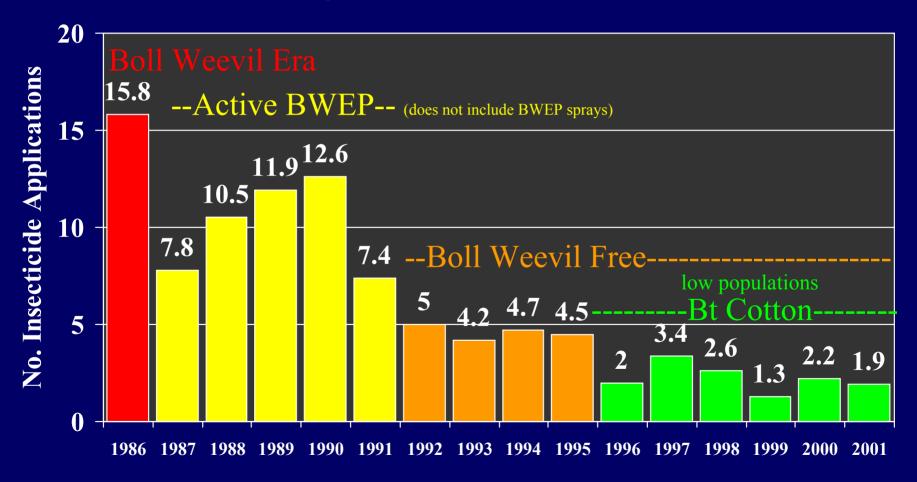
## Almost Everything You Want to Know About Stink Bugs and What You Better **Know about Roundup** Ready Cotton

Steve Brown, Phillip Roberts, and Stanley Culpepper

### Insecticide Applications per Acre

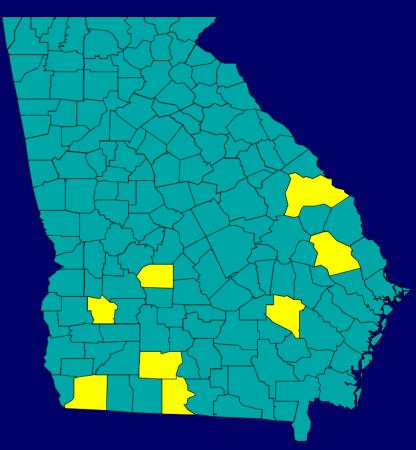
Georgia Cotton, 1986-2001



## Survey Methods

#### Insect Boll Damage Survey: Georgia 2001

- Ten fields per county.
  - 5 Bollgard and 5 Non-Bt
  - Fields had cutout
- Collected 100 bolls per field.
  - Approximately 50 bolls collected from two locations.
  - Sampled all harvestable bolls from individual plants.
- Examined bolls for insect damage.
  - Worm Damage
  - Bug Damage
- Insecticide application history.
  - Target Pest(s)



Counties Surveyed:

Appling, Brooks, Bulloch, Burke, Colquitt, Decatur, Dooly, and Terrell

## Survey Methods

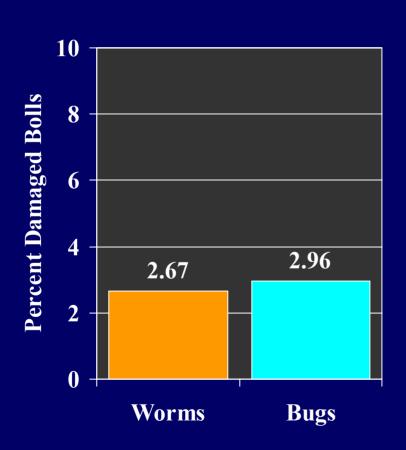
- Green bolls examined internally.
- Bolls with at least one lock with **significant** rot were considered damaged.
  - Worm Damage
  - Bug Damage







# Percent "Bug" and Larval Damaged Bolls Insect Boll Damage Survey: Georgia 2001

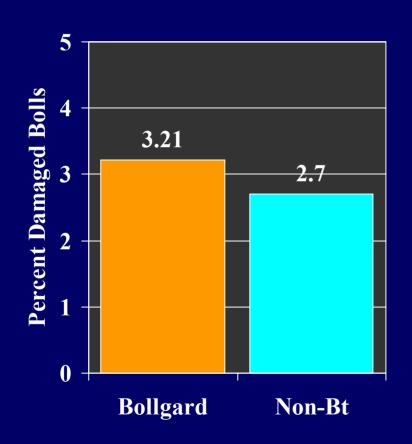






### Percent "Bug" Damaged Bolls

Insect Boll Damage Survey: Georgia 2001



• Complex of "Bugs" may feed on developing bolls.

