



# Cotton Comments

OSU Southwest Oklahoma Research and Extension Center  
Altus, OK



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## 2016 Crop and Quality Recap

According to USDA-NASS, in 2016, 305,000 acres were planted with 290,000 acres harvested. USDA projects Oklahoma Cotton production to total 620,000 bales. Yield is expected to average 1026 pounds per acre, compared with 876 pounds last year. This would be the largest crop in terms of bale volume since 1944, but that crop was produced on 1.5 million harvested acres. This massive crop by local standards challenged the ginning infrastructure in the state, and many gins were running well into 2017. This is great news for the state, particularly the southwestern counties and is a badly needed economic “shot in the arm” due to current low wheat prices. The season ended with another outstanding fall with above normal temperatures and thus cotton heat unit accumulation in September and October – the third in a row. Many dryland as well as irrigated producers generated record yields in 2016.

The one serious caveat to this was the impact of Bacterial blight (see boll lesions in the photo below) in many irrigated fields in Jackson, Harmon, Tillman, and other counties. A near “perfect environmental storm” occurred which allowed this disease to become prevalent in these counties. We can generally find some level of this disease in susceptible varieties in Oklahoma cotton fields, but typically high temperatures and low humidity will stop disease development and spread. However, in 2016, high winds



associated with various thunderstorm events caused plant damage which allowed the pathogen to infect exposed tissue. This was further exacerbated by high rainfall in both July and August in many areas, and a third component was cooler than normal August temperatures. These conditions allowed the disease to flourish.

**The only control for this disease is resistant varieties.** There is no doubt that this disease, which was first noted in mid-July, resulted in significant levels of defoliation in



many susceptible fields. When inspecting severely impacted fields, it was apparent that a large number of plants were defoliated in the bottom one-third to one-half of the canopy. In some fields, the disease was observed on bolls by late July. Boll lesions triggered considerable boll rot in many fields – mostly irrigated. Based on visual observations, the leaf loss impacted

boll size in the lower portion of the plant (see photo of fruiting branches), while boll rot directly reduced yield. The good rainfall and September and October temperatures allowed many fields to compensate somewhat in terms of yield.

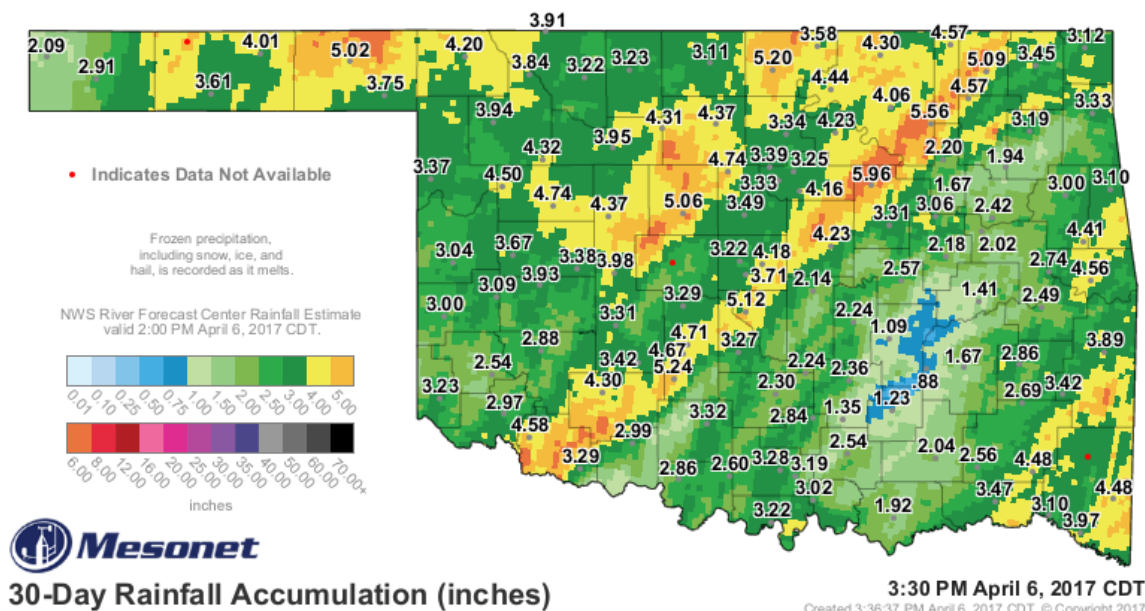
It is of utmost importance that growers make good decisions with respect to varieties planted. The USDA-AMS Classing Office at Abilene indicates that that color and leaf grades, staple, micronaire, strength, uniformity, and bark contamination in the 2016 crop have all been good to excellent for many producers. This is based on classing results for about 568,000 bales of Oklahoma-ginned cotton classed through March 31<sup>st</sup>. A total of 68% of the bales have been color grades 11, 21 or 31, with 27% color grade 11 or 21 – the best possible. Leaf grades have averaged 2.9 with 34% exhibiting leaf grade 1 or 2 – the best quality possible. Bark contamination is present in about 9% of the bales. Staple (fiber length expressed in 32nds inch) averaged 36.3. A total of 46% of the crop has a 37 or longer staple, with an additional 31% classed as a 36. Uniformity averaged 81.2%, which is just under 2015's record high of 81.3%. Micronaire (a measure of maturity) averaged 4.4 units, with 88% in the 3.5-4.9 range, which is outstanding. The strength average is 30.3 g/tex, with 69% classed as 30 g/tex or higher. Oklahoma-ginned bales classed at Abilene have the highest average staple, uniformity and strength averages, and this again is a result of wise variety selection by producers. The Abilene classing office serves east Texas, the Texas Rolling Plains, Oklahoma, and Kansas.

