



# Cotton Comments

OSU Southwest Oklahoma Research and Extension Center  
Altus, OK



May 30, 2013

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## Crop Update

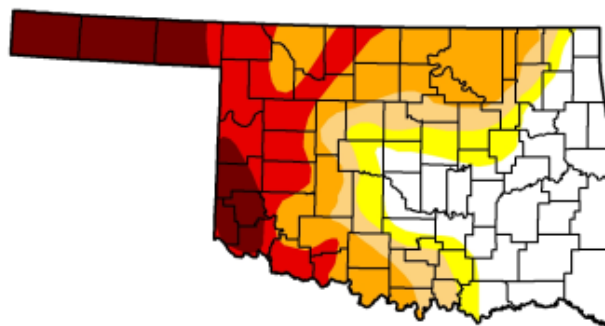
Planting of the 2013 Oklahoma cotton crop is well underway. Rainfall or lack thereof is the predominate concern of many producers and the industry. Although many areas of the state have been blessed with abundant rainfall, we are still in the grips of Extreme to Exceptional Drought (D3 and D4 categories) in the historical cotton producing area of southwestern Oklahoma. Most growers in this area are watching the skies and forecasts and are hopeful that badly needed precipitation will soon arrive.

## U.S. Drought Monitor Oklahoma

May 28, 2013

Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	31.88	68.12	58.80	48.33	26.51	11.34
Last Week (05/21/2013 map)	25.21	74.79	61.60	50.91	26.73	10.60
3 Months Ago (02/26/2013 map)	0.00	100.00	100.00	100.00	61.65	11.80
Start of Calendar Year (01/01/2013 map)	0.00	100.00	100.00	100.00	94.89	37.06
Start of Water Year (09/25/2012 map)	0.00	100.00	100.00	99.98	95.33	42.09
One Year Ago (05/22/2012 map)	31.44	68.56	13.99	9.34	3.54	0.00



### Intensity:



The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

<http://droughtmonitor.unl.edu>



Released Thursday, May 30, 2013  
Brad Rippey, U.S. Department of Agriculture

For the most part, dryland acreage is still on hold. June 20<sup>th</sup> is the final planting date for insurance purposes for most of the counties affected by drought. We have about three weeks to obtain substantial precipitation and to relieve the pressure of facing another failure. Little if any runoff has been noted from various spotty rainfall events to help alleviate the critical situations of Lake Lugert and Lake Tom Steed, currently at 16 and 33 percent of capacity, respectively. It appears that for the third year in a row, the cotton situation in the Lugert-Altus Irrigation District is dire. The final planting date for insurance purposes for irrigated cotton in Jackson and surrounding counties is June 10<sup>th</sup>. We are still very dry at the Lake Lugert irrigated Southwest Research and Extension Center and at the satellite dryland Tipton Experiment Station. Unless substantial rainfall occurs over the next several days, we are facing the prospect of stand failures at these sites.

High winds have plagued producers who were lucky enough to obtain some substantial spotty rainfall events. The good news is that we have had fewer 100 degree days with high winds thus far in 2013, as compared to 2011 and 2012. As soon as temperatures warmed up, planters began to roll in mid-May after the final late spring freeze of 28 degrees on May 3<sup>rd</sup>. Areas with groundwater based irrigation for center pivots or subsurface drip irrigation rapidly planted cotton. For other irrigated areas with failed wheat, planting was somewhat delayed by harvesting and baling of the wheat crop. In general, cotton in the Caddo County and surrounding area has encountered some badly needed rainfall to assist with land preparation and stand establishment. We are off to yet another rough start. It is almost unfathomable to consider a third consecutive year of disastrous summer crop losses.

