

# Management Considerations: Squaring to First Flower



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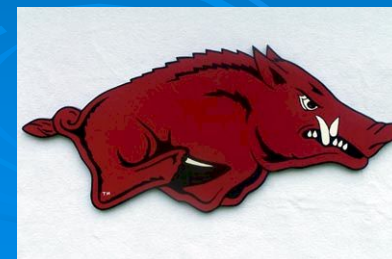
Scott Stewart, UT

Roger Leonard, LSU

Angus Catchot, MSU

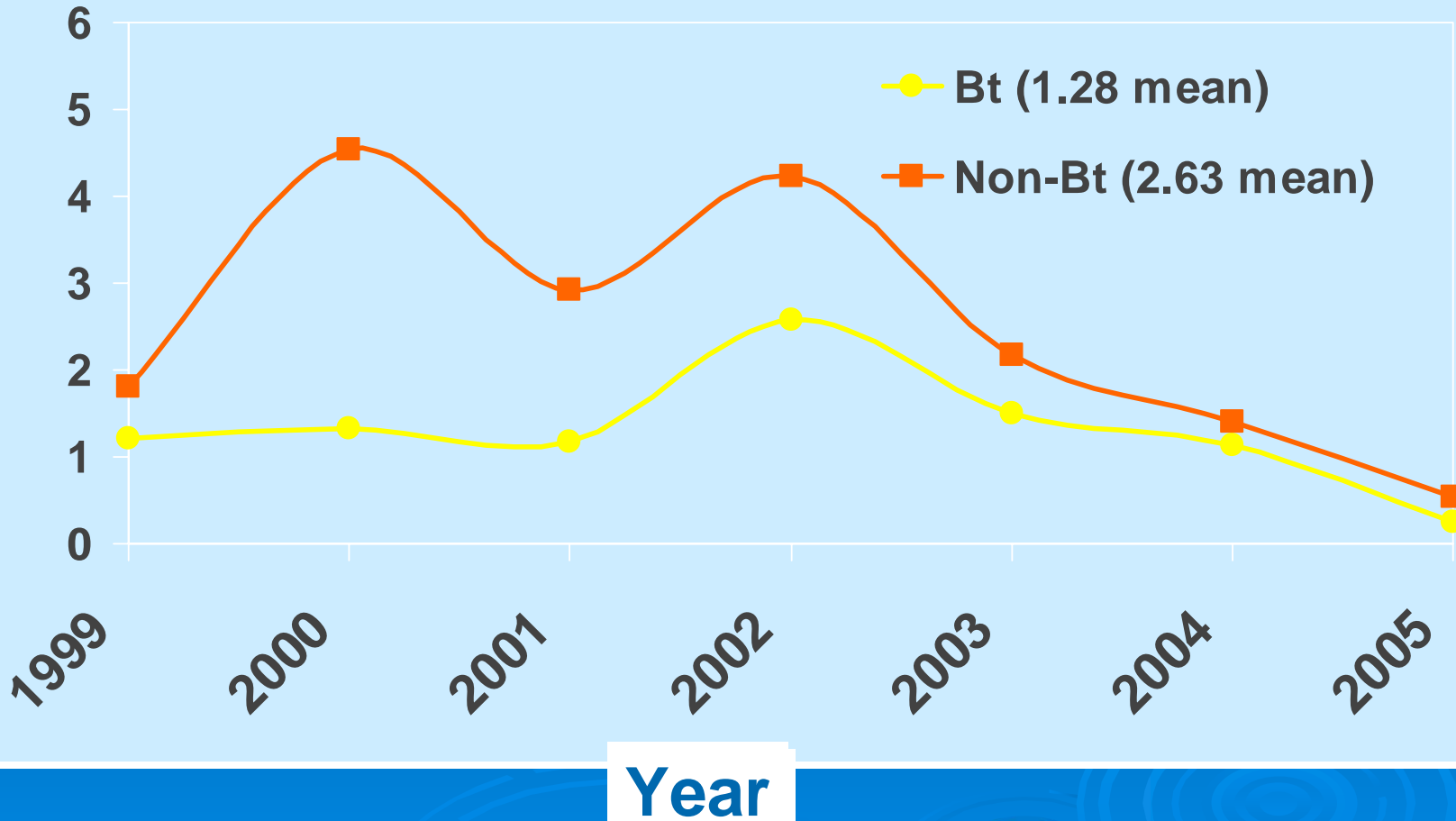
Jeff Gore, USDA- ARS

Chuck Farr and Bobby Griffin

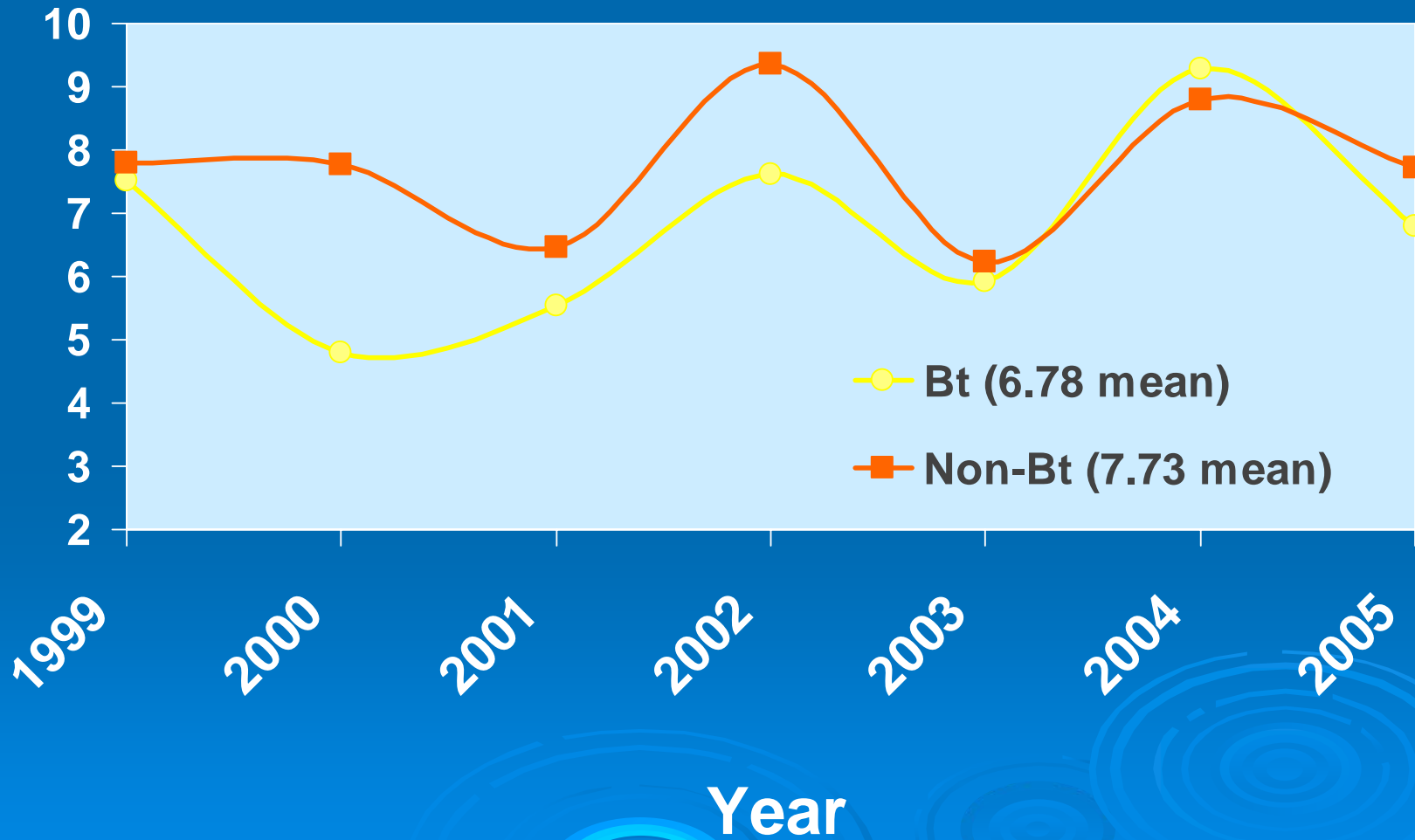


# Heliothine Sprays (Insecticide Appl. Frequency)

Treatments / acre



# Total Pest Sprays (Insecticide Appl. Frequency)



# The Big 3 From Squaring to Bloom

- Aphids
- Spider Mites
- Plant Bugs



# Pest Status of Tarnished Plant Bug

## Cotton Aphid and Spider Mites

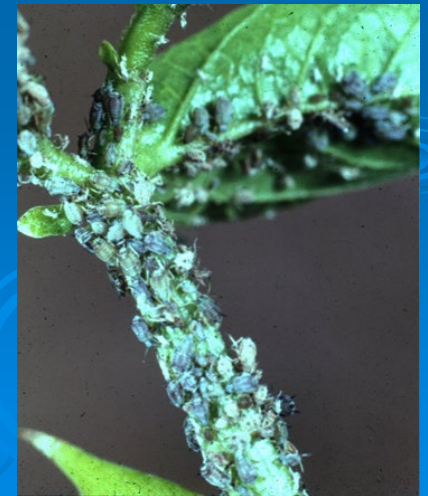
- Altern. Hosts as Refuges (C-Till, WRP, CRP)
- Bt Cotton
- Boll Weevil Eradication
- Selective Insecticides
- Application Efficiency
- Insecticide Resistance



