



Cotton Comments

OSU Southwest Oklahoma Research and Extension Center
Altus, OK



June 22, 2015

Volume 5 No. 4

Crop Update

The 2015 cotton crop is off to a great start, although it is running about 2 weeks late. Record May rainfall delayed planting until the end of the month, but most producers were able to get the crop planted by June 20th. May ended up being not only a wet month, but cool also, as the cotton heat unit accumulation at Altus was 27% below normal. This really didn't matter, as we had virtually nothing planted until about May 27th. June conditions in the first two weeks or so have been excellent, with an occasional thunderstorm producing more rainfall in some areas. Since June 1, cotton heat unit accumulation at Altus has totaled 421 through June 21. That is about 11% above normal. What this means is that the crop was planted during the first couple of weeks of June, emerged fairly rapidly and has been growing vigorously ever since. The most advanced cotton in the state of which I am aware is closing in on 5-6 true leaves at this time. This cotton will be soon be moving into the squaring phase. We have many fields that were planted during the second week of June closing in on 4 true leaves. The value of no-till planting into terminated small grains cover is hard to overstate. Much of the cotton we have been observing has encountered few environmental negatives such as high winds/damaging hail, thrips, etc. This cotton is very robust and appears to have been grown in a greenhouse. The protection afforded by the cover is phenomenal (see photos below of 2-leaf cotton). This cotton was planted June 3rd and the photos were taken on June 18th.





Although we have considerable cotton in very good to excellent condition at this time, not all has fared quite as well. The storm that dumped up to 10 inches of rainfall in Harmon County during the weekend of June 12-14 produced some very high winds, flooding, and hail. Some clean till fields were damaged by this extended stormy period.

Typical leaf shredding, bruising, stand loss, etc. was observed in fields that just a few days earlier were immaculate.

Growers by and large have done well with weed control through this interesting last two months. We just need to keep up the good work and remember:

- 1) All Palmer pigweeds should be considered as glyphosate resistant.
- 2) The best Palmer pigweed management program is to never let them emerge.
- 3) In order to accomplish #2, effective residual herbicides must be deployed and activated in a timely manner.

Occasionally, growers have concerns that yellow herbicides are just not working anymore. The photograph below shows the results of proper use of a yellow herbicide (right side) and the results following no yellow herbicide use (left side). This photo was taken in an Oklahoma cotton field in 2015. Results are essentially to the row.



Essentially all of our cotton was planted during the two-week window from the end of May through the middle of June. The earlier planted cotton will be moving into squaring soon. Although we didn't encounter much thrips pressure, we will soon have to worry about fleahoppers and protecting the early fruit. With our crop development at least 2 weeks behind normal due to the late planting, we will need to pay attention and not allow early yield potential to fall victim to square thieves. Over the past few days, we have been launched into summer with high temperatures in the mid- to upper 90s and high winds.

Nitrogen Questions

Due to the late planting situation, many irrigated cotton producers are likely projecting a 2 bale/acre yield goal. Whether this yield can go higher will be dependent upon crop conditions and the maturing weather in September and October. The nitrogen (N) requirement for cotton is 50 lbs N/bale of yield goal. It is important to consider the total potential N inventory including soil residual N to the 18" depth and N in irrigation water. Most questions that I have recently been asked deal with getting N fertilizer applied. In order to answer these questions, I ask a few myself. These questions include cropping history, amount of N fertilizer applied since 2011, and a yield goal based on current crop conditions.

In 2014, Extension personnel conducted a 24 field deep soil sampling project in the Lugert-Altus Irrigation District. Samples were taken down to 18 inches using a hydraulic soil probe. Due to crop failures in 2011, 2012, and 2013, these soils have mineralized a considerable amount of nitrogen from the "organic pool" in those years. Minimal crop removal occurred in those years, and certainly zero N leaching was encountered because of continuous drought. However, some crop production was noted in these fields in 2014 and due to record May 2015 rainfall, some N has potentially been moved below the root zone, especially in lighter textured fields. Based on the above soil sampling survey results it would appear that many fields in the LAID would not necessarily require high fertilization based on 2015 yield potential.

