Cotton Comments

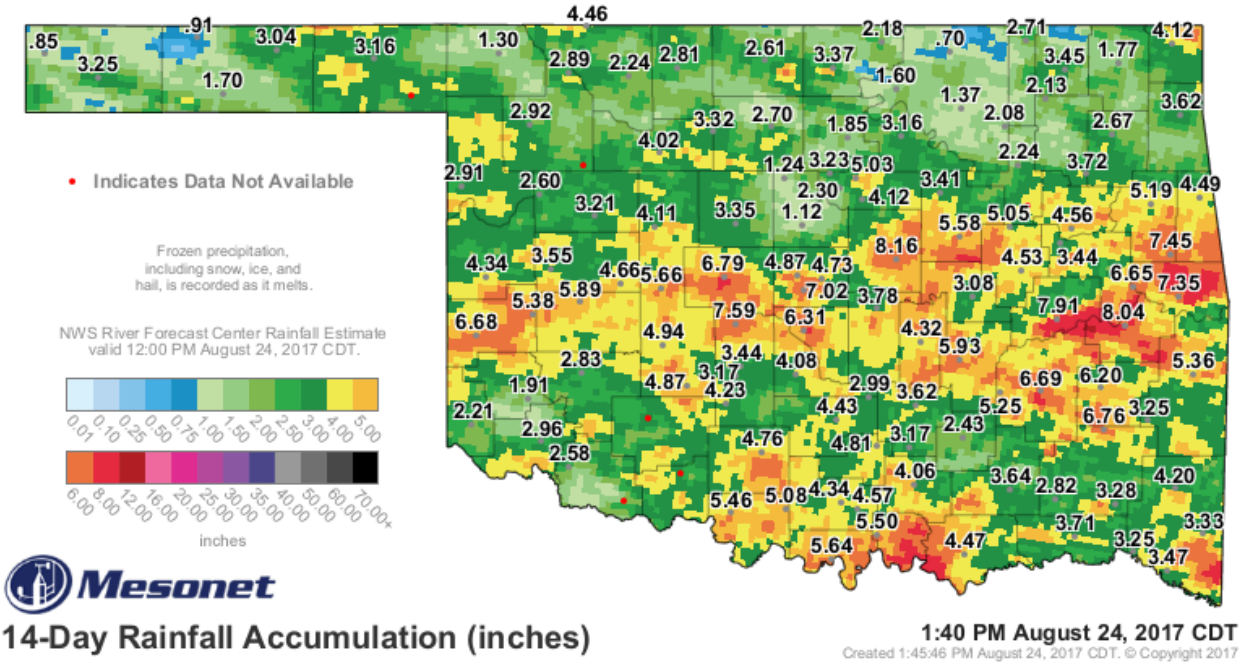
OSU Southwest Oklahoma Research and Extension Center
Altus, OK

August 24, 2017 Volume 7 No. 11

Crop Update

The August, 2017 USDA-National Agricultural Statistics Service Crop Production Report indicated that Oklahoma planted 470,000 acres and they are anticipating a low abandonment, with 450,000 acres to be harvested. Based on Oklahoma Boll Weevil Eradication Organization data, USDA-Farm Services Agency certified planted acres as of August 3 totaled about 505,000. This number is likely at least around 550,000 based on discussions in the industry. The NASS Report estimated our 2017 all-practices lint yield at 768 lb/acre. This calculates into a total of 720,000 statistical bales. Even with a difficult finish, the crop could still produce over 600,000 bales, which would be roughly equivalent to the 2016 crop. That crop was produced on 295,000 harvested acres, but produced a record yield of 1,021 lb/acre. Beltwide data show that the 2017 US upland planted acreage is just under 12 million, with just under 11 million projected to be harvested. The nearly one million acre abandonment was mostly in Texas. This 2017 US crop is estimated at nearly 20 million bales, which is up about 3.2 million compared to 2016. It appears that the state has the highest planted acreage since 1982, and if we make the projected 720,000 bale production, that would be the most since 1942. We are still a long way from having this crop in the bale. This bale volume will challenge both the harvesting and ginning infrastructure in the state. We need another good fall with warm to hot temperatures to finish a lot of late maturing cotton yield potential. We will also need good harvesting weather. After that, we will be asking a lot out of our gins to get this crop in the bale.

The 2017 crop continues to make good progress. Rainfall over the past two weeks has been substantial over the cotton producing area of the state (see Mesonet 14-Day Rainfall graphic below).

