



# Cotton Comments

OSU Southwest Oklahoma Research and Extension  
Center Altus, OK



April 23, 2020

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## When to Plant

### Considerations for Cotton Planting and Early Season Growth

Dr. Seth Byrd

The first two to three weeks of the cotton season is a critical period to monitor growth and development of the crop. It's key to understand the interactions between environmental conditions, pest pressure and crop protection products, and how these factors impact the progress of the crop. Regardless of variety selection or area of the state, avoiding maturity delays is key to ensure an optimal fruiting window and fiber quality, as well as a timely harvest.

Two of the primary drivers behind the growth of cotton throughout the season are water and temperature. Development of the crop is often predicted or monitored through the use of heat units, referred to as DD60s for cotton. Daily heat unit accumulation in cotton is based on daily high and low temperatures, with a certain amounts of heat units required to get to major benchmarks in a crop's development, such as squaring, flowering and open boll. Heat units will be discussed in more detail in an upcoming fact sheet.

While warm days certainly signal the onset of planting season, be careful to monitor overnight lows, as even daytime highs of 90 F can result in slow growth rates if overnight lows drop to 50 F or less. Time planting around optimal temperatures, which are high's in the low to mid 80's or higher, overnight lows in the 60's or above, to ensure that the plant accumulates the needed daily DD60s, or heat units, for rapid growth and emergence. The general rule is 50 to 60 heat units are required after planting to achieve emergence and accumulating six to 10 heat units per day during the five- to seven-day period after planting is considered favorable conditions.

In some long season areas of Oklahoma, moisture drives planting decisions more so than temperature, particularly for dryland producers. Although cotton doesn't require much water for adequate growth early in the season, planting into good soil moisture is essential to ensure rapid and uniform germination and emergence. It is more beneficial to plant into a moist seed bed where water can be readily imbibed by the seed, rather than into a dry seed bed and waiting until there is enough moisture to initiate germination.

Planting into a moist seed bed will decrease the chances of uneven or delayed stand establishment. In dryland scenarios, the combination of ideal soil moisture and temperatures in some years is rare. Thus, a balance must be met between these two factors to provide the best possible conditions for early season growth.

Conditions that favor uniform emergence and rapid early season growth are not only critical to establishing a uniform stand, they also will mitigate additional stresses to which the seedlings will be exposed. After emergence, there is a need to maintain rapid growth and minimize factors that will inhibit the crop's development. Due to cotton's lack of early season competitiveness, eliminating weeds that out-compete the crop for water, sunlight and nutrients is a priority. Many of the at-plant and post-emergence herbicides used in cotton result in slight injury to seedlings and young plants. While this injury alone is rarely severe enough to be detrimental, and the weed control that is achieved is more valuable, care must be taken not to compound stress. This consideration primarily comes up when early season insect pests, specifically thrips, are present. Thrips feed on the leaves of young cotton plants, and if not controlled, will stunt growth and result in delayed maturity. Cotton is most susceptible to thrips at early growth stages, from the cotyledon stage to the four- to five-leaf stage. Warm temperatures and adequate soil moisture promote rapid growth that aid in the plant's ability to grow out of these stressed conditions, while cool temperatures or herbicide injury prolong the amount of time the plants remain susceptible to thrips. Actively scouting for thrips during the early part of the season is recommended, especially if other hosts for thrips are nearby or there's a history of thrips feeding.

Planting treated seed is a commonly recommended practice in Oklahoma to address a variety of early season concerns. For areas prone to thrips infestations, an in-furrow granular or liquid insecticide can be used to provide a longer window of control than a seed treatment alone. If seed treatments are used alone and an over-spray of an insecticide is deemed necessary after scouting, an application around the first true leaf stage (Figure 1) is ideal for overlapping the control provided by seed treatments and will typically allow the plants to reach the four- to five-leaf stage (Figure 2). This is the point the crop has reached a size that is no longer susceptible to a significant injury. Often, this application may accompany an early-post herbicide application; however, be sure to check the label to ensure the insecticide selected is approved for tank mixing with the herbicides being applied. There are numerous options for in-furrow and/or foliar applied insecticides with thrips activity, including products with the active ingredients acephate, dicofol, dimethoate, disulfoton, imidacloprid and spinetoram.