Since no producers have initiated irrigation due to good soil moisture conditions, and since many have moved to fertigation practices for N applications, many are behind in terms of getting N applied. The bottom line is that producers should get fields fertilized with N as soon as possible, but be careful to determine a reasonable yield goal based on the current crop situation. If anyone has any questions about this please call.

Plant Growth Regulators

With the vigorous growth and excellent cotton in nearly all areas, it will be important to be on point concerning the use of plant growth regulators. Mepiquat-based (such as Pix Plus, Mepex, Mepichlor, Mepiquat Chloride, Mepex GinOut, Stance, and others) plant growth regulators (PGRs) have been around for many years. Companies are constantly enhancing formulations, but the main active ingredient in nearly all of these products is mepiquat chloride.

Mepiquat chloride (MC) reduces production of gibberellic acid in plant cells that in turn reduces cell expansion, ultimately resulting in shorter internode length. MC will not help the plants compensate for earlier weather or disease damage. It does not increase growth rate, it essentially reduces plant size by reducing cellular expansion. It may, under good growing conditions, increase fruit retention, control growth and promote earliness. MC should not be applied if crop is under any stresses including moisture; weather; severe spider mite, insect, or nematode damage; disease stress; herbicide injury including 2,4-D damage due to drift or from tank contamination; or fertility stress.

Results from replicated testing indicates that a 5 to 20% reduction in plant height (compared to the control) can be obtained from 16 oz of 4.2% a.i. MC material applied in up to 4 sequential 4-oz/acre applications starting at match head square (MHS) and ending at early bloom. It is generally possible to reduce about one node from the growth of the main stem, which can result in about 3-5 days earlier cutout. **Low rate multiple applications beginning at MHS have generally provided more growth control than higher rate applications made at first bloom or later.** Results have shown that statistically significant increases in yields are generally not obtained, but excellent growth control is provided. Many times we don't see a lot of differences in performance of these products when comes to growth control.

Available Products

Mepiquat based products have been around for many years. Several PGRs based on the same active ingredient are now available. Refer to the product labels or contact Extension personnel or company representatives or to ensure you understand the correct use of these products.

Mepex, Mepichlor, Mepiquat Chloride and other generics
4.2% active ingredient (a.i.)/gallon or 0.35 lb/gallon a.i.

Mepex Gin Out

4.2% a.i./gallon or 0.35 lb/gallon a.i. with 0.0025% Kinetin (a cytokinin).
Cytokinins are plant hormones that promote cell division and growth and delay the senescence of leaves. This product has use guidelines similar to other MC materials.

Pentia

Has a different molecular structure than MC (mepiquat pentaborate).
9.6% a.i./gallon or 0.82 lb/gallon a.i. Typically Pentia has similar use rates when compared to 4.2% MC products.

Stance

Bayer CropScience's Stance product is an MC based PGR. It is a 4 to 1 ratio of MC and cyclanilide (0.736 lbs/gallon MC plus 0.184 lbs/gallon cyclanilide). Cyclanilide is an auxin synthesis and transport inhibitor. Auxins are generally referred to as compounds which have the capacity to induce cell elongation. The inhibition of auxins could reduce cell elongation and inhibit growth. Producers should be aware that the mepiquat chloride concentration in Stance is about twice as high as most of the other materials we have become accustomed to applying, THEREFORE THERE IS A CORRESPONDING REDUCED RATE.

What to Expect From Application

Consistent yield increases have not been observed from any of the MC materials we have investigated. A good boll load will normally help control plant growth. Fields with poor early-season fruit retention, excellent soil moisture, and high nitrogen fertility status may be candidates for poor vegetative/fruitlet balance and should be watched carefully. Growers who have planted varieties with vigorous growth potential and have fields with

excellent growing conditions may need to consider PGR application. For brush roll header stripper harvest, 28-32 inch tall plants optimize stripper-harvesting efficiency. If possible, target a maximum plant size of about 32 inches for varieties under high input irrigation (sub-surface drip or high capacity pivots). If plants get larger than 36 inches, harvest efficiency and productivity drop significantly. For spindle picker harvesters, larger plant size for high yielding cotton is not as much of a harvesting consideration.