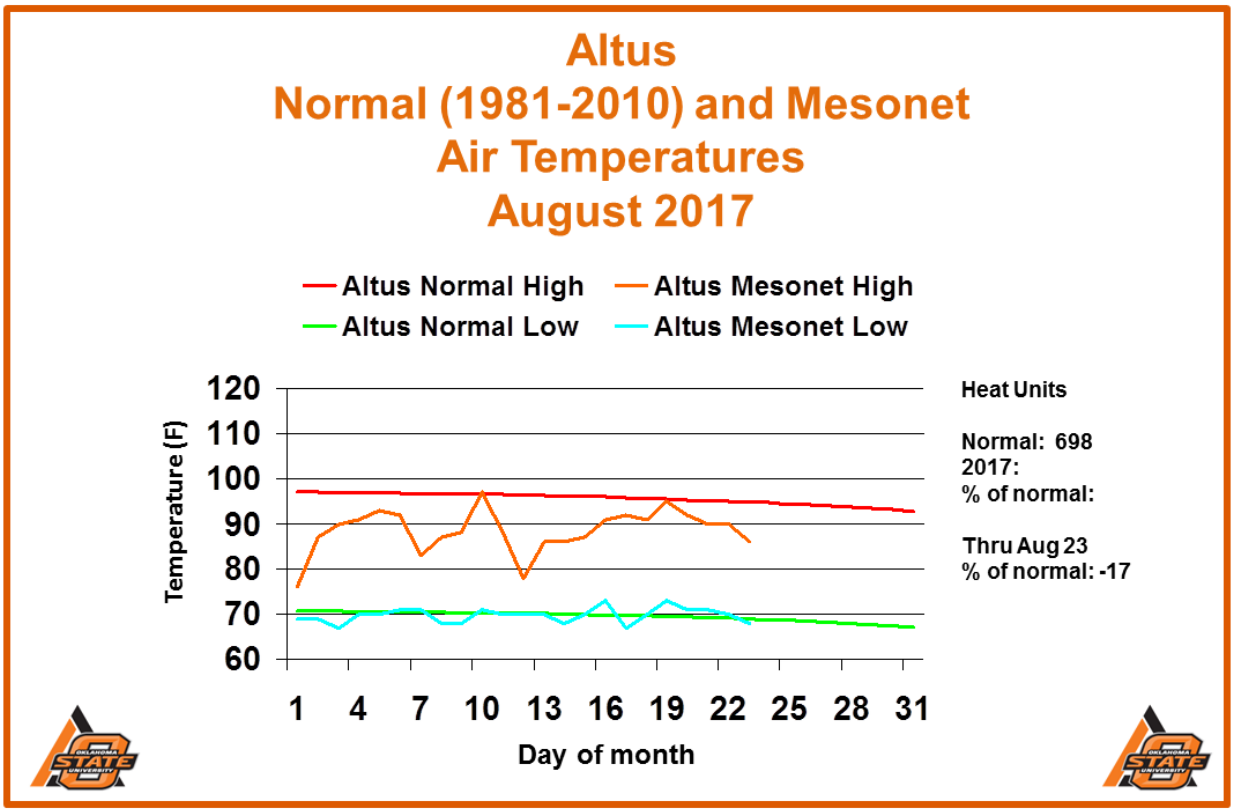


This has been a real blessing for the dryland crop. The earliest planted irrigated cotton is getting close to blooming in the terminal. The big agronomic challenge right now is the fact that the high rainfall, which is excellent for driving yield, is also driving vegetative plant growth. Many questions have recently been asked concerning late season mepiquat chloride plant growth regulator (PGR) use. Generally, to get the most vegetative growth control, we need to start early with PGR applications – at match head square, especially with the high yielding, but growthy varieties. Some areas have had so much rain during August that producers have been scrambling to react to the additional growth spurt. Even fields with an excellent preplanned PGR management regime starting at match head square have been challenged by excessive growth this year. Mepiquat chloride PGRs are labeled for cutout applications (Nodes Above White Flower or NAWF = 4 to 6), and high rates can be used. Note that the maximum labeled rate for 0.35 lb/gallon mepiquat chloride products is 24 oz/acre. Some fields with extremely vigorous growing conditions (high growth potential varieties, high nitrogen availability, and excellent moisture) may not respond well, even to high PGR rates. We are past the point of concern of negative impacts due to high rates, as any pinhead square in the terminal has minimal chance of making a fluffy boll at harvest. Based on historical bloom tag data at Altus, the August 25th date for a white bloom will typically result in a good, fluffy open boll at harvest. White blooms occurring after that date get risky, and become heavily dependent upon a stellar September and October heat unit accumulation. We have been blessed by those conditions in the past three years. There is no doubt that many fields will be a challenge to stripper harvest. Fields with large plants and high yields (greater than 2.5 bales/acre with good maturity) should be considered for the spindle picker harvesting method if these machines are available. Many early June planted dryland fields that have received good to excellent rainfall are still “hovering” around 6 to 7 NAWF. This all means that we are going to have a high

yield potential in many dryland fields, and some of that will be pushed into the “high risk” category.