**Cotton's Primary Pest**

# Aphids

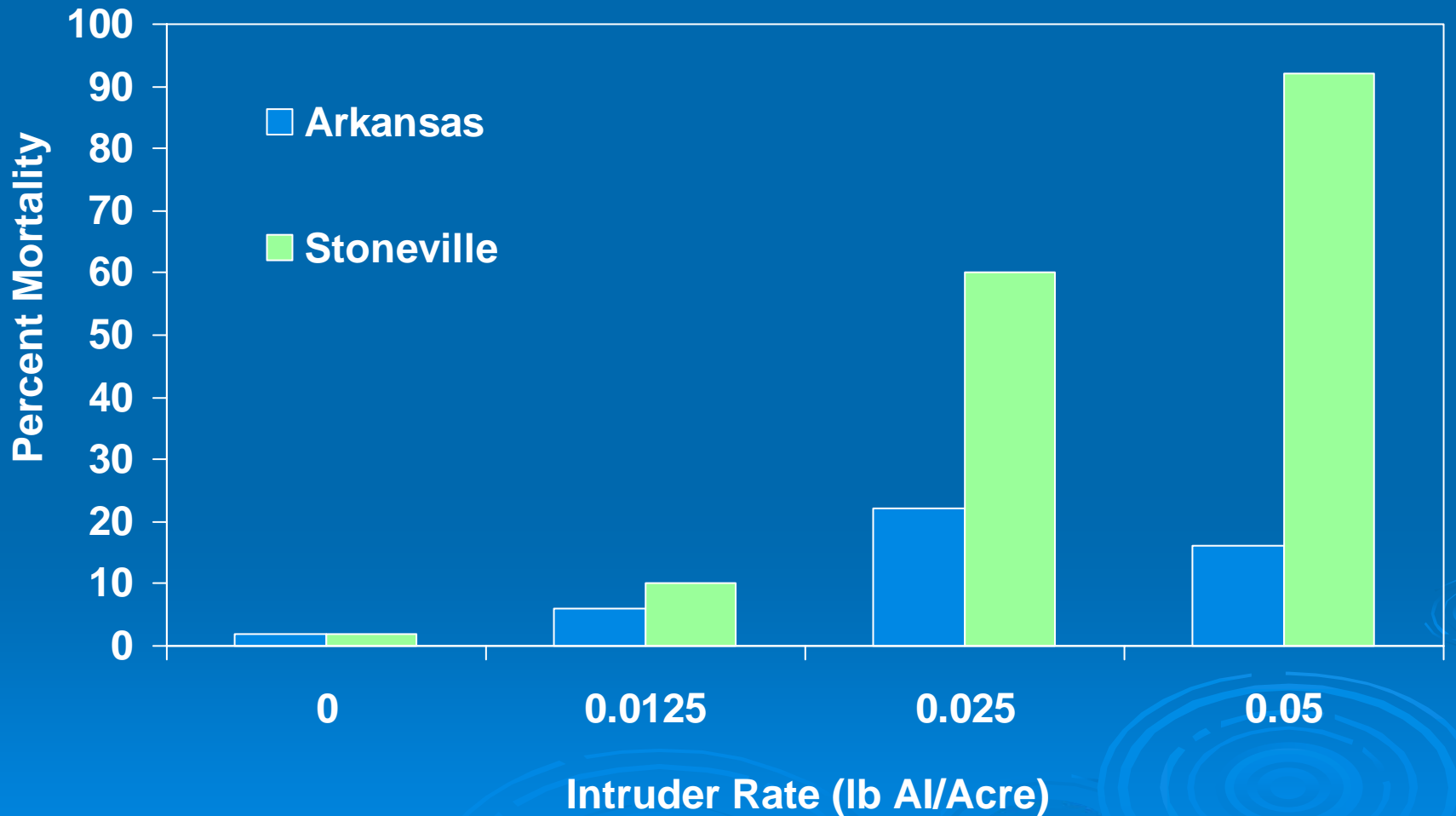
- More of a problem in '06
- Resistance developing??



# Aphid Trial- Ashley Co., Arkansas 2006

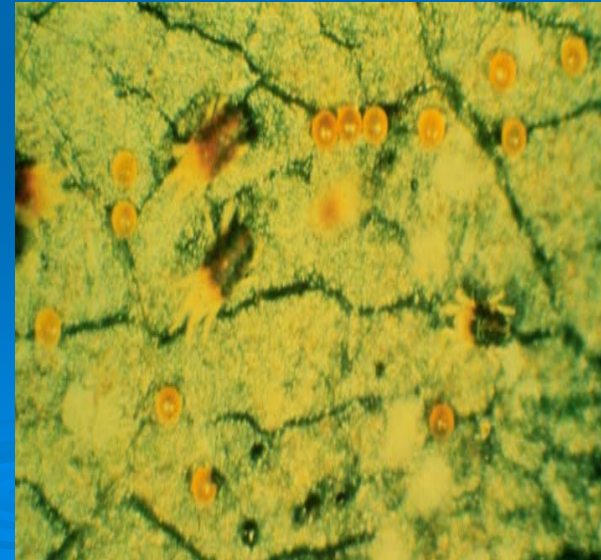
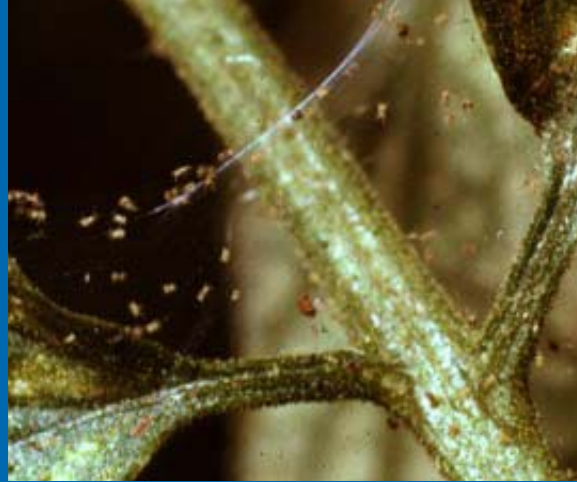
Trt No.	Type	Treatment Name	Rate	Unit	No. Aphids/ 5 leaves
1	CHK				215 a
2	INSE	Carbine	2	OZ/A	50 c
3	INSE	INTRUDER	0.8	OZ/A	16 c
4	INSE	INTRUDER	0.6	OZ/A	20 c
5	INSE	INTRUDER	1	OZ/A	15 c
6	INSE	CENTRIC	1.75	OZ/A	84 bc
7	INSE	CENTRIC	2	OZ/A	44 c
8	INSE	BIDRIN	0.5	LB A/A	112 b