Application Rates and Production Environment

Determination of application rates is generally more "art" than "science" for these products. Applications should begin when 50% of the plants have one or more matchhead squares (see specific product label for more information). It is best to make prebloom applications if conditions favor excessive growth for an extended time period. Many varieties are being sold that tend to have aggressive growth potential. Growth control for these types will be maximized by timely MC applications beginning at the prebloom stage. Also, monitoring high growth potential varieties and fruit retention will be important. If a high growth potential variety has been planted and has encountered low fruit retention, then the MC rate should be increased, especially under high water, fertility, and good growth conditions. Some newer varieties may need aggressive management under high irrigation capacity and/or if heavy rainfall conditions are encountered. The situation that has arisen due to the release rate of new genetics is challenging. Visit with your seed company representative to determine which new varieties should be watched closely for MC needs under field-specific conditions. They have the most experience with the newer varieties, especially under late planting conditions. Sequential applications can be adjusted to meet subsequent crop conditions and growth potential. For more information concerning PGR use, use the link below.

[Click here for Cotton Growth Regulators – Producer Handout](#)

This publication includes a list of newer varieties, their growth habits, and potential PGR management concerns. If you have questions concerning specific new varieties not listed, call your seed company representative.

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.

Continued Glyphosate Issues

Multiple locations within Oklahoma now have reports of 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. If you already have confirmed resistance on your farm, then that should probably**

change to three modes of action besides glyphosate and this generally includes multiple overlapping residual herbicide applications beginning before planting and extending through bloom.

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 rates below label recommendations.**

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). 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 are available this year. These varieties have excellent full-season tolerance (both crop size and rate) to Liberty 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.” 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 Flex cotton can be applied from emergence through the 100 day preharvest interval (PHI) as long as it's before August 1st. For Dual Magnum, a 100 day 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.

SO

Thrips Control Update



After surveying southwest Oklahoma cotton trials and talking to consultants and scouts, thrips pressure is almost nonexistent. **Growing conditions favor out-distancing this pest this year. With every general statement like this, there is always an exception. Each field needs to be scouted weekly to be sure no pests are present.**

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 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 in some areas, 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 ¹	
<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

¹Dr. 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.](#)

Early Season Pest – Fleahopper

Cotton Fleahoppers and Lygus are the next pests to start monitoring during the fruiting stage of the cotton crop (squaring to bloom). This year the crop is developing in some areas exceedingly well whereas a few fields seem to be “slow”. Several factors are occurring in these problem fields hopefully with the recent rainfall and normal temperatures these will solve the problems. Most scouting program fields indicated that thrips are no longer an issue because of growth stage (5th true leaf). Conversations with chemical distributors and consultants have indicated that no problems are generally occurring. However, due to the lateness of planting of many dryland fields due, those should be watched. As the crop reaches the squaring stage, the next pest to be concerned about is the cotton fleahopper.



Cotton Fleahopper

Since the introduction of Bt cotton and boll weevil eradication the cotton fleahopper has become the number one pest in Oklahoma. The cotton fleahopper usually feeds on young succulent weeds such as croton, goatweed, and horsenettle in early spring. These weeds also provide an overwintering site for eggs. As the weeds mature, adults migrate to cotton which is beginning to develop pinhead squares. Fleahoppers insert their sucking mouthparts into the small squares. These damaged squares later turn brown and are shed from the plant.



Photos courtesy Dr. David Kerns, LSU AgCenter, formerly Texas A&M AgriLife Extension, Lubbock.