Heat Unit Update

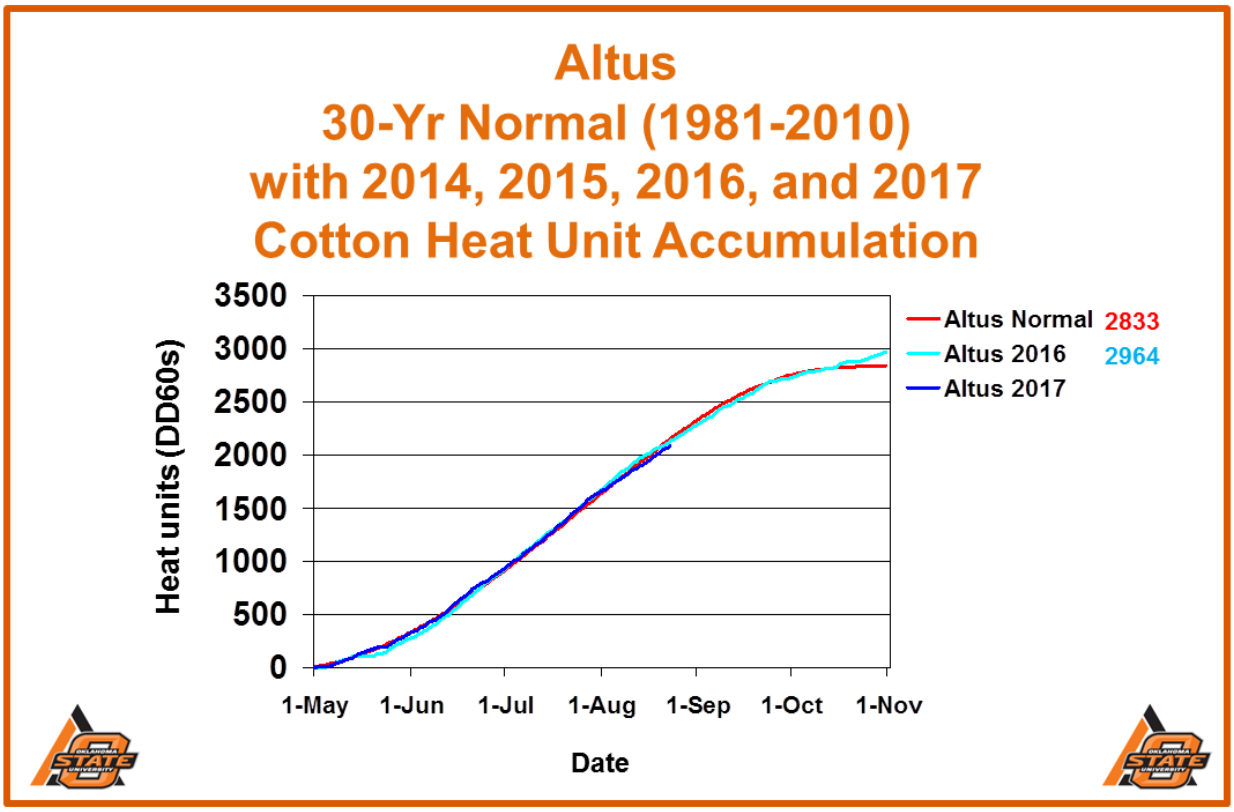
I have been getting calls from producers concerning heat unit accumulations for various areas. For Altus, when comparing the individual months of the growing season to the long-term average, cotton heat unit accumulation for May was 3 percent below, June was 6 percent above, July was essentially normal, but August (through the 23rd) has been about 17 percent BELOW normal (440 vs. 531 for this time period). High temperatures have been lower than normal, but low temperatures have been very close to normal. These data for August look fairly similar to August, 2016. This has been coupled with high rainfall in many areas noted above which has driven considerable growth. We need to obtain a good September and October just like in 2016 to mature this yield potential. For a graphic of the August 2017 daily temperatures, see below.



The table below shows heat unit accumulations for planting dates of May 10 and 20, and June 1, 10 and 20 for various locations in the southwestern corner of the state. The total for the various planting dates at Altus range from 2028 for the May10 date to 1390 for the June 20 date. Since nearly all of our irrigated was planted during the month of May, it appears it should be pretty close to on schedule. The later planting dates reflect the time period when many dryland acres are planted. It appears that for the Altus area, when looking at actual heat unit accumulations from the various planting dates through August 23, the situation looks fairly close to normal. If we assume we will get "normal" temperatures from August 24 through the end of the season, the totals range from 2709 for a May 10 planting date to just under 2100 for the June 20 planting date. For earlier planted irrigated cotton, this is good. The early May planting date total is just under our long-term average total of about 2800. But the late June planted dryland – if high yield potential exists (2.5 bales/acre or so) in the field, may get caught in a maturity squeeze if we don't get above normal temperatures during September and October. Only time will tell.

2017 Mesonet Cotton Heat Units for Various Planting Dates								
	Altus	Tipton	Grandfield	Hollis	Erick	Hobart	Weatherford	Fort Cobb
May 10 - Aug 23	2028	2059	2028	1998	1812	1919	1874	1852
May 20 - Aug 23	1907	1939	1905	1893	1737	1815	1794	1752
June 1 - Aug 23	1767	1804	1764	1770	1642	1712	1701	1646
June 10 - Aug 23	1626	1662	1630	1632	1535	1588	1579	1522
June 20 - Aug 23	1390	1431	1428	1397	1321	1373	1368	1310
Altus LTA from Aug 21 thru Oct 22	681							
Total for various planting dates at Altus using LTA data from August 23 to end of season								
May 10	2709							
May 20	2588							
June 1	2448							
June 10	2307							
June 20	2071							

For the total seasonal cotton heat unit accumulation for 2017 vs. 2016 and the long-term average for Altus, see the graph below.



Verticillium Wilt Observed

Since August has been fairly cool and we have plenty of moisture, Verticillium wilt (caused by the fungus *Verticillium dahliae*) has had an opportunity to infect plants in fields where the disease is present. This disease is commonly found in fields that have previously produced cotton, as the fungus can lie dormant in the soil for some time. Where good crop rotation is practiced the disease pressure can be significantly reduced. Rotations with grasses, legumes, and crucifer crops can reduce the inoculum. If fields have significant disease pressure, variety selection is important, and currently is the only economical method to manage this production challenge. Cotton varieties vary greatly with respect to tolerance to the disease. Dr. Terry Wheeler and Dr. Jason Woodward annually publish research trial results. For the 2016 trial publication, click here:

Verticillium Wilt Trial Results

We have seen this in several fields – including the Hydro area this year. This disease basically overwinters as a microsclerotia. The microsclerotia then infects plants the next summer. As noted by the name, this is a wilt disease, which means the fungus essentially germinates in the soil and infects via the root system. The disease then plugs the water conveying vessels (xylem) and the hyphae then grow up through the plant. This choking of the water supply in turn causes the plant to wilt. Lower leaves

show the first symptoms, which later move up the plant, impacting younger leaves. This disease causes severe wilting and can eventually prematurely defoliate the plant, which in turn reduces the photosynthetic capacity. Boll production can be severely reduced under high disease pressure. Both boll weight and quality are negatively affected.

Early leaf symptoms of Verticillium wilt.