### **Making Replant Decisions**

Thunderstorms have wreaked havoc with stands in some areas where growers were lucky enough to get stands established. Because of this it is important to inspect fields to determine the amount of damage or if excessive stand loss occurred. Replanting decisions vary from field to field. Many times after violent thunderstorms it is important to get a handle on the root health of the plants, stem bruising, etc. Once we get near the final planting date for insurance purposes, it becomes critical to evaluate the stand situation, as the amount of stand loss and yield potential needs to be compared to the yield loss potential arising from late planting. We are at a disadvantage because we can't necessarily predict the actual first freeze date in the fall. However, based on results from a long-term irrigated cotton date of planting project conducted at the OSU Southwest Research and Extension Center at Altus, yield potential drops precipitously after June 15. The final planting dates for insurance purposes for dryland in most southern Oklahoma counties are June 20. Typically, dryland production is lower and it's easier to mature a lower yielding crop with later planting or replanting.

A while back, we developed a publication concerning the difficult replant decision making process. Although a Texas publication, I believe the criteria for southwestern Oklahoma are similar.

[Click here to view Making Replant Decisions in Cotton -2007](#)

RB

### **Spray or Nurse Tank Cleanout Concerns**

We perennially begin to get phone calls this time of year and make field inspections concerning hormone-type herbicide damage on cotton. Typical phenoxy herbicide symptomology can be characterized by “strapping of leaves.” Based on field research conducted by Dr. Wayne Keeling at the Texas AgriLife Research and Extension Center at Lubbock, the severity of yield decrease is related to the actual dose and the crop stage. Severe damage incurred when the crop begins to fruit is more likely to reduce yield than when the crop is younger with less severe damage. Doses of sufficient level to continue “strapping” of newer leaves for weeks after application can significantly reduce yield.

Producers should be aware, especially in light of the “tank and hose cleaning ability” of some of the newer herbicides, that phenoxy residue in sprayers can be a real problem. Our suggestion for our growers is that tanks, hoses, and sprayers which are used for applying phenoxy type herbicides be dedicated SOLELY to that purpose. If producers are unable to purchase separate tanks, hoses and/or sprayers, then it is imperative that several issues be addressed. Do not leave herbicides in tanks for an extended period of time. Chemical induction tanks installed on nurse tanks can also get contaminated and cause problems. It is best to use “chemical resistant” hoses. Replace hoses when changing out tanks. The last thing a cotton field needs is for a phenoxy material (even at low concentrations) to get “pulled from the tank or hoses” and get sprayed on cotton – especially those fields with high yield potential (i.e. subsurface drip or high capacity pivots). If multiple herbicides are used in the sprayer, then I suggest that producers purchase various tank cleaning agents from their dealers and follow the directions religiously. If a tank/sprayer is to be used on cotton, I suggest that the tank be flushed out with clean water and the appropriate tank cleaner be mixed at the appropriate concentration. The producer should then spray the cleaning solution through the booms and nozzles. Leave the booms in a horizontal position and let the cleaning solution sit in the tank at least overnight. This might help reduce some anxiety over phenoxy damage later. It doesn’t take very many lost bales of production to pay for an additional tank and/or hoses.

For an excellent University of Missouri publication on cleaning sprayers, go to this link:

[Click here for University of Missouri publication On Cleaning Sprayers](#)

This publication has good information concerning herbicides, recommended cleaning solutions and sensitive crops.

## **Glyphosate Issues**

Several states now have confirmed glyphosate resistant palmer amaranth. Dr. Bob Nichols with Cotton Incorporated worked with a team of weed scientists from across the U.S. and assembled an excellent publication concerning weed resistance in cotton.