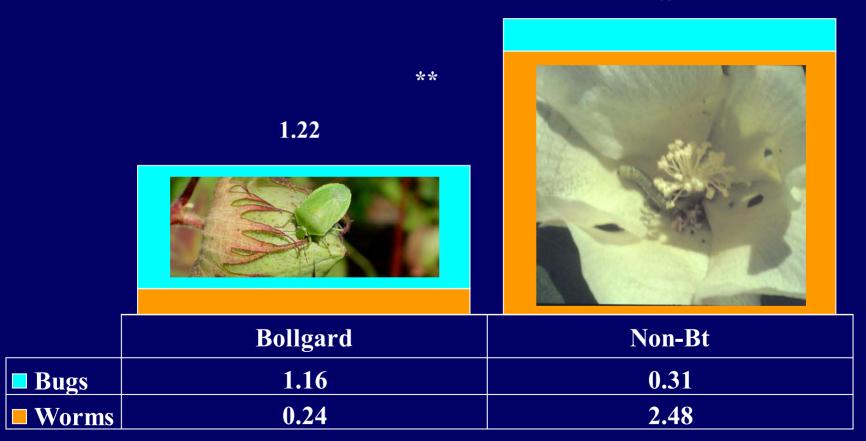


\*\* Prob |t| <0.01
39 Bollgard and 43 Non-Bt Fields

## Mean Insecticide Applications

Insect Boll Damage Survey: Georgia 2001

2.52



<sup>\*\*</sup> Prob |t| <0.01
37 Bollgard and 42 Non-Bt Fields

### Stinkbug "Complex"

- Predominant species include <u>Southern</u>
   <u>Green Stink Bug</u> and Brown Stink Bug
- Other true bugs such as Tarnished Plant Bug and Leaf Footed Bugs cause similar damage
- There are predaceous species such as the Spine Soldier Bug