Later leaf symptoms of Verticillium wilt.

Severe Verticillium wilt symptoms on leaf.

Longitudinal cut of main stem below leaf symptomology shows brown flecking caused by fungal growth and clogging of vascular tissue.

Bacterial Blight Noted in Susceptible Varieties

Low Bacterial blight disease pressure has been found in some susceptible varieties. Symptoms of this disease are shown below. No economical treatment is available, and the planting of resistant genetics is the only management option. **Other than genetic control through resistant or immune varieties, no effective treatments for Bacterial blight are currently available.** Many producers encountered this disease in 2016 and planted resistant varieties in 2017. The disease pressure found in the susceptible varieties in 2017 is nothing like the “perfect storm” we encountered in 2016.

For more information on this disease and symptomology see the July 15, 2016 edition of Cotton Comments. Click here

Cotton Comments volume 6 Edition 5 July 15, 2016

Boll and leaf symptomology of Bacterial blight. The waxy spots on bolls and angular spots on the underside of leaves are characteristics of the disease. These angular spots can eventually coalesce into larger necrotic areas and trigger premature defoliation.

RB

Insect Update

The Bollworm complex is still present is some fields. It is more numerous in our northern counties. Stinkbug control sprays have begun in counties along the I- 40 corridor. We need to once again caution about using **pyrethroids even with a combination of aphicide** to control stinkbugs. This is not because they will not do the job but it is due to the likely aphid infestation that can later occur. Pyrethroids are just too harsh on beneficial arthropods to be viable. It is not the aphids in the field at the time of application one has to worry about – it is the subsequent aphids that move into the field to recolonize it. Adult aphids are always on the move. A spider mite infestation was noted in Beckham County. A chemical application was needed for control of this pest. At least one field in Tillman County was sprayed for aphids. The general feeling is that beneficial arthropods are controlling aphids and bollworm complex. Disruptive sprays had been made to some fields and beneficial arthropod populations were reduced. This in turn allowed populations of aphids and the bollworm complex to establish. Where beneficial arthropod populations are limited, these types of problems have occurred. On a side note, at Southwest Research and Extension Center we have a trial that contains non-Bt varieties, and the bollworm complex has been detected but the beneficial populations have prevented any boll damage.

As more fields are turning into “flower” garden and have large accumulation of heat units, more and more bolls are insect safe. Now, the major concern is prevention of “sticky” cotton. Late season aphid control now becomes critical but prudent management is necessary to reduce unnecessary chemical inputs.

Late Season Aphid Concerns

Photos Courtesy of Texas A&M AgriLife Extension

Cotton aphids are small, soft-bodied insects commonly referred to as “plant lice”. Aphids occasionally occur on cotton in such high numbers that control measures should be implemented. Build ups are localized and usually occur after the use of insecticides that are harsh on beneficial arthropods, including pyrethroid types. The insects are found on the underside of leaves and along the terminal stem, causing misshapen leaves with a downward curl and stunted plants. The insect damages cotton directly by sucking juices from the plant and indirectly by secreting honeydew. The honeydew is sticky and can lower the grade of lint. Sticky cotton may result in significant problems during the spinning process at mills. A sooty mold can develop on the aphid honeydew and discolor the lint. For more information on aphids, please click on the following link.

Texas A&M AgriLife Extension Aphid Management Guide

One chemical not mentioned in the above guide is Sivanto™ from Bayer CropScience. It is also labeled for control of cotton aphids. The product rate of 7 to 14 fluid ounces per acre is noted on the label.

Due to the high probability of beneficial arthropod control of cotton aphids, if this pest is found, any potential control measures should be carefully considered. If you have any questions concerning aphid populations, call this office.

Beneficial Arthropods

Preservation of beneficial arthropods becomes crucial now to curb future potential outbreaks of cotton aphids and spider mites. Click on the following link to better understand the role of beneficials arthropods to control cotton aphids.

University of Arkansas Aphid Threshold and Putting Beneficial Insects to Work

Lady Beetle larva

Lacewing larva

Late season aphid infestation may result in “sticky cotton” which is caused by aphid honeydew. Prevention of “sticky cotton” is a high priority.

Photos Courtesy of University of California Davis (UC Davis)

The University of Arizona has an excellent publication to explain sticky cotton.

For Sticky Cotton Sources & Solutions. Please click here.

If an aphid infestation does occur please call this office.

Stink Bugs

Stink bugs in Oklahoma cotton were not a concern until the advent of Bt varieties. Transgenic Bt cotton resulted in fewer insecticide applications for control of lepidopterous pests and soon after, stink bugs were occasionally noted as damaging pests. Although not typically found in economically damaging populations in most southwestern Oklahoma fields, some areas do have issues.

Green Stink Bug
Photo courtesy http://stinkbugsguide.net/

Conchuela Stink Bug
Photo courtesy of University of California

Brown Stink Bug
Photo courtesy http://stinkbugsguide.net/

The following information was taken from the Online Texas A&M AgriLife Extension Cotton Insect Management Guide, which is available here:

http://cottonbugs.tamu.edu/fruit-feeding-pests/stinkbugs/

This website also provides action thresholds and chemical control suggestions for this pest. Stink bugs are shield-shaped, flat and vary in size around 3/8 to 5/8-inch in length, and are about one-half as wide as their length. While the adult brown stink bug is light brown in color, the green and southern green stink bugs are bright green and similar in appearance. They can be distinguished from one another by color of the bands on their antennae. The southern green stink bug has red bands while the green stink bug has black bands. The conchuela stink bug adult is dark brown to black with a red border and a red spot on the tip of the abdomen. The harlequin bug is primarily a pest of mustards and cole crops and will occasionally infest cotton. Adult stink bugs may live for several weeks. Stink bugs get their name from the foul smelling substance they exude from glands on their thorax. This chemical smell is meant to deter predators and warn other stink bugs of danger. This scent gland also plays a role in females attracting mates.