## 2016 Project Report

Summaries for several projects pertaining to variety performance, weed control, entomology and plant pathology, harvest aids, etc. can be found in the 2016 project report. This can be downloaded at: <http://cotton.okstate.edu/cttn-ext-annl-rprts> and <http://www.ntokcotton.org/>.

## 2017 Situation

Late winter and early spring rainfall has been quite a blessing in the southwestern corner of the state. The good news is that soil moisture and reservoir levels are looking great. See below for the Oklahoma Mesonet graphic of rainfall across the state for the past 30 days.



The bad news is that commodity prices for a lot of crops are not good, especially for wheat. Because of this we may see the highest cotton acreage planted in the state since 1982. The March USDA-NASS Prospective Plantings Report indicated the state might plant up to 470,000 acres in 2017. As this is written, some producers are pondering grazing out or otherwise terminating their wheat and then taking an opportunity to plant cotton in fields that are in need of crop rotation – especially to clean up winter weed problems. Early termination or grazing out the wheat and then terminating can allow no-till planting of cotton into the wheat residue.

Several new XtendFlex (dicamba tolerant) varieties will be sold in 2017. For more information on this, see below. Producers in some areas may prefer Enlist (2,4-D choline tolerant) varieties. A large number of producers had record yields and sometimes quality on their farms in 2016 planting some of these varieties with new technologies. **Newcomers or those who haven't raised cotton in several years**

**should do a thorough job of planning their crop strategies prior to planting. The bottom line is that a good and thorough overlapping residual herbicide program should be planned and executed. First start clean, and then stay clean.** For glyphosate resistant Palmer amaranth sneaking through residual herbicide programs, some of the new dicamba products such as XtendiMax, Fexapan, and Engenia will be important tools to consider for the XtendFlex varieties. Enlist Duo (glyphosate plus 2,4-D choline formulation) has been labeled for use on the Enlist varieties. The labels for these new herbicide products are complicated, and extremely high management efforts by producers with respect to spray drift are crucial (see below). It is very important that producers read and follow the labels for these new products. Liberty herbicide can also be a critical over-the-top defense, and can be used on the XtendFlex, Enlist and other varieties containing the Liberty Link trait. Hopefully we will get adequate rainfall amounts and distributions to make all of the factors align for excellent weed control as well as crop yield and quality. It's nearly time to be "off the races" once again, and it's up to producers to be good stewards of their herbicides.

## **Variety Selection**

Selecting productive cotton varieties is not an easy task, especially in Oklahoma where weather can literally "make or break" a crop. Producers need to do their homework by comparing several characteristics among many different varieties, and then keying these characteristics to typical growing conditions. We can't control our growing environment from year to year, but we can select the varieties we plant based on desired attributes. It is very important to select and plant varieties that fit specific fields on your operation. Don't plant the farm to a single variety, and it is strongly suggested to try relatively small acreages of new ones before extensive planting.