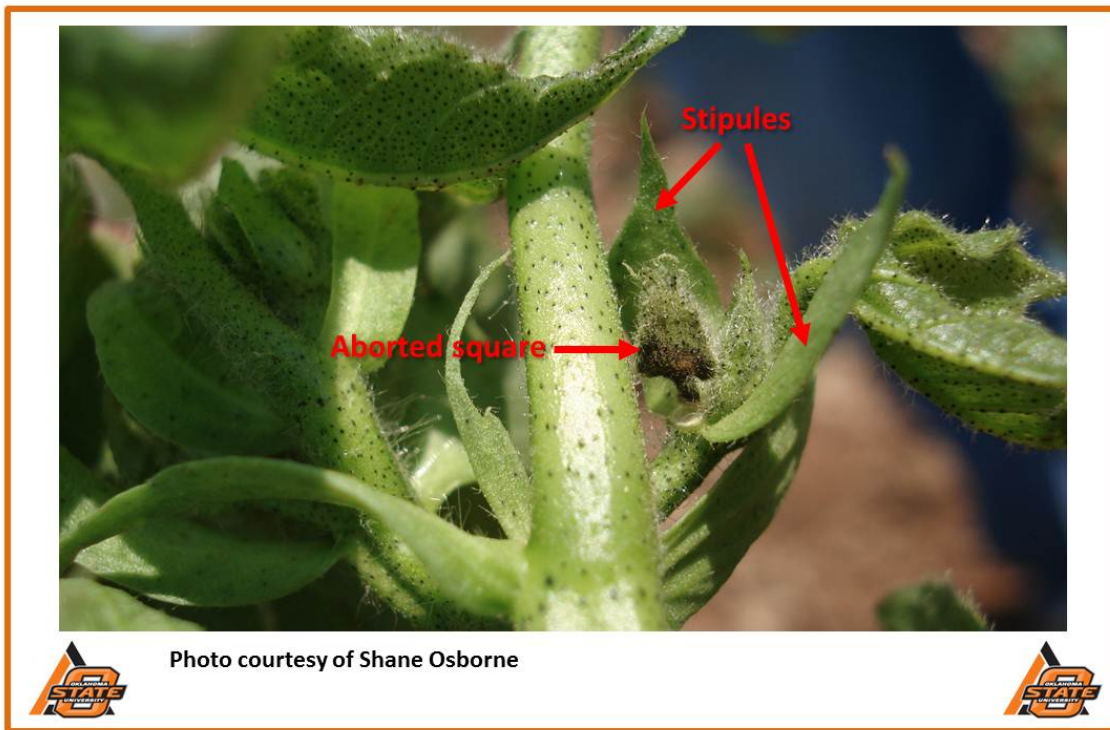


Photo courtesy of Shane Osborne

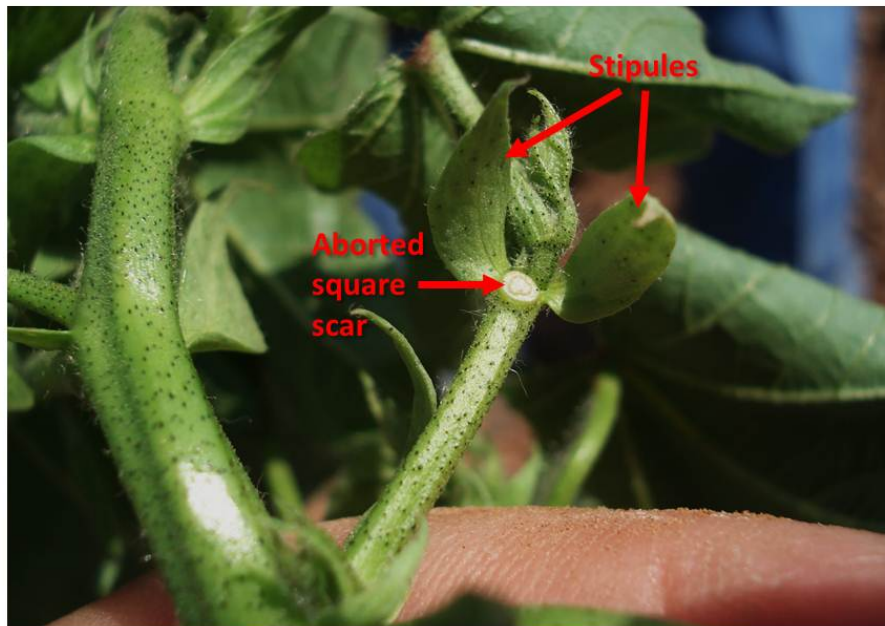


Photo courtesy of Shane Osborne

In addition to squares, the cotton fleahopper will also feed on other parts of the plant. If heavy infestations exist, new growth will be abnormal and whip-like in appearance. All stages of the life cycle will feed on the plant as long as it remains succulent. As cotton matures, these insects migrate to weeds or other host crops. In southwest Oklahoma, the highest population typically occurs in cotton in early August, although this is not generally a problem that late in the season.

