

# Cotton Insect Management and Control for 2017

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# Points of Discussion

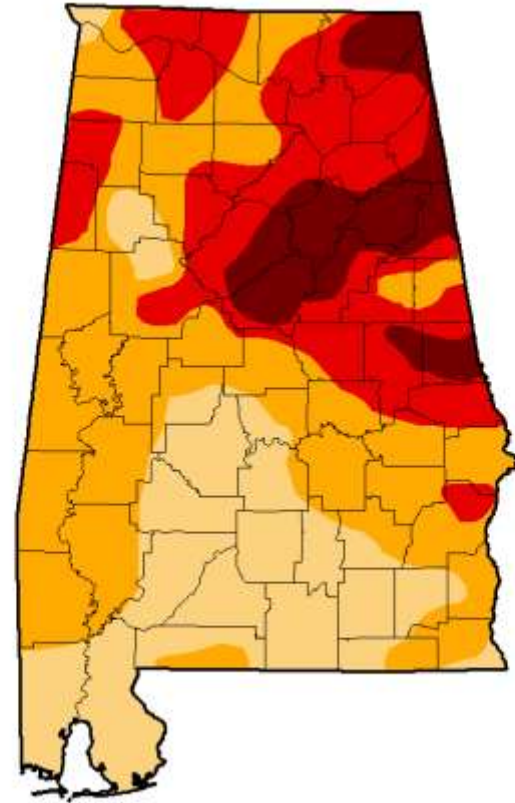
- Impact of Weather on Insect Management
- Thrips Control
- Plant Bug Management
- Aphid Control
- Mid Season Bollworm Escapes
- Spider Mite Management and Control
- Stink Bug Scouting and Control



# Impact of Weather on Insect Management

## Range:

- Excessive rainfall to drought, excessive heat.
- Insects (pests) impacted: thrips, plant bugs, aphids, spider mites.
- Suggestions on how to manage under weather extremes.



Released Oct 27<sup>th</sup> 2016. Image from:  
<http://droughtmonitr.unl.edu/Home/StateDroughtMonitor.aspx?AL>

# Cotton Thrips Control

Numerous Factors affect Thrip pressure and management.

## 1. Plant Date:

- In general, earlier plantings equal higher Thrips pressure and damage.
- Development of computer model to project Thrips pressure.
- Resistance



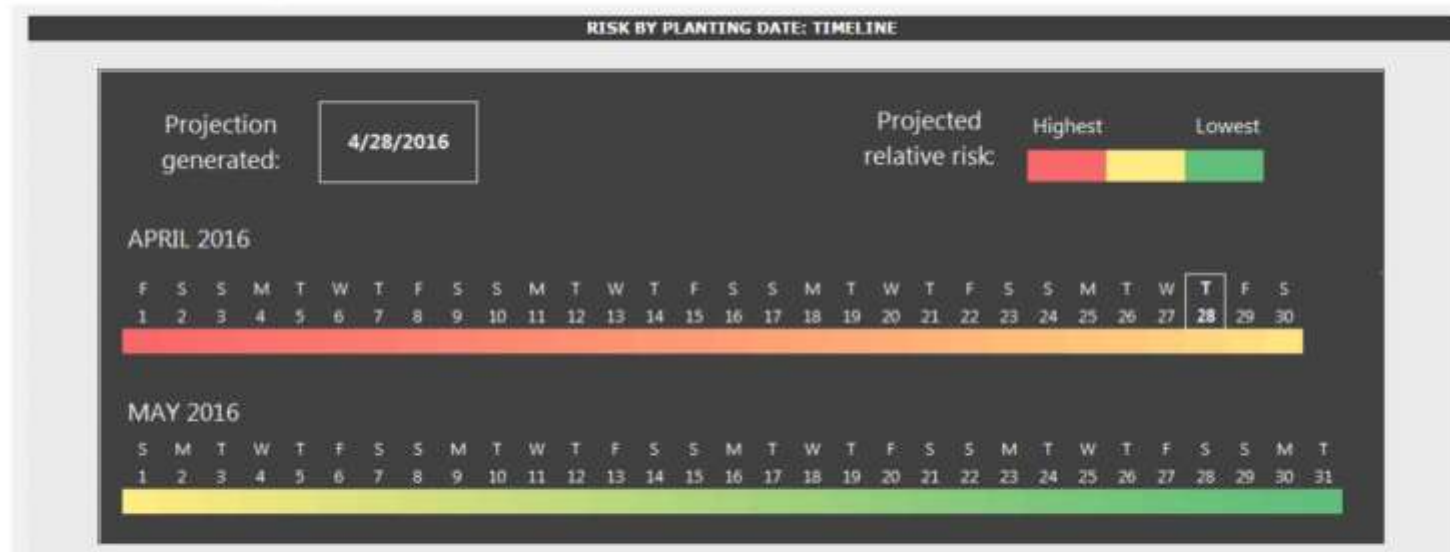
# Cotton Thrips Control (Continued)