[Click here to view Managing Herbicide Resistance in Cotton Cropping Systems](#)

The best way to prevent this from occurring in our area is to use multiple herbicides with varying modes of action. This includes NOT relying solely on glyphosate as your only weed control option in-season. **It is recommended that producers try to incorporate at least two additional different modes of action besides glyphosate.**

Page 18 of the Roundup Power Max label (in the section for Roundup Ready Flex cotton) provides a list of herbicide products that can be tank mixed and applied post emergence over-the-top (OT), and a list that can be tank mixed and applied using post-directed or hooded sprayers in Roundup Ready Flex cotton varieties. Page 18 also provides the maximum application rates for Roundup Ready Flex cotton. The total for all in-crop applications (from ground cracking through 60 percent open bolls) is 4 quarts per acre. Caution should be taken to not allow larger weed size to cause yield losses from early season competition. **In order to provide optimal control and help prevent weed resistance, do not apply a below label recommended rate.**

## **Staple Herbicide-Glyphosate Herbicide Tank Mix and Staple Alone**

Significant label restrictions for rotational crops are noted when Staple applications are made. These crops include but are not limited to wheat; field corn, corn grown for grain or silage; grain sorghum; peanuts; soybeans. These restrictions do not apply for fields in continuous cotton production.

According to the label, in Oklahoma, Staple LX herbicide at 1.3 – 3.2 oz/acre can be added to the first OT application of glyphosate at 24-32 oz/acre (of 4 lb a.i./gallon glyphosate product) to enhance control of several annual weed species including hemp sesbania, morningglory (entireleaf, ivyleaf, pitted, scarlet/red), cutleaf evening primrose, prickly sida and palmer amaranth (pigweed). Glyphosate rates are based on 4 lb active ingredient per gallon formulation. For other glyphosate formulations, rates should be adjusted proportionally to the active ingredient content of the formulation.

For higher residual control, a single application of ONLY Staple LX can enhance morningglory control at rates of 2.6 to 3.8 fl oz/acre of product. The label states “Apply Staple LX at 2.6 to 3.8 fl oz product/A for control of the weeds listed in ‘Weeds Controlled’ section. Use the higher rate for arid growing conditions or where weed infestations are severe. All rates are broadcast. Use proportionately less for band

applications. Weed size, spray volume, adjuvant and environmental conditions (temperature) at application are very important for effective control. For optimum burndown, try to avoid applications in low humidity and extreme heat. Rainfall or sprinkler irrigation (0.5 to 1") after application is required for residual control. For more information refer to the Staple LX label and contact your DuPont representative.

### **Liberty 280 SL Herbicide on Liberty Link Cotton**

More varieties containing the LibertyLink trait (glufosinate tolerant) only and GlyTol trait (glyphosate tolerant) and LibertyLink "stacked" cotton varieties are available this year. These varieties have excellent full-season tolerance (both crop size and rate) to the labeled herbicide, but applications must cease at 70 days prior to harvest to comply with the designated pre-harvest interval (PHI).

Although this herbicide system (LibertyLink varieties and Liberty herbicide application) works well against many problem weeds including morningglory, it should be noted that there are two critical issues surrounding this system. One issue is weed size. Typically, most weeds should be targeted at very small size (see label for 80 plus specific broadleaf species and about 30 grass species and size restrictions). An additional 25 plus species can be either controlled or suppressed with the 29 oz/acre rate or by two sequential applications (see label for specifics).

The other important issue is thorough spray coverage. Since this is a contact herbicide, it is critical that outstanding spray coverage be obtained. The label states that "uniform, thorough spray coverage is important to achieve consistent weed control. Select nozzles and pressure that deliver MEDIUM spray droplets as indicated in the nozzle manufacturer's catalogs and in accordance with ASAE Standard S-572." Bayer CropScience personnel suggest using flat fan nozzles, or Turbo-TeeJet types (if 60 psi pressure is used). It is NOT recommended to use air induction, raindrop nozzles, or flood-jet tips. A minimum total spray volume of 15 gallons/acre is required. For dense weed/crop canopies, a spray volume of 20 to 40 gallons/acre is required for thorough coverage. Also, ground speeds should not exceed 10 mph. Ammonium sulfate at 17 lb/100 gallons of spray mix is also recommended.

The label also states that "For cotton tolerant to Liberty 280 SL herbicide, Syngenta's Dual Magnum or DuPont's Staple herbicide may be tank-mixed with Liberty 280 SL herbicide and applied over-the-top post-emergence to enhance weed control and/or provide residual control."