# Cotton Aphid Bioassay





# Spider Mites



# About Two-Spotted Spider Mites

Spider mites thrive in a hot and dry climate

Spider mites usually feed on the underside of leaves

Spider mites can be difficult to control

Proper application with thorough coverage is critical

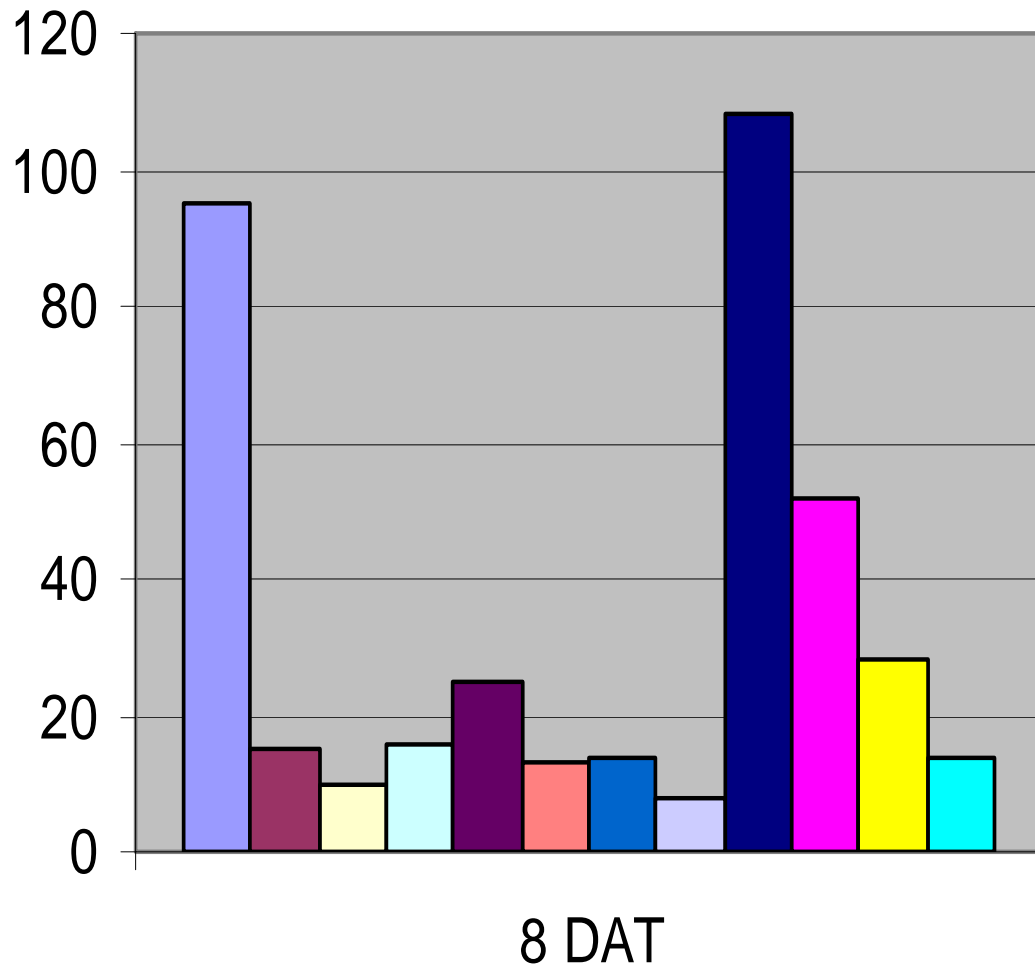
Spider mite control *appears* to vary with product and time of season