The life cycle begins with the female placing her eggs into the plant tissue by means of an ovipositor. The eggs hatch in approximately 1 week, and small nymphs (which are similar to the adults, except for being wingless) undergo five molts before reaching the adult stage. Egg to adult takes approximately 3 weeks with six to eight generations per year. The cotton fleahopper adults are approximately one-eighth inch long, winged, and pale green in color. They are covered with small black spots and have four characteristic black spots near the wing tip. The nymphs are about one-twenty-fifth of an inch long, wingless, and pale green in color.

Numerous chemicals are registered for control of fleahoppers. In an ideal situation, fleahoppers should be controlled only when thresholds are exceeded in order to preserve beneficial insects since these will help control later occurring pests. Unless the cotton is extremely late, after July 25, control of cotton fleahoppers generally is not economical.

Spray decisions should be based on the squaring rate and level of cotton fleahopper infestations. Usually when cotton fleahoppers (adults and nymphs) reach or exceed 30 per 100 terminals and squaring rates begin to decline, treatment is justified. However, if

cotton fleahopper numbers build slowly, fields can tolerate higher numbers before a reduction in squaring rate will occur. In most cases, fields will no longer be vulnerable to cotton fleahoppers once they begin to bloom.

Chemical control of cotton fleahoppers is a fairly easy to accomplish and several products provide good control. However certain chemicals may not be advantageous. Care must be taken to preserve beneficial insects that will help in controlling cotton aphids and spider mites. Flaring of these pests can be avoided by using products that are “easier” on beneficial insects.

The list of chemicals that control cotton fleahoppers includes Vydate, Orthene, Bidrin, Intruder, Centric, Trimax Pro, Carbine, Lorsban, Steward, Lannate, Dimethoate, and various pyrethroids. Bidrin has a label allowing its use in cotton from emergence to prebloom, but you can't apply more than 3.2 oz/ac during this period. According to research conducted by Texas A&M AgriLife Extension at Lubbock, products least likely to flare secondary pests include Carbine, Bidrin, Steward and low rates of Orthene. Other insecticides such as Intruder, Centric and Trimax Pro won't flare aphids and are probably fine to use as well, but have been implicated in flaring mites. Pyrethroids are typically not recommended for fleahopper control because they tend to be very disruptive and may flare aphids and bollworms in non-Bt 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

Upcoming Meetings

July 8 – Minco Gin

Grady County/Canadian County In-season Management Meeting

For more information contact:

Brad Secraw – Grady County Extension Educator – (405) 224-2216 or Kyle Worthington – Canadian County Extension Educator – (405) 262-0155

August 18 – 2015 Oklahoma Irrigation Conference – Caddo-Kiowa Technology Center, Fort Cobb. Topics include: Irrigation Scheduling, Cotton Irrigation Requirement, Managing Salinity, Variable Rate Irrigation, Sensor-Based Technologies, and more. \$15 registration per person. **6 Total Certified Crop Adviser CEUs – 5 CEUs for Soil and Water and 1 CEU for Crop Production.** For more information call David Nowlin – Caddo County Extension Educator - (405) 247-3376.

The 2015 Oklahoma Irrigation Conference registration website is available here:

[Oklahoma Irrigation Conference](#)

[Oklahoma Irrigation Flyer](#)

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

Editors
Randy Boman
Shane Osborne

[SEND US A COMMENT BY EMAIL](#)

Contributing Authors
Randy Boman
Shane Osborne
Jerry Goodson

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:

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.cotton.okstate.edu

www.ntokcotton.org

Oklahoma State University in compliance with Title VI and VII of the Civil Rights Act of 1964, Executive Order 11246 as amended, Title IX of the Education Amendments of 1972, Americans with Disabilities Act of 1990, and other federal laws and regulations does not discriminate on the basis of race, color, national origin, sex, age, religion, disability, or status as a veteran in any of its policies, practices, or procedures. This includes but is not limited to admissions, employment, financial aid, and educational services.