## **Variety Testing Publications**

If disease issues are not concerning, then scrutinize all possible university trial data that are available to see how a specific variety has performed across a series of environments, and if possible, across years. It is best to consider multi-year and multi-site performance averages when they are available. However, due to the rate of varietal release, many new varieties are sold which have not undergone multi-year university testing, or perhaps no university testing at all. Our 2016 variety testing program results are available here: <http://cotton.okstate.edu/variety-tests>

Producers in north Texas who have an interest in Texas A&M AgriLife Extension Service testing results can find them here: <http://varietytesting.tamu.edu/cotton/>

When it comes to variety selection in our area, several factors are important to consider.

### **Maturity (Earliness)**

Scrutinizing the relative maturity rankings provided by seed companies will be beneficial. Don't expect a mid-full season cotton variety to perform well in a short season environment where an early or early-mid might generally work best. Many longer season cotton varieties are better adapted to areas with longer growing seasons, although significant gains in yield may sometimes be obtained in years with warm September and October temperatures. Longer season varieties will typically do much better when planted earlier and then provided an excellent finish. For later plantings, early-mid maturity varieties may be better, and for late plantings or replant situations, early maturity varieties may be better. Relative maturity for most varieties gets compressed when moisture stress occurs. In other words, under drought stress, maturity of longer season varieties will not be expressed to the degree that would generally be noted when under high water and fertility regimes.

### **Pounds**

Yield potential is probably the single most important agronomic characteristic, because it drives profitability and provides for the safety net of higher actual production history (APH) in case of catastrophic loss of acres. The benefit this can provide from the crop insurance perspective is important in our high risk area. Yield stability across environments is going to be important, and basically what we want to find is a variety that has the ability to provide high yield across varying water inputs.

### **Fiber Quality**

Producers should also consider lint quality. We have made a lot of progress in terms of fiber quality over the last several years. As a matter of fact, it is simply unbelievable how far cotton breeders have "moved the bar" for yield and quality while simultaneously introgressing transgenic traits. It is not unusual today to find many upland varieties adapted to our area which exhibit near acala-cotton quality. Staple is generally good to excellent for most new varieties. A lot of things can affect crop micronaire. These factors can include overall environment, planting date, variety, early season fruit loss with later compensation, excessive late season irrigation or rainfall, seedling disease, early season set-backs due to hail damage, blowing sand, thrips, etc. Fiber strength has also significantly improved and many newer varieties tend to be at least 30 g/tex. Length uniformity can be affected by staple, maturity, and harvest method (picker

harvested typically higher than stripper harvested). Higher maturity fiber generally results in better uniformity. Leaf grade can be affected by density of leaf hairs on specific varieties in some years. Generally, cool, wet fall conditions can lead to lower quality leaf grades for varieties which tend to be hairy. In drier harvesting environments these differences tend to diminish. Color grades are basically a function of weathering or exposure of the fiber on the plant to wet conditions. The highest quality that a cotton boll can have is on the day that it opens, and after that, if conditions favor microbial growth (warm, wet conditions) or if an early freeze affects immature cotton, then color grade quality will likely be reduced. Bark contamination is generally also driven by significant late season rainfall followed by a freeze. In some years this can't be easily managed if stripper harvested. Conversely, picker harvesting can significantly reduce or eliminate bark contamination.

### **Storm Resistance**

Storm resistance is still a concern for growers in our area. Even though many producers have selected less storm resistant cotton varieties over the last several years, and generally done well with those, the overall management system the producer adopts can be important. Under significant moisture stress on dryland, some newer varieties may provide an unacceptable level of storm resistance, especially if the field is "left to the freeze." Producers planning to execute a sound harvest aid program as soon as the crop is mature can probably grow some fields of less storm resistant cotton. However, having large acreages of varieties with low storm resistance might be a prescription for disaster if the right environmental conditions align at harvest. Do not plan to leave looser open-boll cottons in the field until a freeze conditions the plants for harvest. Unacceptable pre-harvest lint loss is likely to result. Higher storm resistance varieties are better adapted to our harvesting conditions and they are more likely to survive damaging weather prior to harvest without considerable seed cotton loss. Inquire about the storm resistance of any variety on your potential planting list. If you do choose a variety with low storm resistance, plan and budget ahead for a good harvest aid program that will let you achieve an early harvest. Good storm resistance data are now being provided by most companies and we evaluated all variety trials for this attribute in 2016.