# Spider Mite Trial at Lepanto - 8 DAT

June 8, 2004

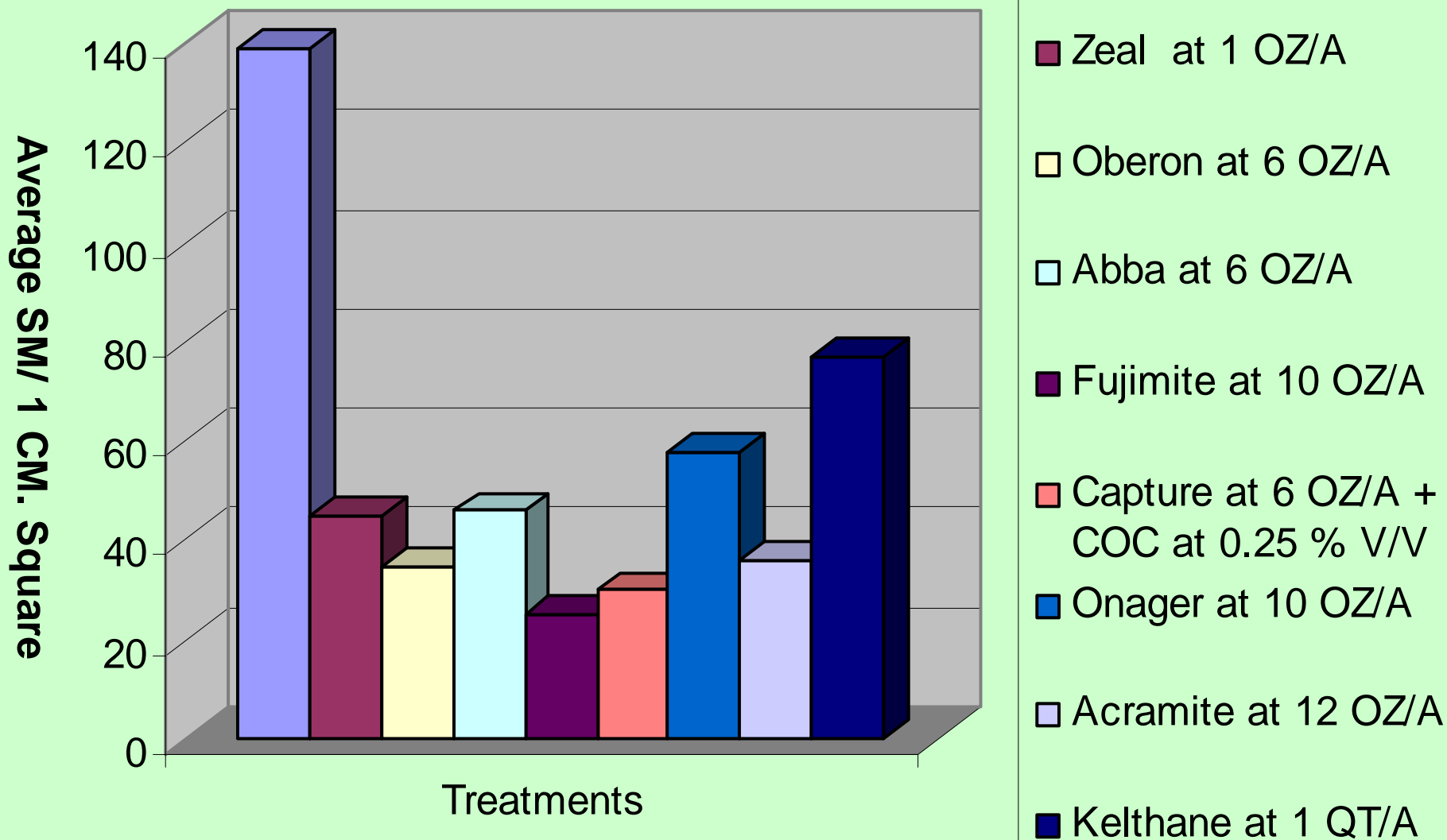
Spider Mites per 5 Leaf Sample  
(Sq. cm per leaf)



- Untreated Check
- Oberon @ 8 oz/a
- Oberon @ 12 oz/a
- Oberon @ 16 oz/a
- Abamectin @ 6 oz/a
- Abamectin @ 8 oz/a
- Kelthane MF @ 1 qt/a
- Kelthane MF @ 1.5 qt/a
- Capture @ 5.12 oz/a
- Capture @ 3.8 oz/a + Oberon @ 8 oz/a
- Zephyr @ 6 oz/a
- Zephyr @ 8 oz/a

# Spider Mite All @ Barton 5 DAT

Phillips County, July 25, 2006



# Spider Mite Summary

- Good application critical
- Spend \$\$ wisely
- Multiple applications may be necessary



<u>Miticide</u>	<u>Cost/ Amt</u>	<u>Cost/ A*</u>
Capture	\$375/ Gallon	1 gal/ 25 A = \$15
		1 gal/ 30 A = \$12.50
Zephyr	\$625/ Gallon	4 oz/ A= \$19.53
	Or \$4.88/ oz	6 oz/ A = \$29.28
Zeal	\$22/ oz	1 oz/A=\$22.00
Kelthane	\$36/ Gallon	1 Qt/ A= \$9