Liberty 280 SL has a label which allows some application flexibility. If producers opt to use a 29 ounce/acre first application, then two additional sequential applications may be made at the 29 ounce/acre rate (for a total of 87 ounces/acre per season). The Liberty 280 SL label will allow producers to apply up to 43 oz/acre in a single first application, however this reduces the seasonally allowed total to 72 oz/acre (or only ONE more sequential 29 ounce/acre application, with noted rotational restrictions. Always read and follow label directions.

## **Dual Magnum Herbicide (S-Metolachlor)/Glyphosate Tank Mixes for Roundup Ready and Roundup Ready Flex Cotton**

Dual Magnum (Syngenta's brand of S-metolachlor) has a label for Touchdown or Roundup/Dual Magnum postemergence over-the-top tank (OT) mixes for use on Roundup Ready cotton. This product has a rotational restriction of 4.5 months for wheat, barley, oats, and rye. For alfalfa this time is 4 months. Refer to the label for specifics. Dual Magnum should be tank mixed with the supported labeled glyphosate product for residual control of pigweed, annual grasses and yellow nutsedge at 1 to 1.33 pt/acre. According to Syngenta personnel, OT tank mixes of Dual Magnum with glyphosate (Syngenta's Touchdown and Monsanto's Roundup brands) in Roundup Ready and Roundup Ready Flex cotton can be applied from emergence through 100 day preharvest interval (PHI). For Dual Magnum, a 100 PHI for postemergence OT or 80 day PHI for post-directed applications is required. Dual Magnum plus glyphosate may be post directed anytime up to the PHI. Also, it is suggested that ammonium sulfate, spray adjuvants, surfactants, fertilizer additives, or other pesticides NOT be included in the spray mix as phytotoxicity/crop injury may occur with the Dual Magnum formulation. The label states that "postemergence OT applications of this tank mixture may cause temporary injury in the form of necrotic spotting to exposed cotton leaves which will not affect normal plant development. Potential for reduced weed control from supported glyphosate materials could exist in extremely hard water areas due to the exclusion of ammonium sulfate. Best results are obtained when the Dual Magnum is incorporated 24 hours after application using 0.5 to 1 inch of irrigation water. There is a premix formulation of glyphosate and S-metolachlor (Dual Magnum) available called Sequence. For specific questions concerning any of these applications contact your local Syngenta representative.

## **Warrant Herbicide**

Warrant herbicide (acetochlor) is another option for residual control of small-seeded broadleaves and annual grasses (according to the label - pigweed species, carpetweed, purslane, prairie cupgrass, red sprangletop, witchgrass). It may be tank-mixed with glyphosate and applied postemergence over-the-top of Roundup Ready Flex cotton. Since Warrant only provides residual control (has no postemergence activity) the glyphosate is required to control weeds already emerged. Make sure that the glyphosate rate is appropriate for the weed species and size at application. This tank-mix should be made to 2-4 inch weeds and before the weed height and/or density becomes competitive with the crop. Although applications may be made once cotton has fully emerged until first bloom, the optimum application timing is when cotton is in the 2-3 leaf stage. It may be applied again when cotton is in the 5-6 leaf stage if directed to the soil. Rates range from 1.25 to 2.0 quarts per acre depending on soil type (consult label). Do not make postemergence surface applications using sprayable fluid fertilizer as the carrier because severe crop injury may occur. Some crop rotation restrictions also apply. Wheat can be planted 4 months after application, and the



following season, most other agronomic crops we produce can be planted. See the Warrant label for more information.