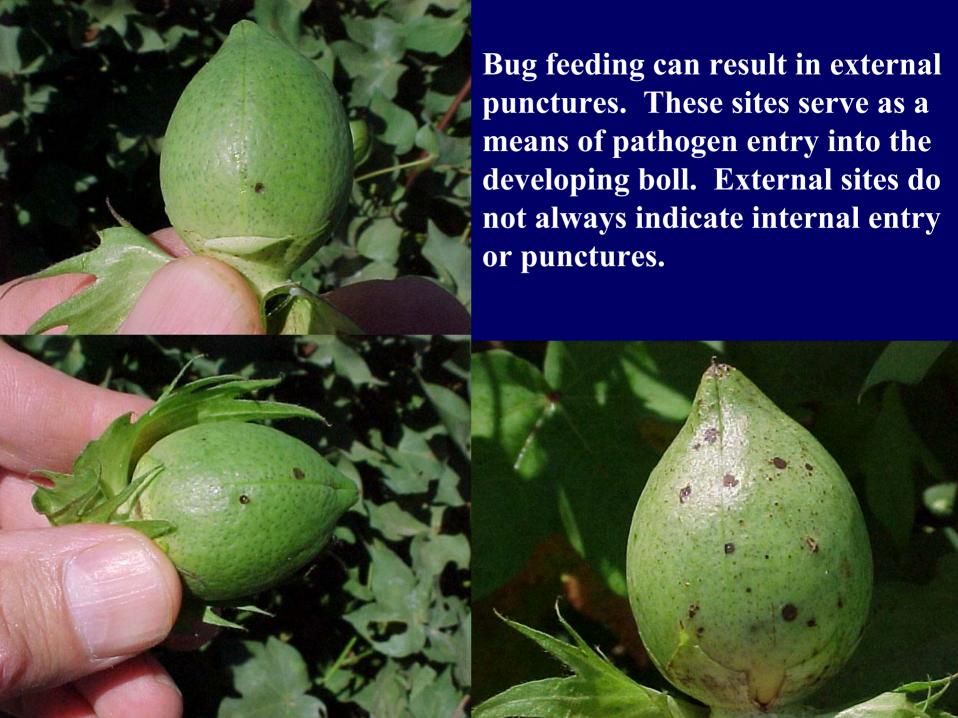




#### Bug Damage--What Does it Look Like?

- Fruit abortion
- Hawk-billed bolls
- External boll punctures
- Internal boll punctures, warts
- Internal rot







### Stink Bug Threshhold

- Depend on reliable scouting procedures
- They are shy, mobile creatures
- What is damage?
- Adjacent crop has significant impact

• Best approach: Boll DAMAGE Count



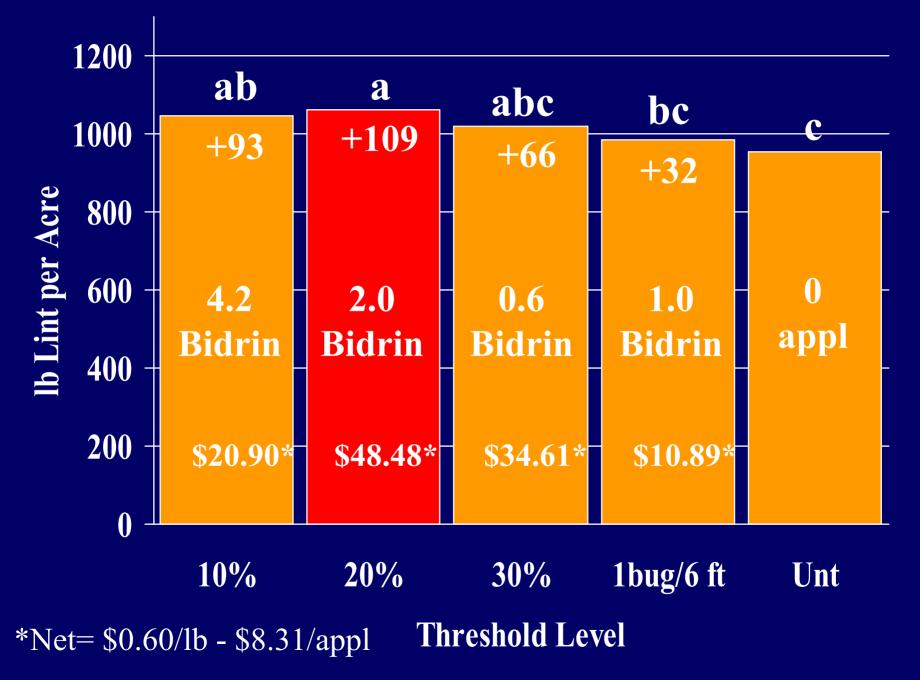
### Cotton / Peanut Interface







#### J. Greene, summary of 5 locations



# "Bug" Threshold

- When 20% of medium sized bolls (the diameter of a quarter) display internal signs of feeding and stink bugs are observed. OR
- Treat when stink bugs number 1 per 6 row feet.