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## Management of Thrips on Cotton

### Evaluating Management Tactics

- Contribute to development of model to predict risk of thrips injury to seedling cotton



- Efficacy of at-plant treatments
- Evaluating varietal resistance

Data & Image:  
Alana Jacobson  
Assistant Professor  
Auburn University

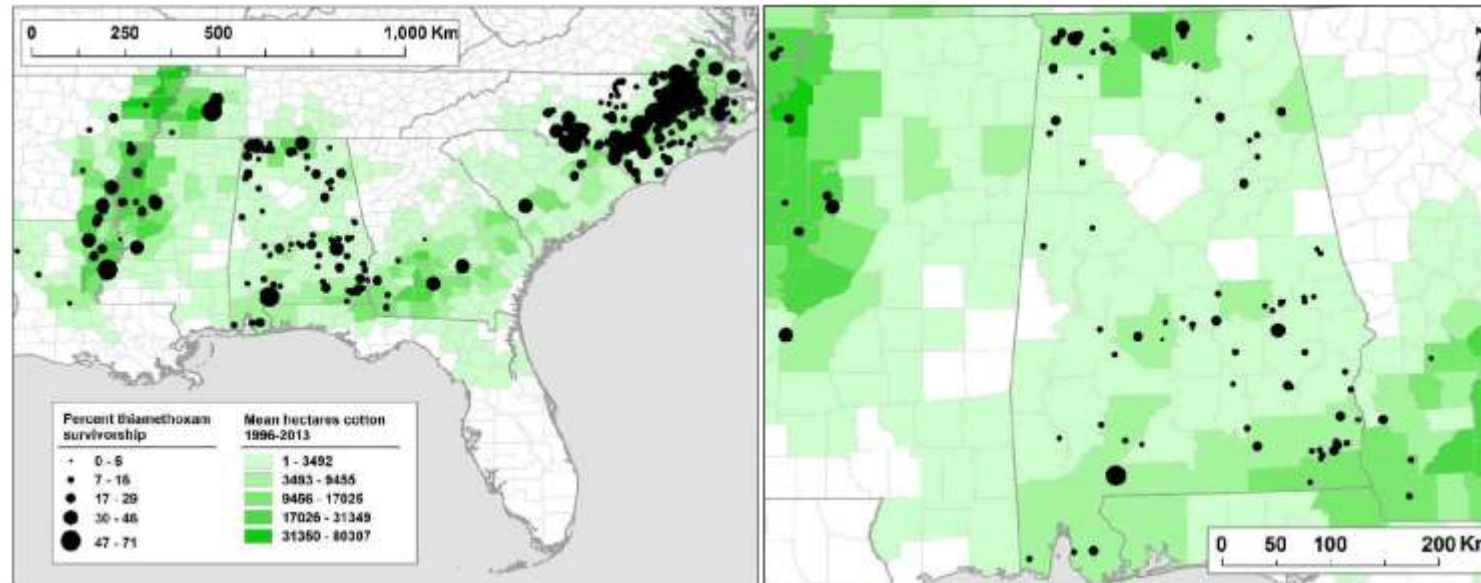
# Cotton Thrips Control (Continued)

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## Management of Thrips on Cotton

- Neonicotinoid resistance documented in tobacco thrips populations across Southeast and Mid-South in 2014-2016.