### **Prowl H2O Herbicide**

Prowl H2O herbicide may be applied as a broadcast over-the-top postemergence application in cotton for small-seeded broadleaf and annual grass control. Prowl H2O will not control weeds already emerged at the time of application, therefore the use of a postemergence herbicide treatment is required to control emerged weeds. Prowl H2O may be tank-mixed with Roundup PowerMax and applied over-the-top of Roundup Ready Flex cotton or tank-mixed with Liberty and applied over-the-top of Liberty Link cotton between the 4th and 8th leaf stages of growth. Adequate rainfall or overhead irrigation is required after application for herbicide activation. Wheat may be planted 4 months after an application of Prowl H2O, except under the following conditions: If less than 12 inches of rainfall or overhead irrigation was received between application and rotational crop planting, wheat should not be planted before 12 months after a spring application of Prowl H2O.

### **Roundup or Liberty/Insecticide Tank Mixes**

Some questions have been asked concerning the use of glyphosate or Liberty/insecticide tank mixes. Generally Orthene (acephate), dimethoate, and Bidrin have been the tank-mix partners mentioned for thrips control. No problems with cotton phytotoxicity or product efficacy have been noted.

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### **Thrips Control Update**



Reports are already coming into the office about damaging thrips populations in newly emerging cotton.

Thrips generally are not considered a serious pest of cotton, except in years when favorable growing conditions permit early planting. Heavy thrips infestations will occur if plants have emerged before wheat or other small grains mature. Mature thrips often move into

stands of succulent cotton seedlings, causing curled and misshapen leaves. Thrips infestations vary from field to field and from year to year and should be dealt with accordingly.

Thrips are small, approximately one-sixteenth inch in length. The color varies according to species. It may be similar to the color of wheat straw, yellow, lack, or light brown.



The adults have two pairs of long, narrow, fringed wings which enable them to fly from one crop to another. The life cycle contains several stages: egg, larva, pupa, and adult. Larvae and adults will over winter in debris and trash near the field. In the spring, the adult females lay eggs by inserting them into the plant tissue. The creamy white eggs hatch into small larvae which begin to feed on the plant. After a short time, they burrow into the soil and transform into a non-feeding stage called the pupae. They emerge as adults and continue to feed on the plant. Thrips damage cotton by using their rasping-sucking mouthparts to feed on the plant epidermis. Ruptured cells release plant fluids which are sucked up by the insects. Injury first appears as dark brown spots which assume a silvery appearance several days later. Feeding occurs on the lower side of the leaf and may injure the terminal bud so that new leaves fail to develop and growth is retarded. Leaves will be crinkled and cupped.

Weekly scouting is the only way to monitor a treatment's performance. Expect damaging populations of thrips to materialize first in fields where no seed treatment insecticide was used. Windy conditions will impact your ability to accurately assess thrips numbers. In-field detection becomes nearly impossible as the wind picks up. Take a composite sample pulling at least 30 plants across the field placing them in a plastic bag or bucket. Waiting to examine plants until you return to your vehicle will take a little longer, but will be a lot more accurate.

Besides looking on the undersides of cotyledons and true leaves, be sure to examine the terminal bud. Both adults and immature thrips feed and lounge around there and are easily overlooked unless you carefully inspect this region. Also don't forget to count and record the numbers of dislodged thrips running around on the inside of the baggie.

Crop demographics play a large role in thrips pressure. Wheat is widely known as an early season habitat for thrips. However, alfalfa is another thrips nursery that can produce large numbers. With each cutting thrips migrate from the field in search of a food source. Cotton fields in close proximity to alfalfa meadows may experience huge influx of thrips overnight that might even rival the exodus from adjacent wheat fields. Also, with the amount of spring rainfall we have encountered, a lot of other alternate hosts have provided considerable habitat for thrips populations to buildup.

Finding adult thrips in protected fields is normal and is expected as long as the thrips migration continues. Remember that thrips blown in from adjacent areas may not feed immediately and feeding is required for the insect to pick up a lethal dose of a systemic insecticide. Historically, Temik (aldicarb) has been a product of choice, however, with the loss of this product in 2011, we have come to rely more on seed treatments such as Gaucho (imidacloprid) or Cruiser (thiamethoxam) for early control. Other seed



treatment products containing these products are also being sold. For a table showing these products and expected length of control, [click here](#).