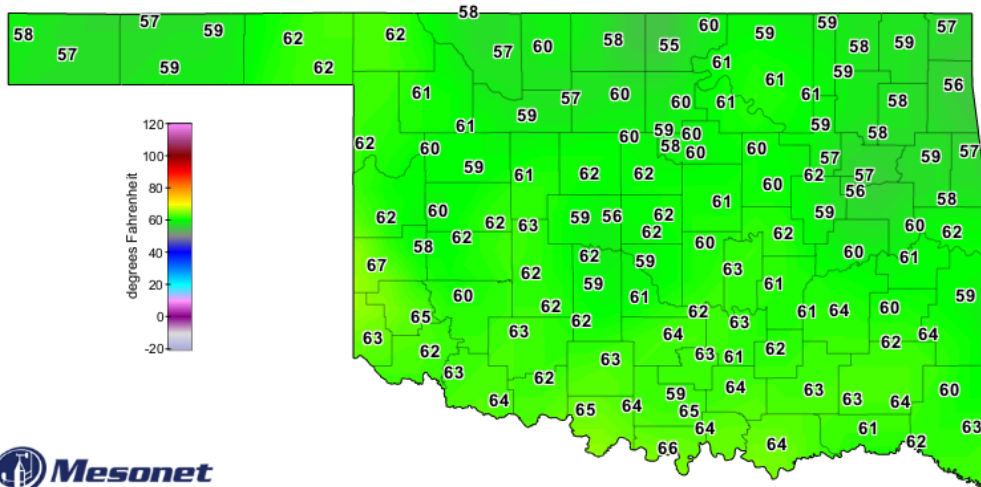
**Figure 1.** Cotton at the first true leaf stage.



**Figure 2.** Cotton at the four- to five-leaf stage.

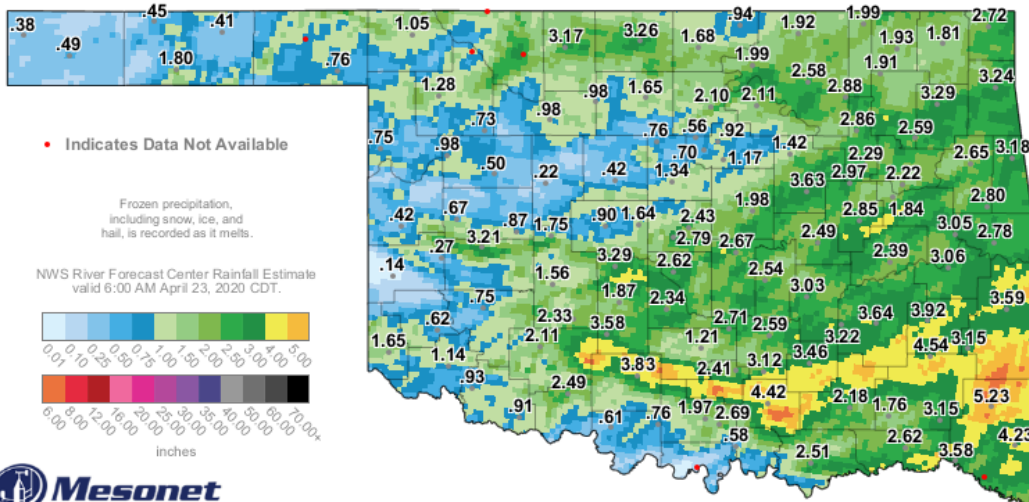
## Current Situation

Soil temperature and moisture.



3-day Average 4-inch Soil Temperature (°F)

as of 12:00 AM April 23, 2020  
Created 6:55:05 AM April 23, 2020 CDT. © Copyright 2020



14-Day Rainfall Accumulation (inches)

6:50 AM April 23, 2020 CDT  
Created 6:55:58 AM April 23, 2020 CDT. © Copyright 2020

**Required**

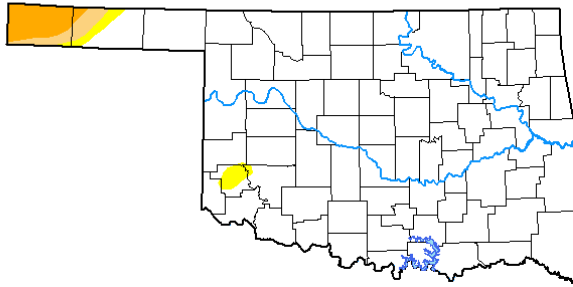


# U.S. Drought Monitor Oklahoma

**April 14, 2020**  
(Released Thursday, Apr. 16, 2020)  
Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	95.47	4.53	3.35	2.27	0.00	0.00
<b>Last Week</b> 04-07-2020	95.47	4.53	3.35	2.27	0.00	0.00
<b>3 Months Ago</b> 01-14-2020	71.77	28.23	12.10	3.64	0.00	0.00
<b>Start of Calendar Year</b> 12-31-2019	76.45	23.55	10.47	3.64	0.00	0.00
<b>Start of Water Year</b> 10-01-2019	71.94	28.06	11.08	1.01	0.00	0.00
<b>One Year Ago</b> 04-16-2019	100.00	0.00	0.00	0.00	0.00	0.00