# NC acreage treated for spider mites (2004-2005 Consultants' Survey)

Usage pattern	% acres treated	Odds of treatment
Temik (100%)	0.58	1/170
Seed Trt. (74.5%)	5.3	1/19

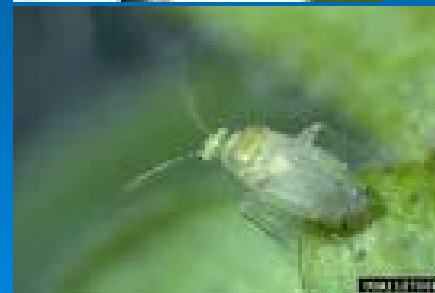
Difference: 9.1-fold

# Tarnished Plant Bug, *Lygus lineolaris*



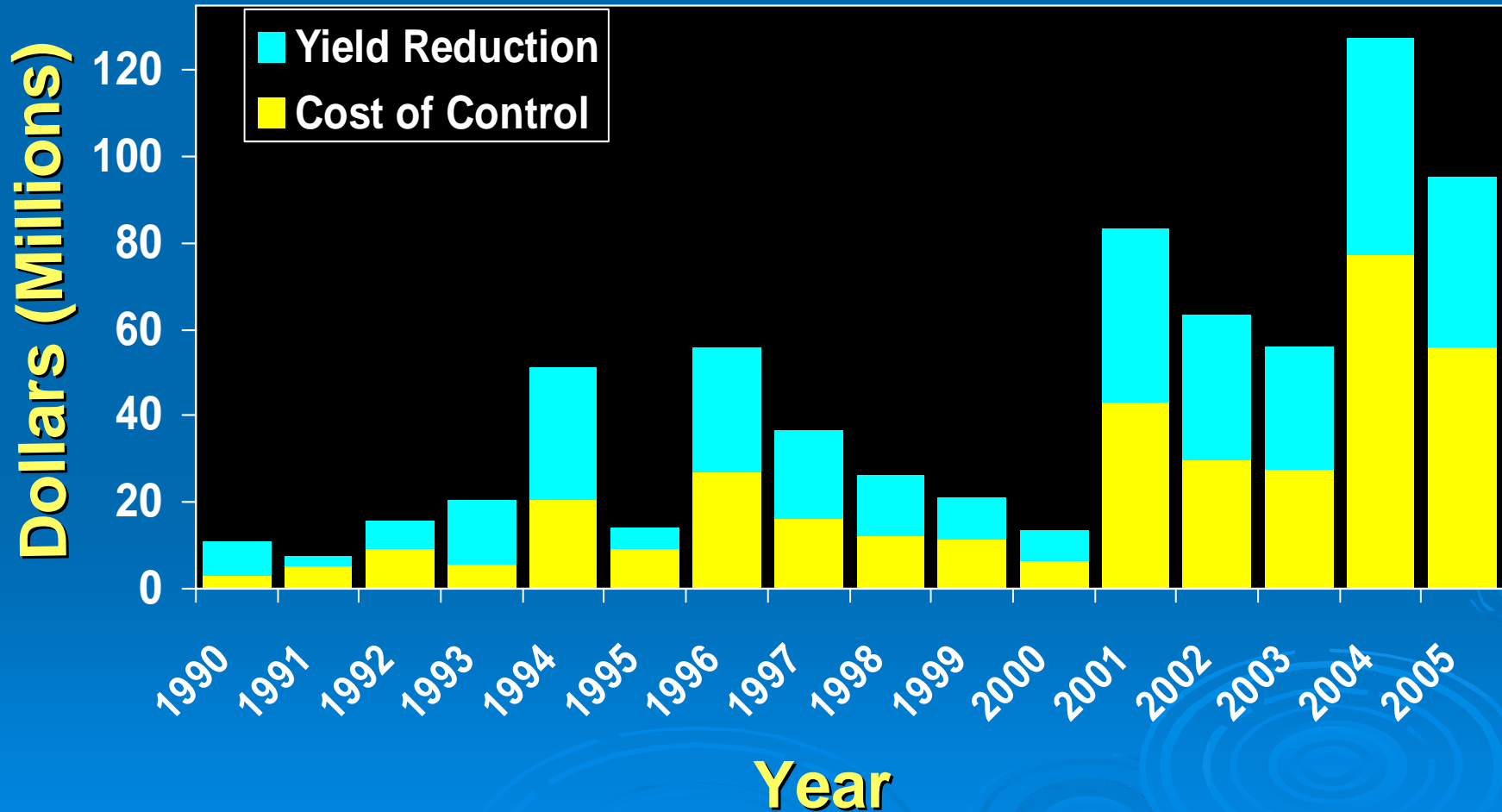
# Plant Bugs

- Tarnished plant bug
- Clouded plant bug
- Cotton fleahopper
- Orthene, Bidrin are the standards
- Sweepnet early and black shake sheet later used with square retention or COTMAN





# Economic Loss Due to TPB Mid-South (AR, LA, MS)



Williams et. al, BWCC Insect Losses

# Are we doing this...



...too much?  
...not enough?  
...at the right  
time?