The reason stink bugs appear to concentrate in one part of the field and not others is due to the female's egg laying habits. A single female may lay 300 to 600 eggs, in clusters of 30 to 80 eggs. Egg clusters appear as rows of pale-green, pink or white barrels laid primarily on the underside of leaves. Eggs will typically hatch in 2 to 4 days under ideal conditions, but may require up 2 weeks when temperatures are cool.

Hatching southern green stink bugs

Photo courtesy Texas A&M AgriLife Extension

Stink bugs have piercing-sucking mouthparts and damage cotton by piercing bolls and feeding on the developing seeds. Their feeding activity usually causes small bolls to abort but can result in dark spots about 1/16-inch in diameter on the outside of larger bolls where feeding occurred. These dark spots do not correlate well with the wart formation on the inside of the boll to be used in scouting. There may be several spots on a boll without internal feeding. The external lesions are associated with wart-like growths on the inner carpal wall where penetration occurred. Seed feeding may result in reduced lint production and stained lint near the feeding site. Stink bugs are also known to facilitate the infection of boll rotting microorganisms. Because of their size, adults and fourth and fifth instar nymphs have the greatest potential for damaging bolls.

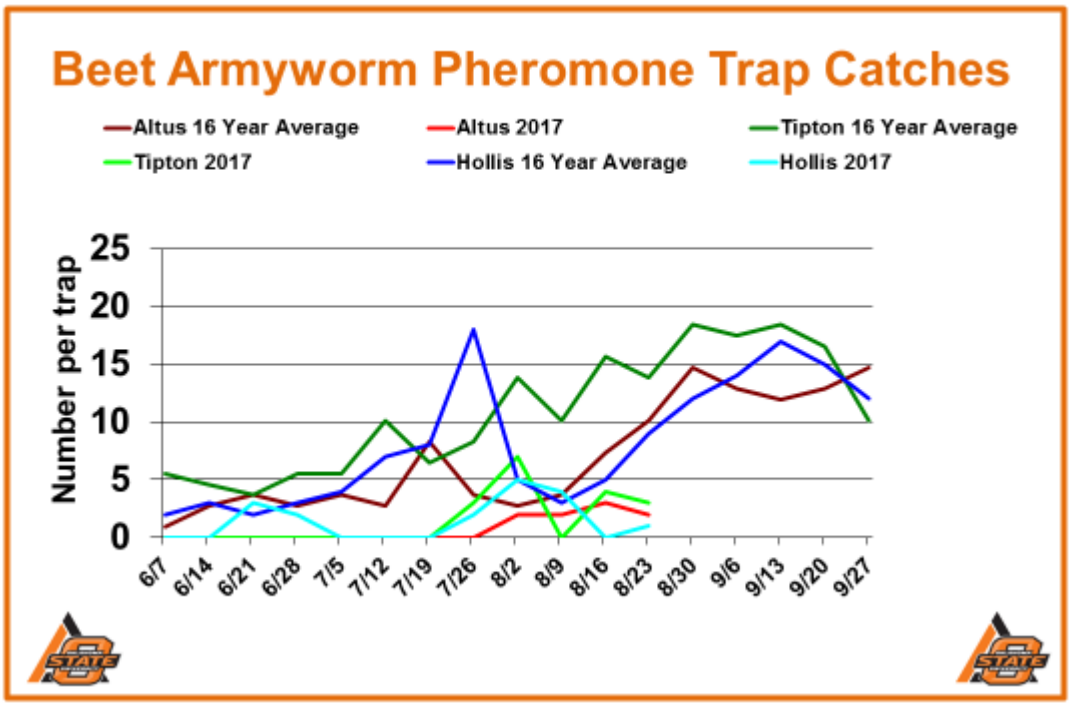
Oklahoma generally only has green and brown stink bugs that can cause economic damage in some areas. However all stink bugs are found in Oklahoma. Many products used to control stink bugs can be disruptive to beneficial arthropods, therefore, contact Extension personnel if a question arises.

Field Surveys – Week Ending August 25, 2017

Location	Date of planting	Plant Stage	Insects	Comments
Blaine Irrigated Cotton Inc Enhanced Variety - Schantz	May 26	4.25 NAWF	NONE	GOOD
Blaine Irrigated Dow Innovation - Schantz	May 26	4.75 NAWF	Sprayed for Stinkbugs	GOOD
Caddo Irrigated OVT – OSU Caddo Research Station	May 30	0.50 NAWF	Sprayed for Stinkbugs	GOOD
Jackson Irrigated DT RACE – Darby	May 15	3.25 NAWF	NONE	GOOD
Jackson Irrigated Bayer CropScience APT	May 24	4.75 NAWF	1 Bollworm[1] 2 Damaged squares	FAIR
Jackson Irrigated OVT – OSU SWREC	May 24	6.00 NAWF	NONE	GOOD
Jackson Dryland DT RACE - Abernathy	June 7	5.75 NAWF	NONE	FAIR
Jackson Irrigated Cotton Inc Enhanced Variety - Abernathy	May 9	1.75 NAWF	APHIDS	OPEN BOLLS
Jackson Irrigated Innovation- Abernathy	May 10	TERMINATED		
Jackson Irrigated PhytoGen Innovation Trial – OSU SWREC	May 24	5.25 NAWF	APHIDS	GOOD
Jackson Irrigated Entomology Trials – OSU SWREC	May 8	3.25 NAWF	NONE	FAIR
Tillman Irrigated DT RACE – Nichols	May 12	5.90 NAWF	NONE	GOOD
Tillman Dryland OVT – OSU Tipton Valley Research Center	June 13	7.00 NAWF	NONE	GOOD
Tillman Dryland DT RACE - White	June 12	3.75NAWF	1 Leaf footed bug	GOOD