### Resistance Surveys



Data & Image:  
Alana Jacobson  
Assistant Professor  
Auburn University



# Cotton Thrips Control (Continued)

## 2. Tillage:

- Reduced tillage generally lowers Thrips numbers.

## 3. Choice of at planting Thrips control:

- Seed Treatment: Abris, Avicta  
(Gaucho, Cruiser)
- In-furrow: Velum, acephate,  
Imidacloprid (Admire Pro)

# Cotton Thrips Control (Continued)

## 4. Foliar Treatment:

- Acephate (Orthene) 3 - 6 oz.
- Bidrin 1.6- - 3.2 oz. (0.2 lb./ac ai)
- Dimethoate 6.4 oz.
- Radiant 1.5 - 3 oz.
- Centric 2 oz.

## 5. Spider Mite considerations with foliar spray.



# Plant Bug Management

## June:

- Migration of adults into cotton from wild hosts.
- Adults both feed on pin head squares and deposit eggs, which hatch about three weeks later.
- Survey adults with sweep net. (Gemplers, Great Lakes IPM).
- Threshold: 8 per 33 sweeps. (100 feet).
- Monitor square retention. (threshold 80% retention).
- Treatments: pyrethroids (bifenthrin), Transform, Centric.



# Plant Bug Management (Continued)

## July:

- Eggs begin to hatch into early instar nymphs.
- Survey immature nymphs with drop cloth.
- Threshold: one immature per row foot.
- Effects of extreme heat and drought on immature population.
- Controls: Bidrin (after first bloom)  
Transform  
Pyrethroids (Bifenthrin)
- Diamond (IGR) highly effective on July immatures.
- Impact of foliar sprays and choice of chemical on spider mites.





# Aphid Controls

- Aphids are susceptible to a naturally occurring fungus.
- Can wait for fungus except when cotton is under prolonged drought stress.
- Aphid control is very economical. (example, 1 oz. imidacloprid = \$1.25 - \$1.50/ac.



# Bollworm Escapes on Bt Cotton

## 1. Do we have a slippage of genes???

- |               |                        |            |
|---------------|------------------------|------------|
| ▪ Bollgard II | Cry1Ac + Cry2Ab        | DPL        |
| ▪ Widestrike  | Cry1Ac + Cry1F         | Phytogen   |
| ▪ WSIII       | Cry1Ac + Cry1F + Vip3A |            |
| ▪ Twin Link   | Cry1Ab + Cry2Ae        | Stoneville |

## 2. None of the two gene varieties are bulletproof against bollworms.

For Example: Cry1Ac about 60% control of BW

Cry2Ab increases effectiveness to about 90% in Bollgard II

Cry1F does not add that much in Widestrike

Cry2Ae puts Twin Link effectiveness somewhere in between.



# Bollworm Escapes on Bt Cotton (Continued)

**Beneficial's give a boost to all technology cotton where they are present.**

- Fire ants are the major beneficial insect against BW.
- However in reality, it is a numbers game --- the more BW eggs deposited, the greater the likelihood of escapes.
- All fields with economic levels of escapes seem to match up to the big BW flight that comes from corn.
- That being the case, we know when to expect it.
- Plant bug sprays just prior to this fight always seem to increase the number of escapes.

# Bollworm Escapes on Bt Cotton (Continued)

**So when should we expect this July/August BW flight from corn:**

- Usually it happens within a 7-10 day window, then it takes 14 days for the worms to cycle out.
- Generally, here is when we should be on guard for BW escapes:
  - Southern Alabama: July 10 -15 eggs deposited
  - Central Alabama: July 20 - 25 eggs deposited
  - Northern Alabama: August 1-5 eggs deposited
- The escapes are usually noticed 7-10 days later, when mid to large larvae appear in blooms or bolls.