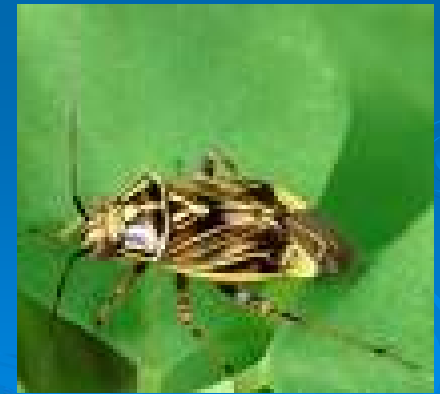
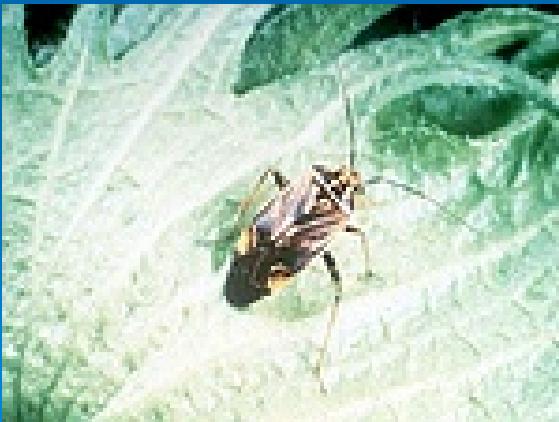
# ***Insecticide Resistance Management***

- **Most important threat to plant bug management**
  - Pyrethroid
  - OP's
- **Change use patterns**
  - Neonics early, save “standards”
  - Utilize new chemistry- novaluron, flonicamid, etc.
- **Rotate Chemistry**

# Early Season Plant Bug Threshold Study

Midsouth- AR, TN, LA, MS

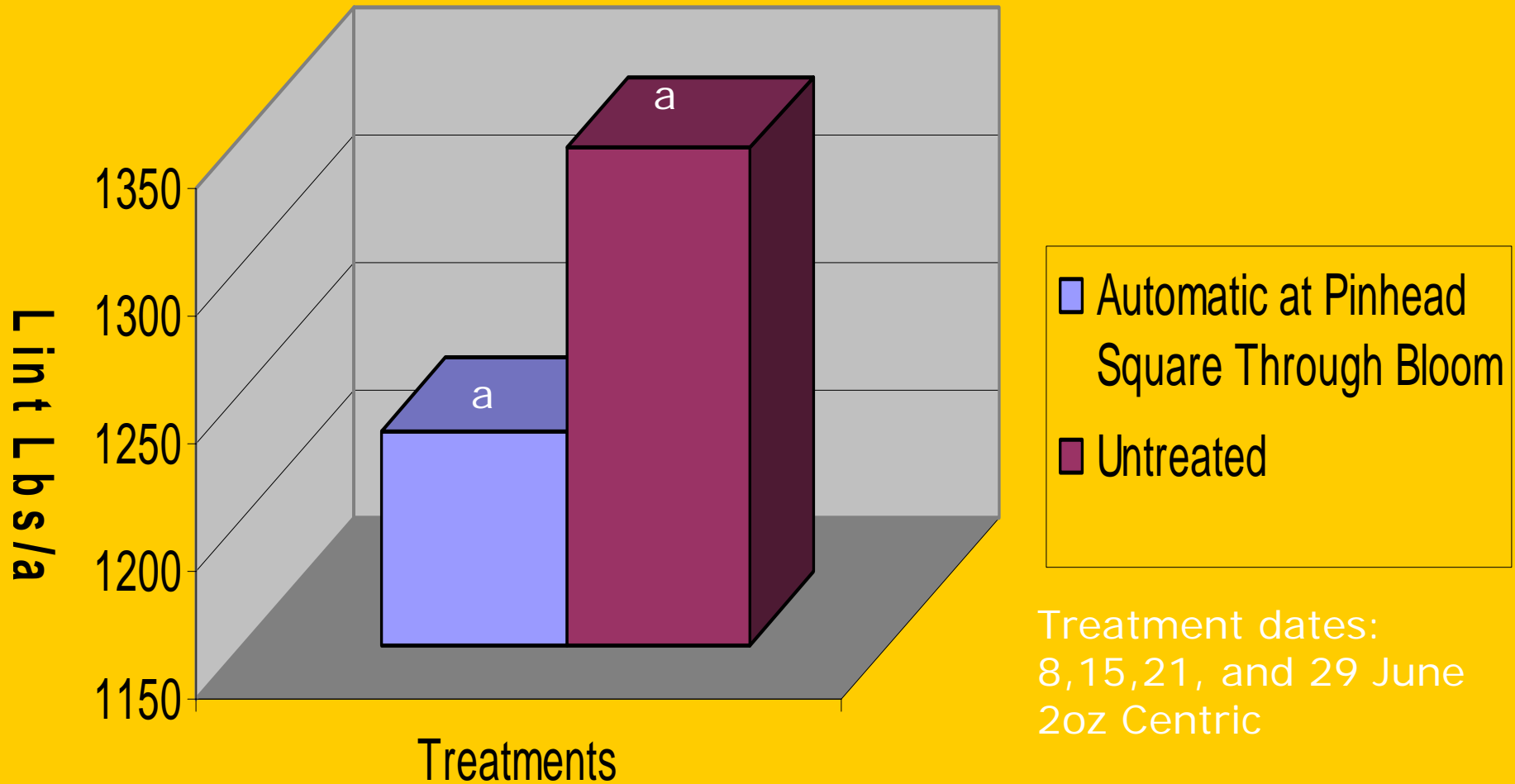
- Purpose of the study is to evaluate thresholds and determine at what level plant bug numbers impact yield.