### **Disease and Nematode Resistance/Tolerance**

Producers should likely not plant the entire farming operation to one cotton variety. A question should be "do I have plant diseases or Root knot nematodes in this specific field?" Although we have not been able to identify substantial acreage with this pest in

Oklahoma, varietal tolerance or resistance will be critical for managing this. One thing to consider is whether you know which disease is present. If you have a problem with a wilt disease and don't know what it is, then you need to have the problem identified. If known Verticillium wilt pressure is present, then take a look at Dr. Terry Wheeler's and Dr. Jason Woodward's data from several locations investigating variety performance under constraints from this particular disease. The same should be considered for Fusarium wilt/Root-knot nematode issues. Many times varieties which do well under Verticillium wilt pressure may not be the same ones which rise to the top with Fusarium or Root-knot nematode pressure. **Bacterial blight is an occasional problem in the region. There are several varieties out there that can provide high levels of resistance/immunity.** To determine the disease reaction of many currently available varieties, visit the Texas A&M AgriLife Research and Extension Center Website here: <http://lubbock.tamu.edu/>

### Biotech Trait Types

Producers should ask themselves “which herbicide-tolerant system do I want?” The list of transgenic trait and herbicide options has recently increased with the availability of new many triple-stacked herbicide tolerant varieties and recently labeled herbicides.

The XtendFlex varieties (glyphosate, glufosinate and dicamba) from Monsanto are available from Deltapine, Americot/NexGen, Croplan Genetics, and others. Within the past few months, XtendiMax, FeXapan, and Engenia herbicides have been granted labels by the EPA for use in XtendFlex cotton. These ultra-low volatile products will provide producers the opportunity to apply dicamba - including in over-the-top applications in XtendFlex varieties. **No other dicamba formulations are approved for use in XtendFlex cotton at this time. Therefore it is illegal to use unapproved, non-registered dicamba herbicides in XtendFlex cotton.**

There are several varieties with GlyTol/Liberty Link “stacked” technologies, and more “stacked” with Bayer’s proprietary TwinLink Bt and the improved TwinLink Plus trait. These varieties provide tolerance to glyphosate and glufosinate and many also carry a Bt trait (either Bollgard 2 or TwinLink or TwinLink Plus, see below).

Although still somewhat limited in terms of variety availability, Enlist cotton technology will provide producers with other options. This trait package from Dow AgroSciences includes a triple combination of herbicide tolerance for glyphosate, glufosinate, and Dow’s 2,4-D choline. Widestrike 3 Bt is also included in the package, and all of the Enlist cotton varieties are Bacterial blight resistant. A few months ago, EPA approved labeling of Enlist Duo (a premix of glyphosate and Dow’s proprietary ultra-low volatile 2,4-D choline formulation) for its use in Enlist cotton. **This specific herbicide**

formulation will be the only 2,4-D formulation labeled for use in Enlist crops (corn, soybeans, cotton). No other formulations of 2,4-D have been approved for use in Enlist cotton at this time and it is illegal to apply unapproved, non-registered much higher volatile 2,4-D formulations. There was a very limited launch of Enlist cotton in 2016, in the PhytoGen 490 W3FE variety. Other Enlist varieties and germplasm lines were evaluated in 2016 and we expect to see many more varieties released over the next few years.

**It should be noted that dicamba and 2,4-D are absolutely different herbicides.** Although dicamba and 2,4-D are both considered growth regulator (Group 4) herbicides, they are in different herbicide families (benzoic acid and phenyl-carboxylic acid, respectively). Based on some comments and questions I have received, there is some confusion circulating concerning the tolerance of the XtendFlex cotton varieties to 2,4-D. It should be emphasized that XtendFlex cotton IS NOT TOLERANT to 2,4-D herbicides. Also, in a vice-versa manner Enlist cotton IS NOT TOLERANT to dicamba herbicides. **All non-XtendFlex cotton varieties are susceptible to dicamba (and its drift or tank contamination) and all non-Enlist varieties are susceptible to 2,4-D (and its drift or tank contamination). This cannot be overemphasized. Following the labels for each of these system's respective herbicides is critical. Producers must fully read, understand, and follow these labels before use.**