# Bollworm Escapes on Bt Cotton (Continued)

## How do we prevent damage from this bollworm generation?

- Scout closely during the periods identified.
- Make a preventative application if damaging numbers are detected.
- Pyrethroid chemistry is perfect choice here.
- Other benefits to application:
  - Clean up plant bugs
  - Control early stink bugs.
- This application would likely be during the 2<sup>nd</sup> to 4<sup>th</sup> wk of bloom.
- This would be great timing for a bug spray.
- Phytogen varieties may be more prone to escape bollworms.

# Stink Bug Management

- Critical weeks for stink bug injury:
  - Weeks 3 through 6 or 7 of bloom
- This is the Window where most bolls are being set.
- Stink bugs (brown and southern green species) prefer to damage bolls about 10 days old. (About size of quarter in diameter and still soft when squeezed by hand.)



# Stink Bug Management (continued)

How to survive stink bug damage:

## DO NOT LOOK FOR ADULTS

(They are sensitive to movement and hide)

- Pull sample of soft bolls, crush and observe for internal injury
- The threshold for controls is when 10% of bolls show damage between week 3 -7 of bloom.

# Damage may consist of:



Warts on inside of boll wall.



Pinhead feeding holes on inside of boll wall. Phillip Roberts, University of Georgia, Budwood.org.



Discolored area around developing seed.



# Stink Bug Management (continued)

Where are “hot spots” for stink bugs

1. Field borders adjacent to other host crops:

- Corn
- Peanuts
- Pecans

2. Field borders near overwintering sites:

- Pine Trees

Sprays to field borders may be advantageous.  
(about 30')









# Stink Bug Management (continued)

Choice of chemicals for stink bug control:

Bidrin 5- 8oz.

Orthene (generic) .75 - 1.0 lb./ai.

Pyrethroids (bifenthrin) 6.4 oz.

Belay 3 - 4 oz./ai. (works better on soybeans than cotton)

# New Stink Bug Spreading in Alabama)

## Brown Marmorated Stink Bug



Adult Stink Bug



Immature Stink Bug



Leaf Footed Bug

Now present in about 15 counties in north and central Alabama.  
Will damage older bolls in cotton.  
Prefers to feed on field borders.  
Difficult to survey for with sweep net.  
Can be controlled with our current stink bug chemicals.



# Spider Mites

- Greatly impacted by drought and heat.
- Mites are present in low numbers in most fields season long.
- Just waiting to flare up.
- Lack of rainfall and/or sprays of acephate (Orthene) or pyrethroids.
- Bidrin is product least likely to flare mites.

# Spider Mites Questions

1. How to Survey for Mites?
  2. Threshold?
  3. When to treat?
- Look under leaves for mites. (need good eye sight)
  - Determine the distribution across field.
  - No exact number - consider weather outlook.
  - Treat when mites are distributed across significant area and the 7 day forecast is for hot and dry weather.
  - Choice of chemical: abamectin (Agri-Mek, or other brand names 8 - 12 oz.ac. Is most economical.
  - Other Choices: Portal, Zeal and Oberon.



# Other Economic Pests of Concern in 2016

## 1. Red banded stink bug in soybeans

- ▶ Native of South America
- ▶ Economic pest of soybeans in LA for past 15 years
- ▶ First observed in Baldwin County, AL in July 2010
- ▶ Susceptible to cold winters but are adapting (15 degrees F past two winters in Fairhope (Baldwin County))
- ▶ Now present in multiple SW AL counties
- ▶ Has caused 13% average yield losses in LA
- ▶ Loss is in volume and not weight
- ▶ Will damage pods later than other stink bugs
- ▶ May have to control even after applying harvest aids
- ▶ Pyrethroids should control - but resistant in LA