[Click here for Cotton Insecticide/Nematicide Seed Treatments document](#)

Various foliar products are available and have also been recently evaluated in Texas.

Orthene/acephate is the standard foliar thrips control product, and when used properly can provide good thrips control. At the 3 oz/ac rate, acephate will generally provide about 5 days control.

Bidrin (dicrotophos) has long been used for aphid and stinkbug control, and in the past used more frequently for thrips. At 3.2 oz/acre it performs comparably to acephate, but based on limited data appears to provide slightly less residual control.

Dimethoate is often used for thrips control on the High Plains and is usually priced competitively with acephate. At the 2 pt/ac rate it provides good knockdown, but based on limited data, it appears to provide slightly less residual control.

Vydate (oxamyl) is one of those rare insecticide/nematicides that will translocate from the leaves down to the roots, and has thus been widely used in recent years for aid in the control of nematodes when Temik begins to lose efficacy. However, in the absence of Temik, there is interest in using Vydate earlier and there are questions regarding its efficacy toward thrips and nematodes when used early. The Vydate label suggests suppression of thrips. In a single study at the 17 fluid oz/ac rate, at times provided similar control as Orthene at 3 oz/acre, but did not perform as well other times. More data is needed to fully assess its activity on thrips. Vydate is typically used for the pinhead square application for fleahopper control.

Things to consider when using foliar applications for thrips control:

1. Timing is critical. Controlling thrips during the first 2 weeks post crop emergence appears to be the most important period; especially under cool conditions. You need to be “Johnny on the spot” with these applications when thrips are numerous; even a few days delay can be detrimental.
2. Avoid automatic treatments. Automatically adding a foliar thrips material in a Roundup application may not be necessary or may be poorly timed. Often either the weeds aren’t present when the thrips are or vice versa.
3. **Scout for thrips. Go out and visually assess if thrips are present. Pull up plants and thoroughly search for them or beat the plants inside a plastic cup.**
4. Don’t spray based on damage. The damage you see today happened 3 to 5 days earlier and you may have already suffered yield loss. Spraying based on damage is essentially a revenge treatment.
5. Spray based on thresholds. Use an accepted action threshold to help you determine whether or not you should treat.

Thresholds for foliar thrips sprays <sup>1</sup>	
<u>Cotton stage</u>	<u>Threshold</u>
Cotyledon to 1 true leaf	0.5-1 thrips/plant
2 true leaves	2 thrips/plant
3 true leaves	3 thrips/plant
4 true leaves	4 thrips/plant
5-6 true leaves	Rarely justified

<sup>1</sup>Dr. David Kerns (Formerly with Texas A&M AgriLife Extension, currently with LSU Ag Center) April 6, 2011 Focus on South Plains Agriculture Newsletter.

It is easy to spot when the insecticide performance begins to fade by keeping track of the plant's physical condition related to thrips numbers. As protection fizzles, visual leaf damage should increase along with a rise in thrips numbers. **Cool temperatures will result in lack of vigorous early cotton growth, and will in turn increase susceptibility to thrips damage.** Quick action will prevent maturity delays associated with infestations that reach or exceed three thrips per plant. Over-the-top sprays can be used in fields planted to glyphosate-tolerant (Roundup Ready Flex and GlyTol) varieties. This strategy of tank mixing an insecticide with glyphosate is cost effective. Acephate (Orthene) has been a standard foliar thrips treatment for many years. For the application rate, refer to the specific label for your product of choice, as several products containing acephate are now available.

[Click here for a table with Foliar Application Options for Thrips Control in Cotton.](#)

If you have questions concerning insect control issues, please call the OSU Southwest Research and Extension Center or contact your local OSU County Extension Educator.

JG

Please give credit to this newsletter if any information is reproduced or incorporated in any other communications. Thank you.

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