**Intensity:**

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

**Author:**

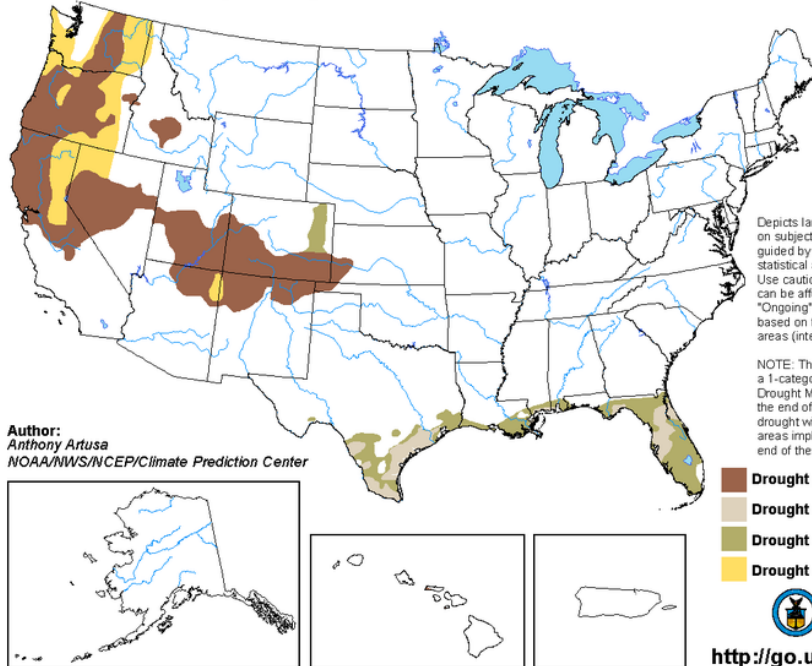
Brian Fuchs  
National Drought Mitigation Center



[droughtmonitor.unl.edu](http://droughtmonitor.unl.edu)

## U.S. Seasonal Drought Outlook Drought Tendency During the Valid Period

Valid for April 16 - July 31, 2020  
Released April 16



Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to D4).

NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

- Drought persists
- Drought remains but improves
- Drought removal likely
- Drought development likely



<http://go.usa.gov/3eZ73>

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## **Training for Paraquat Applicators**

Todd Baughman  
Weed Science Professor

Misha Manuchehri  
Weed Science Extension Specialist

Kevin Shelton  
Pesticide  
Coordinator

“In accordance with EPA’s 2016 Paraquat Dichloride Human Health Mitigation Decision, applicators are required to take an EPA-approved paraquat training program every 3 years in order to mix, load, apply, or handle paraquat.”

### **What Does this Mean?**

All certified applicators who intend to apply paraquat (as mandated by the U.S. Environmental Protection Agency – EPA) must complete the paraquat training requirement.

### **Where and How Do I Take the Training?**

Every certified applicator needs to go the eXtension link:  
How To Safely Use and Handle Paraquat-Containing Products  
<https://campus.extension.org/enrol/index.php?id=1660>

You will need to log in by clicking on the ‘Log in’ button  
<https://campus.extension.org/login/index.php> at the top, right side of the page. An email will then be sent to your Google or Microsoft account. Confirm the account by clicking on the link in the email.

You can log in under your Google or Microsoft account.

### **What if I do not have a Google or Microsoft account?**

You will need to create an account by clicking on the ‘Create New Account’ button at the bottom of the page <https://campus.extension.org/login/signup.php>  
You will then need to create a self-selected username and password and fill out the other required information.

After your registration has been confirmed, click on the ‘My Courses’ button and select ‘Paraquat’.

You will then be able to participate in the ‘How To Safely Use and Handle Paraquat-Containing Products’ course <https://campus.extension.org/enrol/index.php?id=1660>.

## **What's Next?**

You can complete the online course by clicking on the 'Click to Take the Online Course'. This will then take you to the online course where you will click the 'Enter' button.

Finally, this will open a new window with the actual course. After watching each of the modules of the training course, you will click on the 'Course Homepage' button. This will return you to the 'How To Safely Use and Handle Paraquat-Containing Products' page. At the bottom, left side of the page, you will see 'Take The Final Assessment'. Click on the 'Final Assessment' link. The link will take you to the final quiz page. You must complete the 15-question quiz and make a 100% on the quiz before you will receive your Certificate of Completion. Click on the 'Certificate of Completion' link at the bottom of the page and then select 'Get Certificate'. You now can print a copy of your certificate for your records.