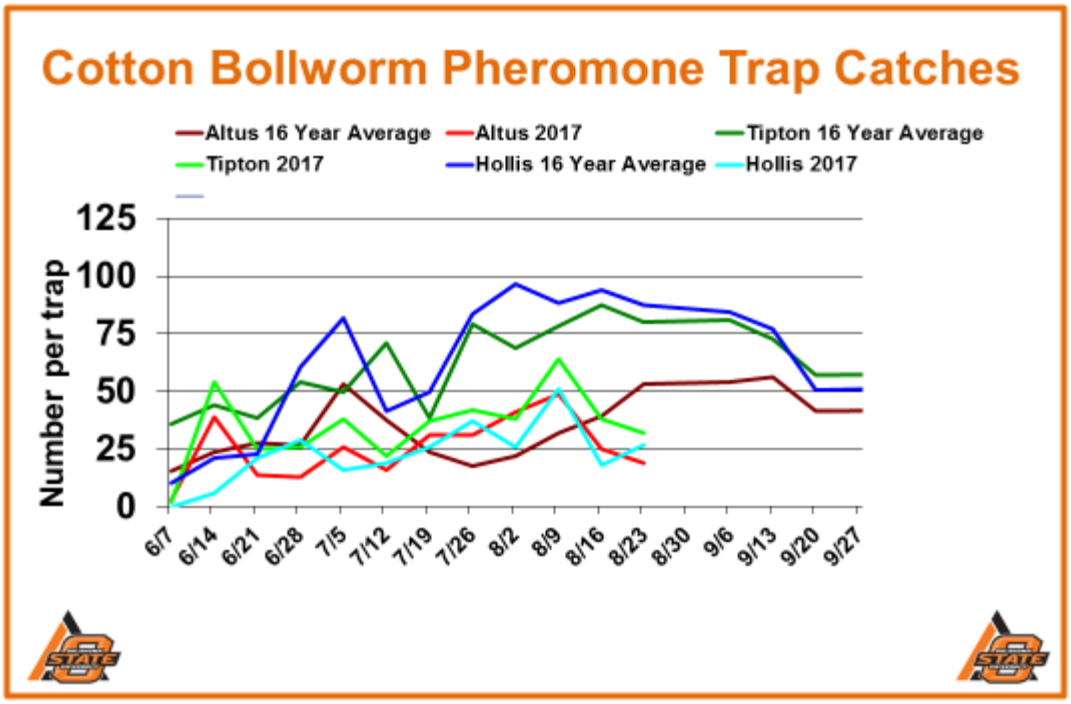
DT RACE – Dicamba Tolerant - Replicated Agronomic Cotton Evaluation Trial (Oklahoma Cooperative Extension)
OVT – Official Variety Trial (Oklahoma Agricultural Experiment Station, Altus, Tipton, Fort Cobb)
APT – Agronomic Performance Trial
[1] Bollworm population and Bollworm damaged squares are based on observations of 100 squares.

Moth pheromone trap data graphs are presented below.



Beet armyworm moth
Photo courtesy of University of Georgia

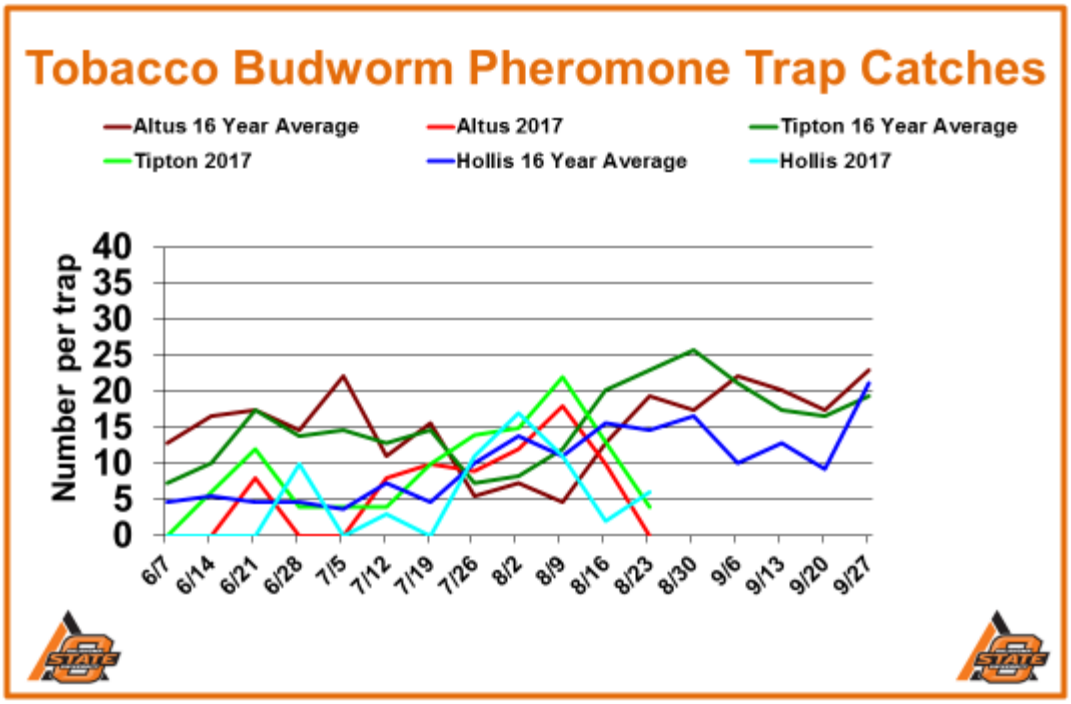
Beet armyworm larva
Photo courtesy of USDA