As for Bt caterpillar insect protection, Monsanto's Bollgard 2 (Cry1Ac + Cry2Ab) and Dow AgroSciences' Widestrike (Cry1Ac + Cry1F) technologies continue to provide good to excellent caterpillar pest control in our area. Bayer CropScience's TwinLink (Cry1Ab and Cry2Ae) also provides similar results. We are seeing a trend toward a third Bt component in many varieties, and this will be an important addition to improve control of various caterpillar species. Widestrike 3 contains the same Bt traits as in the Widestrike listed above but also includes a third trait called VIP3A. TwinLink Plus also contains the same traits found in TwinLink but includes the VIP3A component. Monsanto is moving forward with Bollgard 3, which we should see soon. It will add the VIP3A Bt trait to the same ones found in Bollgard 2. Based on our local technology pricing, these Bt traits have been widely planted across Oklahoma cotton acres. Because of the lack of disruption of beneficial arthropods by insecticides used to target bollworms, etc., aphids or other secondary pests will likely not be flared which is of considerable value. **At least weekly insect pest scouting of fields planted to Bt technology is highly recommended.**

The agronomic capabilities of varieties containing the above listed herbicide tolerance and Bt traits continue to improve and the corresponding weed control systems can be very effective if properly executed.



## 2017 Seed and Technology Cost

Cost should not necessarily be the primary reason for selecting a variety, but it is important. The value of a high yielding cotton variety with biotech traits to ease management requirements across a large number of acres is a serious consideration.

The *Plains Cotton Growers 2017 Seed Cost Comparison Worksheet* can certainly be useful for planning purposes. Shawn Wade has updated the Microsoft Excel spreadsheet which can be used within your Web browser, or downloaded and saved to your computer. About 100 varieties of many types can be found in the spreadsheet. The user can select up to 10 varieties to simultaneously compare total seed and technology fee costs based on a specific seeding rate. The row spacing and seed per row-ft can be entered by the user. This then calculates a seed drop on a per acre basis. Then, based on published pricing for the various seed varieties and technology fees, the cost per acre is automatically calculated. It should be noted that the pricing used in the spreadsheet does not include premium seed treatments or any incentive program that might be provided by the various companies. The Seed Cost Comparison Worksheet is available here: [www.plainscotton.org](http://www.plainscotton.org)

## New Cotton Herbicide Technology Considerations

A new 2-page publication that quickly summarizes some of the label issues for Enlist Duo, XtendiMax, Engenia, and FeXapan herbicides is available. This publication was provided by OSU weed scientists Dr. Todd Baughman and Dr. Misha Manuchehri. **However, producers need to obtain, study, and become familiar with the actual complicated labels for these herbicides. These labels are not “business as usual,” require serious consideration and planning, and are important for proper stewardship of these new tools for use in cotton production.** Respective websites for each herbicide will have to be consulted when considering: application timing and rates; maximum total seasonal use; maximum crop size; weed size; approved tank mixtures; approved spray nozzles; approved additives; additive restrictions; maximum sprayer speed; maximum boom height; minimum spray volume; maximum operating pressure; minimum wind speed; maximum wind speed; wind speed restrictions; buffer requirements; and other restrictions as noted on the label. **It should be noted that none of these herbicides are currently labeled for aerial application. Applicators must read and follow label directions.**

[To download this new publication, click here.](#)

## County Restrictions Noted for Southwestern Oklahoma

Producers who plan to apply these herbicides in Greer, Harmon, Jackson, Kiowa and Tillman Counties need to be aware of important regulations. These regulations vary between active ingredients. Enlist Duo contains 2,4-D choline as an active ingredient. XtendiMax, FeXapan and Engenia contain dicamba as the active ingredient. The Oklahoma Department of Agriculture, Food, and Forestry (ODAFF) has responsibility for these regulations. Essentially an “intent to spray” form is required to be filed prior to application of some herbicides in the 5 above mentioned southwestern Oklahoma counties. After application is made a “herbicide use report” is then filed to confirm that the application was made. **For each specific product’s situation, see below.**

### **Enlist Duo Applications in Jackson and Tillman Counties**

It should be noted that producers applying **Enlist Duo between May 1 and October 15 in Jackson and Tillman Counties** are required by state regulations to submit a “Notification of Intent to Use Herbicides in the Restricted Area” form with ODAFF. The regulation states:

*“(1) The person shall notify the Department of the intent to apply herbicides listed in subsection (a) or (b) prior to the application on a form provided by the Department.”*

**By completing and submitting this form, producers are indicating their INTENT to spray Enlist Duo in Jackson or Tillman Counties.** This form must be submitted prior to application and provides a 14-day window of anticipated application. **As a followup, the applicator must file a “Herbicide Use Report” with ODAFF within seven (7) days of application.** If the application cannot safely be made within these projected dates, it will be necessary to send a “Herbicide Use Report” to the Department stating no application was made and one has to reapply if necessary.