## **How Long is the Certificate/Training Good For?**

The certificate expires 3 years from the date of completion.

## **Can Anyone Purchase Paraquat?**

No, paraquat is a restricted use pesticide (RUP) and can only be purchased by certified or private applicators.

## Oklahoma Boll Weevil Eradication Organization

New web page address click here: [OBWEO](#)

Brenda Osborne, Director of the Oklahoma Boll Weevil Organization, based at Altus, provided the information below. Eradication of the boll weevil across most of the U.S. Cotton Belt, and in the state has been very successful and is a major contributing factor to the continued profitability of cotton production. It has been a long, difficult, and expensive task to rid our state and most of the Cotton Belt of this invasive species that for such a long time negatively impacted our production. Since 1998 the producers of Oklahoma has spent over **thirty seven million** dollars to eradicate and provide a maintenance program.

Cotton acres for the past five years

Year	Acres <sup>1</sup>
2015	216,678
2016	299,302
2017	568,434
2018	756,397
2019	603,014

<sup>1</sup> Oklahoma Boll Weevil Eradication Organization

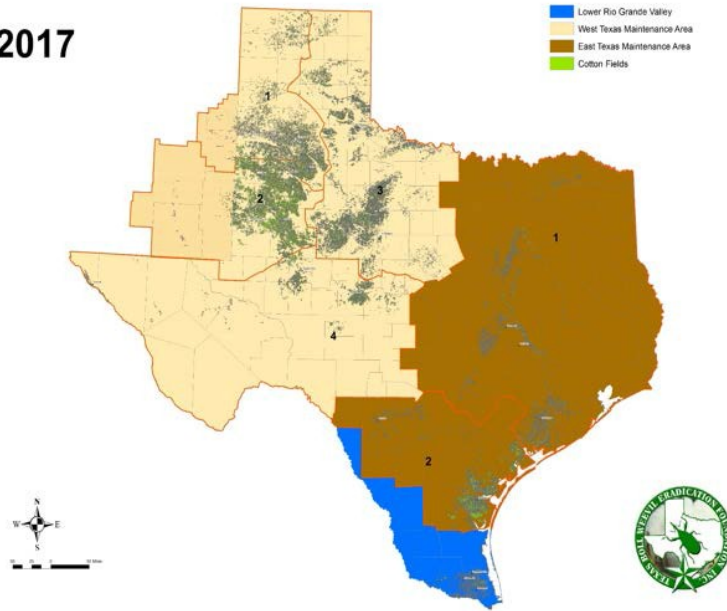
OBWEO is preparing for the upcoming 2020 cotton season. It is our responsibility to ensure the continued success of this program. If you have been growing cotton for the past 3-5 years, we know where those fields are located. ***However, if you are a new producer or have not grown cotton in several years, we need you to provide the legal descriptions of these new cotton fields.***

There is a Boll Weevil Assessment for harvested cotton acres. The current assessment is \$2.50 per harvested acre. This assessment is reviewed annually. The trapping density this year is one trap per 640 acres. In areas where planted cotton acreage density is high, not all fields will actually have a trap near it. In other areas that are more isolated, each field will need a trap.

There is still a difficult fight with this insect pest in south Texas, and we all need to do our part in keeping this pest from resurfacing in our state. Cotton harvesting equipment entering Oklahoma from two eradication areas in Texas has to be certified as boll weevil free prior to movement into our state. Please contact TBWEF before departure from these two areas. This will allow TBWEF to inspect the equipment. A USDA-APHIS phytosanitary certificate is issued and is required before equipment can be transported from these areas. These ONLY include the Lower Rio Grande Valley Eradication Zone (blue area on the map below) or the East Texas Maintenance Area (brown area on the map below). This is critical to meet USDA- APHIS requirements and prevent the re-infestation of boll weevils into eradicated areas. It is illegal to move non-certified cotton harvesting equipment from these areas into the state of Oklahoma.



2017



Texas Boll Weevil Eradication Foundation: 325-672-2800  
After Hours and Weekends: 325-668-7361

Contact John Lamb at the Frederick office at 580-335-7760 or cell 580-305-1930 for the following counties: Tillman, Cotton, Comanche, Atoka, Bryan, and Stephens.

Contact Brenda Osborne at the Altus office at 580-477-4287 or cell 580-471-79632 for all other counties.

The Cotton Comments Newsletter is maintained by Jerry Goodson, Extension Assistant. If you would like to receive this newsletter via email, send a request to:

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