Cotton bollworm moth

Cotton bollworm larva

Photos courtesy of University of Georgia



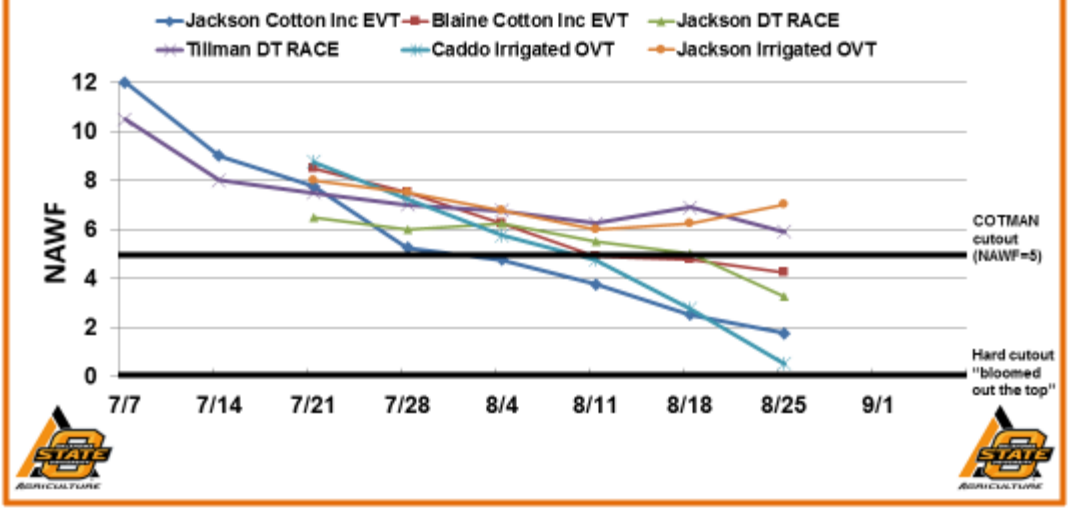
Tobacco budworm moth

Tobacco budworm larva

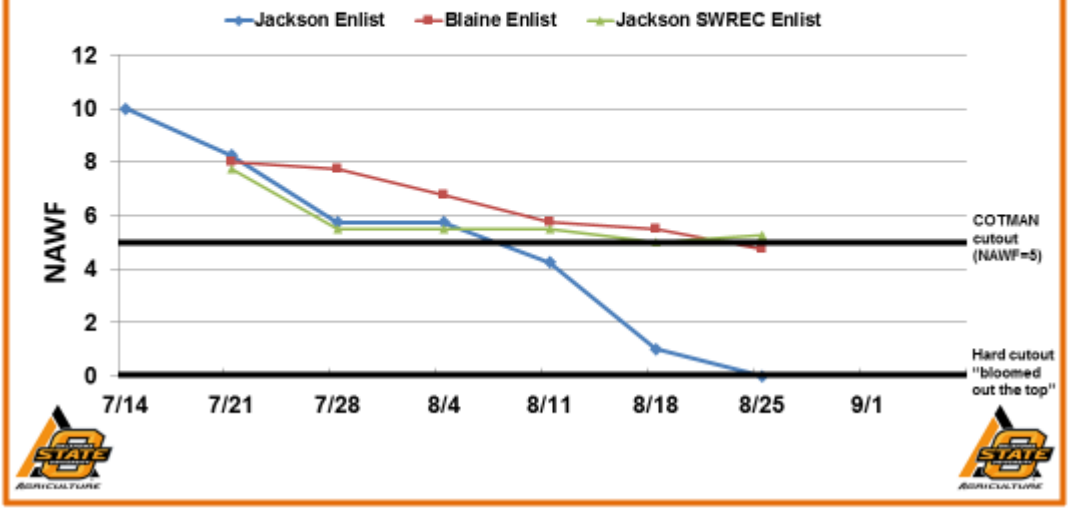
Photos courtesy of University of Georgia

