain reasonably unaffected. However, how a producer gets from a seed drop rate to a final plant stand can be a treacherous journey. Assuming that good soil conditions are present, an excellent vacuum planter is used to control seed distribution both down the row and in planting depth, a range of 3-4 seed per row-ft. in 40-inch rows is acceptable. Under dryland conditions, the low end may be targeted. If poor planting conditions (such as low seed quality, marginal soil moisture in the seeding zone, a large amount of crop residue which may affect seed to soil contact, or poor forecasted conditions) exist, it may be more important to increase the seeding rate somewhat. If a low seeding rate is used, the producer must have high confidence in the seed quality.

## Cotton Disease Rating Guide Available

There is an updated cotton variety disease rating guide available from Dr. Terry Wheeler and Dr. Jason Woodward at Texas AgriLife Research and Extension Center at Lubbock:

http://lubbock.tamu.edu/cotton/pdf/DiseaseRecommendations.pdf

This guide provides ratings for *Verticillium* wilt, *Fusarium* wilt, Bacterial blight, and Root-knot nematode response for many of the currently available cotton varieties.

## Opportunity for Aldicarb Input to EPA

Although Bayer CropScience suspended production of methyl-isocyanate, an important precursor in the manufacturing of aldicarb, the active ingredient in Temik, there may be some hope to possibly revive the product. Ag Logic LLC is seeking to obtain a new permanent registration of an aldicarb product for use in cotton, dry beans, peanuts, soybeans, and sugar beets. EPA is seeking input from concerned individuals during the open comment period which closes on April 29. Temik has been a mainstay in-furrow

insecticide/nematicide in cotton for several decades. To visit the website and to submit your opinion click here:

http://www.federalregister.gov/articles/2011/03/30/2011-6978/pesticide-products-registration-applications

**An essential part of any comment is to ensure that the Docket ID: EPA-HQ-OPP-2010-1021 is quoted.**

**Cotton Root Disorder Guide**

A guide to cotton root disorders was published several years ago by Cotton Incorporated. This publication was generated by several workers across the Cotton Belt. Cotton root disorders detailed in the publication include: herbicide injury from amino acid synthesis inhibitors, photosynthetic inhibitors, and seedling growth inhibitors; pathogens including fungi and nematodes; fertilizer injury; chilling injury; and soil compaction.

The guide is available on the Web at:

http://pestdata.ncsu.edu/cottonpickin/disorders/

**2007 Texas A&M AgriLife Cotton Resource DVD**

While working for Texas A&M I helped generate the 2007 Cotton Resource DVD (CRDVD). This publication is on schedule to be updated by December 2011. Although it needs updating with the most current publications, it still provides a wealth of cotton information. One must realize that while the CRDVD was generated to specifically target Texas producers, there is still much pertinent information for Oklahoma cotton. This information should be considered when there are no local Oklahoma State University publications available on the topic and should be used as general information.

This CRDVD literally has dozens of publications, across such diverse cotton production topics as 1) general production, 2) irrigation, 3) fertility, 4) insects, 5) weeds, 6) nematodes and disease, 7) harvest, fiber quality and ginning, 8) economics, 9) Internet resources, 10) photo gallery, and 11) videos. The photo gallery contains many images of insects, diseases, weeds, and herbicide symptomology. The video section has helpful information on insect scouting, irrigation, and other topics. Additionally, the entire Cotton Physiology Today Newsletter archive is on the CRDVD. The 2007 CRDVD project was funded by the Texas Support Committee - Cotton Incorporated.

One can access the contents of the CRDVD by clicking on:

http://lubbock.tamu.edu/cottondvd/

**Thrips Control Table**

This table was generated in the shorter growing season environment of the Texas High Plains. Thrips typically have more of a negative

effect on cotton yield and quality there, but the table is still useful to Oklahoma producers who have those concerns.

http://www.osu.altus.ok.us/Thrips%20Control%20In%20Cotton.pdf

RB

Editors

Randy Boman and Shane Osborne

SEND US A COMMENT BY EMAIL

Contributing Author

Randy Boman

Newsletter in maintained by Jerry Goodson Extension Assistant.

If you like to added to be added to the direct mailing please email me at

jerry.goodson@okstate.edu

Randy Boman
Research Director and Cotton Extension Program Leader
16721 US Hwy. 283
Altus, Oklahoma
(580) 482-2120 office
(580) 482-0208 fax
(580) 481-4050 mobile
randy.boman@okstate.edu

www.osu.altus.ok.us

www.ntokcotton.org