**Red Banded Stink Bug adult**



## Immature Red Banded Stink Bug





Predacious SB



Red banded



Red shouldered



Brown  
Marmor-  
ated



Brown



Tree feeding SB







# Other Economic Pests of Concern in 2016

## 3. Soybean Looper Control

- ▶ Foliage feeders only
- ▶ Can cause economic losses if they have 3-5 or more per foot of row
- ▶ Pyrethroids do not give adequate control
- ▶ Must control with:
  - ▶ Intrepid                      5-6 oz.
  - ▶ Intrepid Edge                4 oz.
  - ▶ Belt                          2-3 oz.
  - ▶ Prevathon                    14 oz.
  - ▶ (Besiege)                    7 oz.
- ▶ Use same chemicals and rates for S. Loopers on peanuts
- ▶ These insecticides are more expensive than pyrethroids but give 30+ days control (long residual and rain fast)

# Other Economic Pests of Concern in 2016

## 4. Lesser Corn Stalk Borer - Peanuts

- ▶ Can be very economic pests
- ▶ Populations thrive in sandy soils under dry conditions
- ▶ Rain event gives as good control as insecticides
- ▶ Lorsban (old stand by) likely will not be available after 2016 (EPA)
- ▶ Alternatives that show promise:
  - ▶ Dimilin 4 oz. x 3 app = 12 oz.
  - ▶ Diamond 9-12 oz.
  - ▶ Prevathon 14 oz.





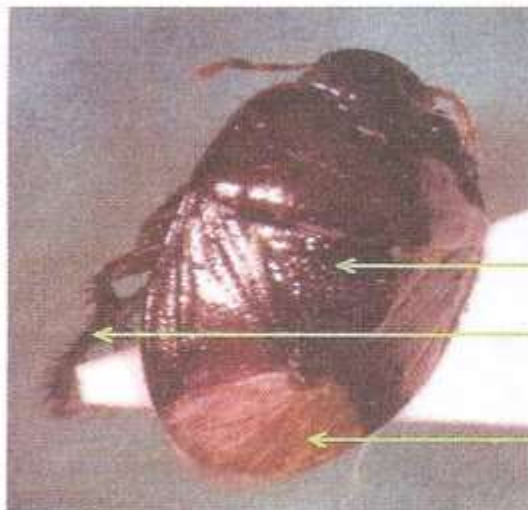
Sucking mouthparts (beak)  
of burrower bug tucked in  
between the legs.

*Pangaeus bilineatus* – Damaging to peanuts  
(image sources: Bruce Getty, [www.bugguide.net](http://www.bugguide.net))



Smooth dark thorax (~8 mm)  
with brown spiny legs.

*Cyrtomenus ciliatus* – NOT damaging to peanuts  
(image source: John Maxwell, [www.bugguide.net](http://www.bugguide.net))



Dark body with a large triangular  
scutellum. Body with hair and  
numerous pits.

Legs densely covered with  
spines

Wings are semi-hardened. The  
soft terminal portion of wings  
overlap when folded on the back.

*Pangaeus bilineatus* – VERY damaging to peanuts  
(image source: ACES)



Shiny black body (~8 mm) with  
white wing margin. Also known  
as the white-margined  
burrower bug.

*Sehirus cinctus* – NOT damaging to peanuts  
(image source: Mike Quinn, [www.bugguide.net](http://www.bugguide.net))

# Other Economic Pests of Concern in 2016

## 5. Burrower Bug - Peanuts

- ▶ Greatest problem in strip-till systems during dry seasons
- ▶ Deep turning is the most effective control
- ▶ Irrigation or adequate rainfall helps reduce damage
- ▶ White margined species not damaging to peanuts



A photograph of a vast field of small white flowers, possibly cotton or a similar species, stretching towards a dark line of trees in the distance. The sky is overcast. The image is framed by a blue and white geometric border on the right side.

# Questions or Comments