JG

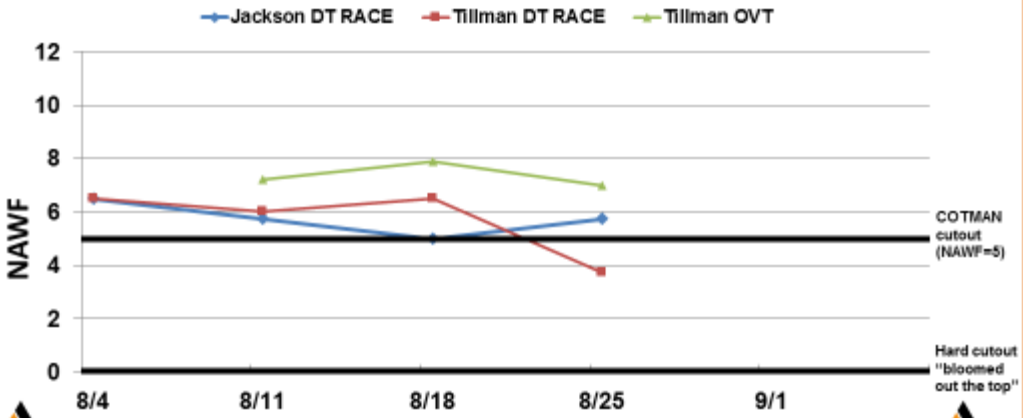
2017 NAWF - Irrigated Field Surveys



2017 NAWF – Irrigated PhytoGen Enlist Innovation Field Surveys



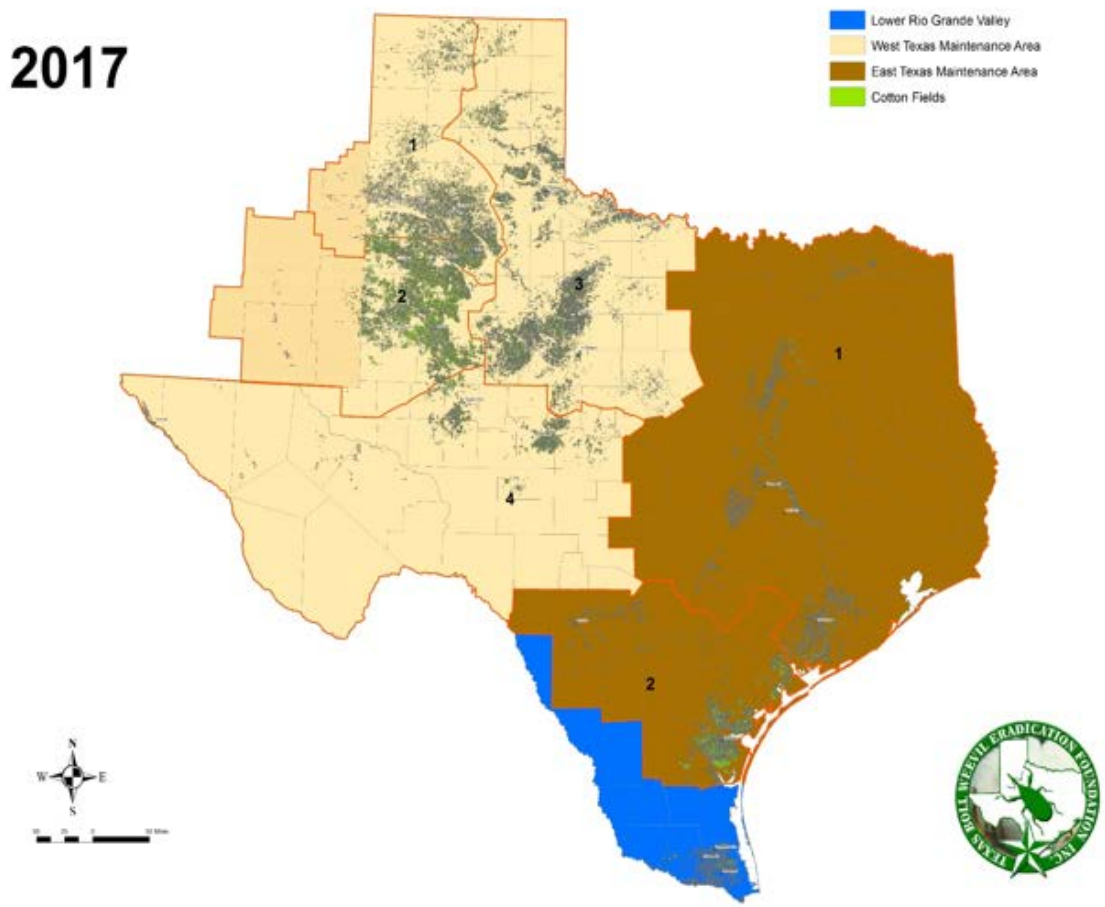
2017 NAWF - Dryland Field Surveys



Oklahoma Boll Weevil Eradication Organization Update: Quarantine of Cotton Harvesting Equipment Coming From Certain Areas of Texas

John Henderson, Director of the Oklahoma Boll Weevil Organization, based at Altus, provided the information below. Eradication of the boll weevil across most of the U.S. Cotton Belt, and in the state has been very successful and is a major contributing factor to the continued profitability of cotton production. It has been a long, difficult, and expensive task to rid our state and most of the Cotton Belt of this invasive species that for such a long time negatively impacted our production. There is still a difficult fight with this insect pest in south Texas, and we all need to do our part in keeping this pest from resurfacing in our state.

Cotton harvesting equipment entering Oklahoma from two eradication areas in Texas has to be certified as boll weevil free prior to movement into our state. Please contact the Texas Boll Weevil Eradication Foundation (TBWEF) at least 48 hours in advance of equipment departure from these two areas. This will allow TBWEF to inspect the equipment. A USDA-APHIS phytosanitary certificate is issued and is required before equipment can be transported from these areas. These ONLY include the Lower Rio Grande Valley Eradication Zone (blue area on the map below) or the East Texas Maintenance Area (brown area on the map below). This is critical to meet USDA-APHIS requirements and prevent the re-infestation of boll weevils into eradicated areas. It is illegal to move non-certified cotton harvesting equipment from these areas into the state of Oklahoma.



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

Oklahoma Boll Weevil Eradication Organization:
580-477-4280 Office
580-471-7962 John Henderson Cell

Upcoming Meetings

September 6th – Northwest Cotton Growers, Moscow, KS, Field Day. For more information contact Jerry Stuckey at 620-598-2008.

September 19th – Great Plains Gin, Minco, OK. For more information contact Kyle Worthington at 405-262-0155.

September 21st – Carnegie Co-op Gin Fall Tour. For more information contact Jeannie Hileman at 580-654-1142 or David Nowlin at 405-247-3376.

September 21st – Caddo Research Station Field Day, Fort Cobb.

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Editor

Randy Boman

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