The regulation states:

*“(2) The person shall file a report with the Department on a form provided by the Department no later than seven (7) working days after the last application date provided in the original notification of the herbicide use.”*

To access the regulation verbiage and forms directly from the ODAFF Website, click here: <http://www.oda.state.ok.us/forms/cps/herbform.pdf>

## **XtendiMax, FeXapan, and Engenia Applications in Greer, Harmon, Kiowa, Jackson, and Tillman Counties**

**Producers applying XtendiMax, FeXapan or Engenia between May 1 and October 15 in Greer, Harmon, Kiowa, Jackson and Tillman Counties** are required by state regulations to submit a “Notification of Intent to Use Herbicides in the Restricted Area” form with ODAFF. The regulation states:

*“(1) The person shall notify the Department of the intent to apply herbicides listed in subsection (a) or (b) prior to the application on a form provided by the Department.”*

**By completing and submitting this form, producers are indicating their INTENT to spray XtendiMax, FeXapan, or Engenia in Greer, Harmon, Kiowa, Jackson and Tillman Counties.** This form must be submitted prior to application and provides a 14-day window of anticipated application. **As a followup, the applicator must file a “Herbicide Use Report” with ODAFF within seven (7) days.** If the application cannot safely be made within these projected dates, it will be necessary to send a “Herbicide Use Report” to the Department stating no application was made and one has to reapply if necessary.

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## **2017 Texas A&M AgriLife Extension Profitability Spreadsheet**

An Excel spreadsheet has been updated by Extension agricultural economist Dr. Jackie Smith at the Texas A&M AgriLife Research and Extension Center at Lubbock.

See: <http://agrilife.org/southplainsprofit/>

The spreadsheet allows the users to select various crops and input their operation’s data. This spreadsheet covers a multitude of summer crops including alfalfa, corn, corn silage, cotton, grain sorghum, sorghum silage, peanuts, sesame, sunflowers, etc. The user can enter prices, input costs, etc and calculate potential returns.

RB

## **Attention New Cotton Producers: Oklahoma Boll Weevil Eradication Organization Concerns for 2017 Season**

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 challenging 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. 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. Some new cotton producers may be unaware of this ongoing program. John Henderson, Director of the Oklahoma Boll Weevil Organization, based at Altus, provided the information below.

*The Oklahoma Boll Weevil Eradication Organization (OBWEO) is preparing for the upcoming 2017 cotton season. It is our responsibility to ensure the continued success of this program. With all of the talk of a significant increase in cotton acres, there are some important issues with respect to OBWEO that you need to be aware of. 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 the past several years, we need you to provide to us the legal descriptions of these new cotton fields.*

*There is a boll weevil eradication assessment for harvested cotton acres. This assessment will be determined in September of 2017. For reference purposes, this assessment was \$2.50 per harvested acre in 2016.*

*The trapping density this year is one trap per 320 acres. In areas where planted cotton acreage density is high, not all fields will actually have a trap near it. In other areas where individual fields may be more isolated, these fields will need to be trapped.*

*For the following counties including Tillman, Cotton, Comanche, Atoka, Bryan, and Stephens, please contact John Lamb at 580-335-7760 (office) or 580-305-1930 (cell).*

*For all other counties in the state of Oklahoma, contact John Henderson at 580-477-4287 (office) or 580-471-7962 (cell).*

*For any other questions contact Brenda Osborne at 580-471-7963 or Amanda Montgomery at 580-550-0050.*

## Upcoming Cotton Meetings

April 12 - Goodwell, OK – Spring Cotton Clinic, Oklahoma Panhandle Research and Extension Center, 11:00 a.m. – 3:00 p.m. Contact Tracy Beedy at 580-349-5441.

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