## Stink Bug Control

# Stink Bug Trial 2000



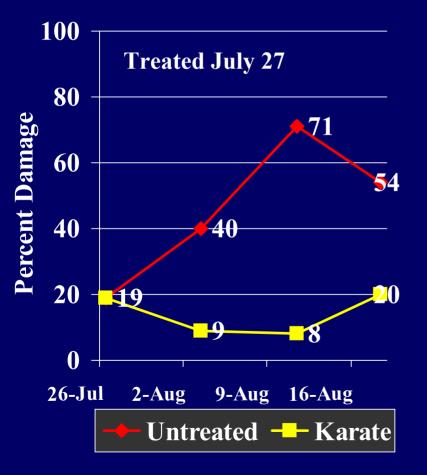


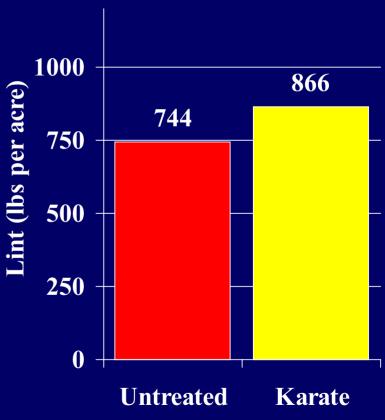




### Stink Bug Trial 2000

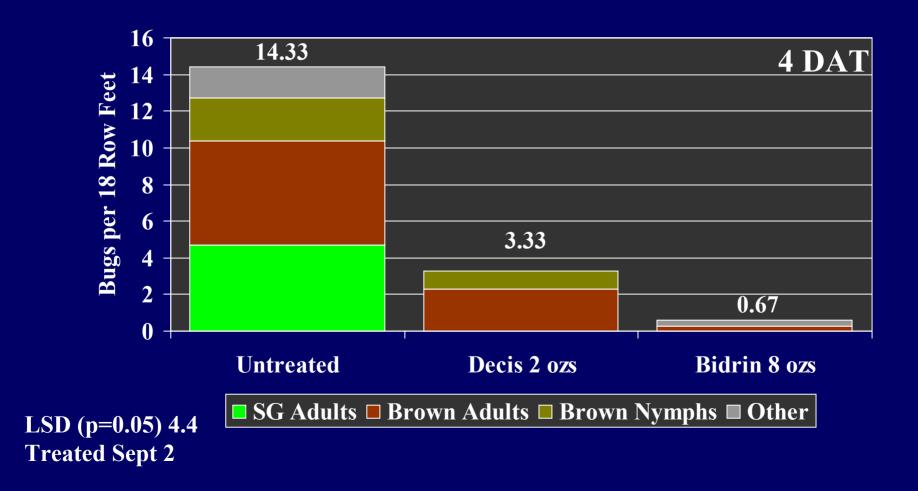
Irwin County GA - Tyler





### Stink Bug Field Trial

Lang Rigdon Farm - 2001



### Southern Green vs. Brown

Insecticide Susceptiblity

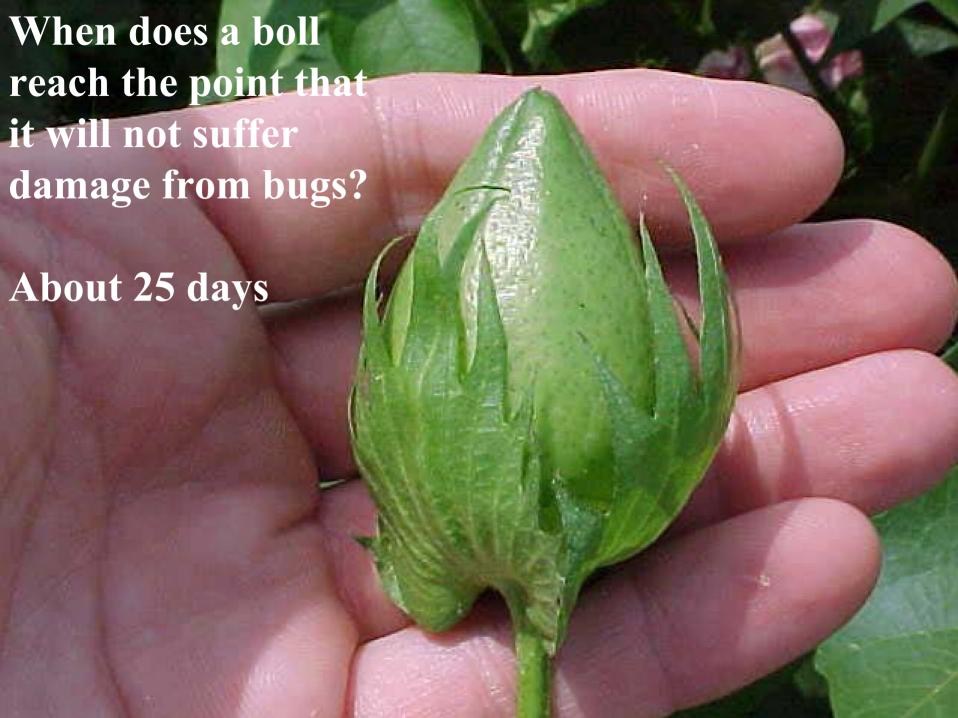


Pyrethroids
Bidrin
methyl parathion
Vydate



OP's
Bidrin
methyl parathion
Orthene

Pyrethroids are weak on Brown Stink Bug





# Top 12 Varieties and Technology in 2001 GA Crop

B/RR RR B Conv
DP 458 BR DP 5415 RR NuCOTN 35B DP 5415
ST 4892 BR DP 5690 RR FM 989
DP 451 BR SG 521 RR
DP 655 BR DP 436 RR
DP 425 RR

Distribution across technology (% of total acreage)

41.5 40.8 4.6 12.1

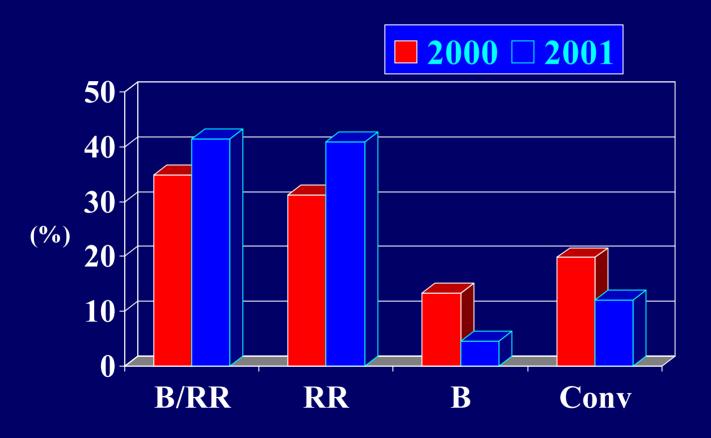
(USDA Ag Marketing Survey, August 2001)

### Top 12 Varieties in 2001 GA Crop

B/RR	RR	В	Conv
DP 458 BRR	DP 5415 RR	NuCOTN 35B	DP 5415
(20.6)	(16.5)	(2.0)	(2.3)
ST 4892 BR	DP 5690 RR		FM 989
(5.2)	(15.0)		(2.0)
DP 451 BRR	SG 521 RR		
(4.8)	(3.4)		
DP 655 BRR	DP 436 RR		
(2.5)	(3.2)		
	DP 425 RR		
	(2.7)		

USDA Ag Marketing Survey, Aug 2001

# Technology Distribution (%) of 2000 vs 2001 GA Crop



### Roundup Ready Cotton Issues

- Variety performance
- Mechanism of crop "tolerance"
- Weed management programs
- TIMING of applications

# RR Cotton Variety Performance

- Glyphosate (properly applied) does not affect the yield of RR cultivars
- In terms of yield potential, RR cultivars are not superior
- Conventional, Bollgard/RR, and Bollgard varieties outperform RR varieties



# RR Cotton Mechanism of Crop Tolerance

- A genetically altered enzyme system provides tolerance to glyphosate in the production of shikimic acid (amino acids)
- Glyphosate is not degraded within the plant
- Excellent vegetative tolerance but marginal tolerance in developing flower
- Can sterilize pollen







Roundup Ready Weed Management...

there are many, many options.

## Roundup Ready Programs

Options (6)

PPI / PRE

**OTT 1-2 LF** 

**OTT 2-4 LF** 

PDIR 6-10 LF

LAYBY

**Preferred Standard** 

Dinitroaniline

glyphosate or glyphosate + Staple

diuron or prometryn + MSMA

## RR Cotton Weed Management--Reasons to Include Conventional Herbicides in Program

- Reduce potential for early competition
- Improve control spectrum
- Reduce selection pressure for weed shifts and resistance
- Avoid phantom fruit loss with (mis) directed applications





## Timing is Everything!