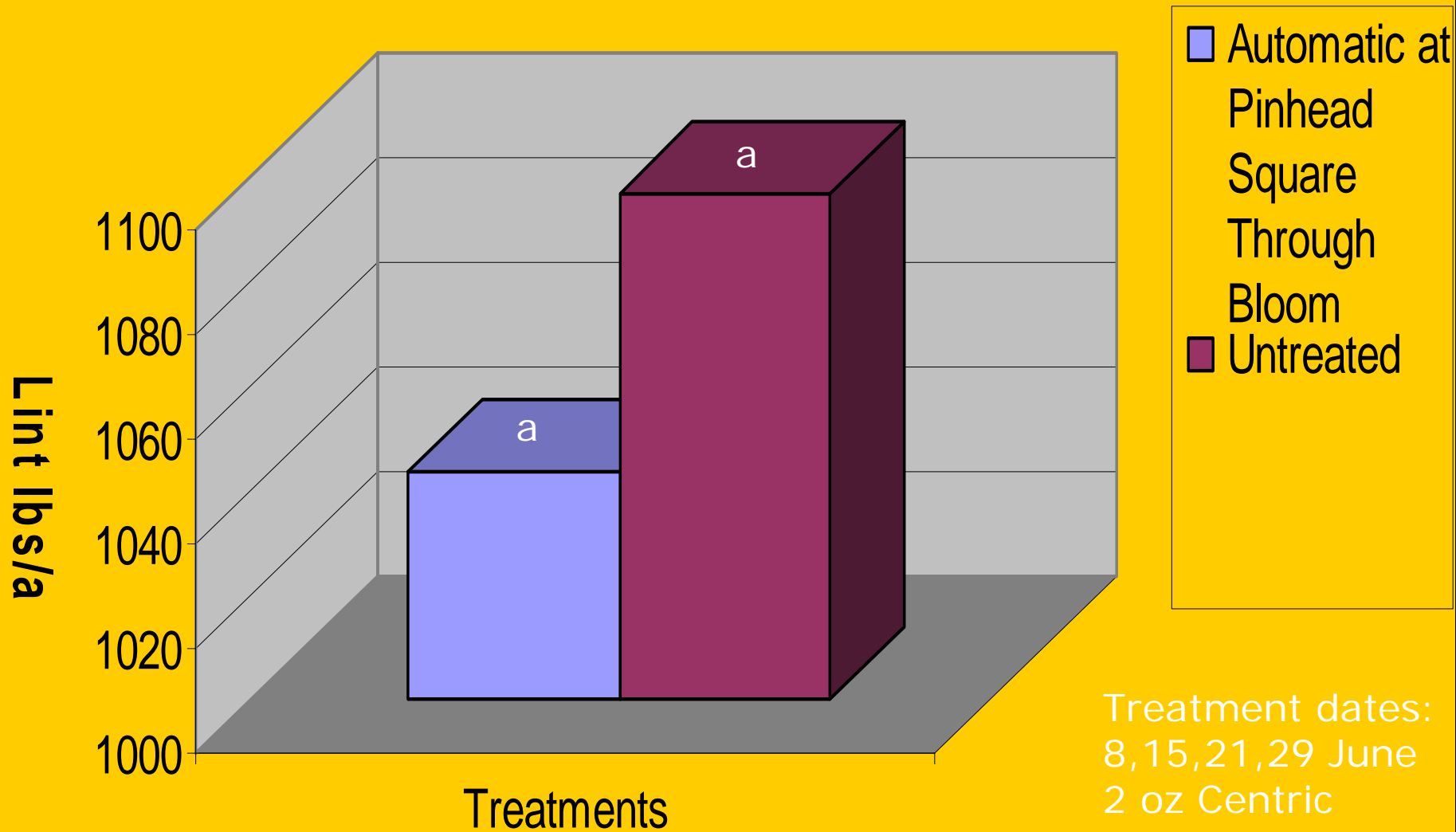
# Early Season Plant Bug Threshold Study

- Large Block Trials 24-36 rows X 100 ft
- Centric @ 2 oz/ A
- 4 Treatments to Trigger Applications:
  1. Untreated
  2. Low = 8 Plant bugs/ sweep
  3. High = 16 plant bugs/ sweep
  4. Automatic applications (weekly)

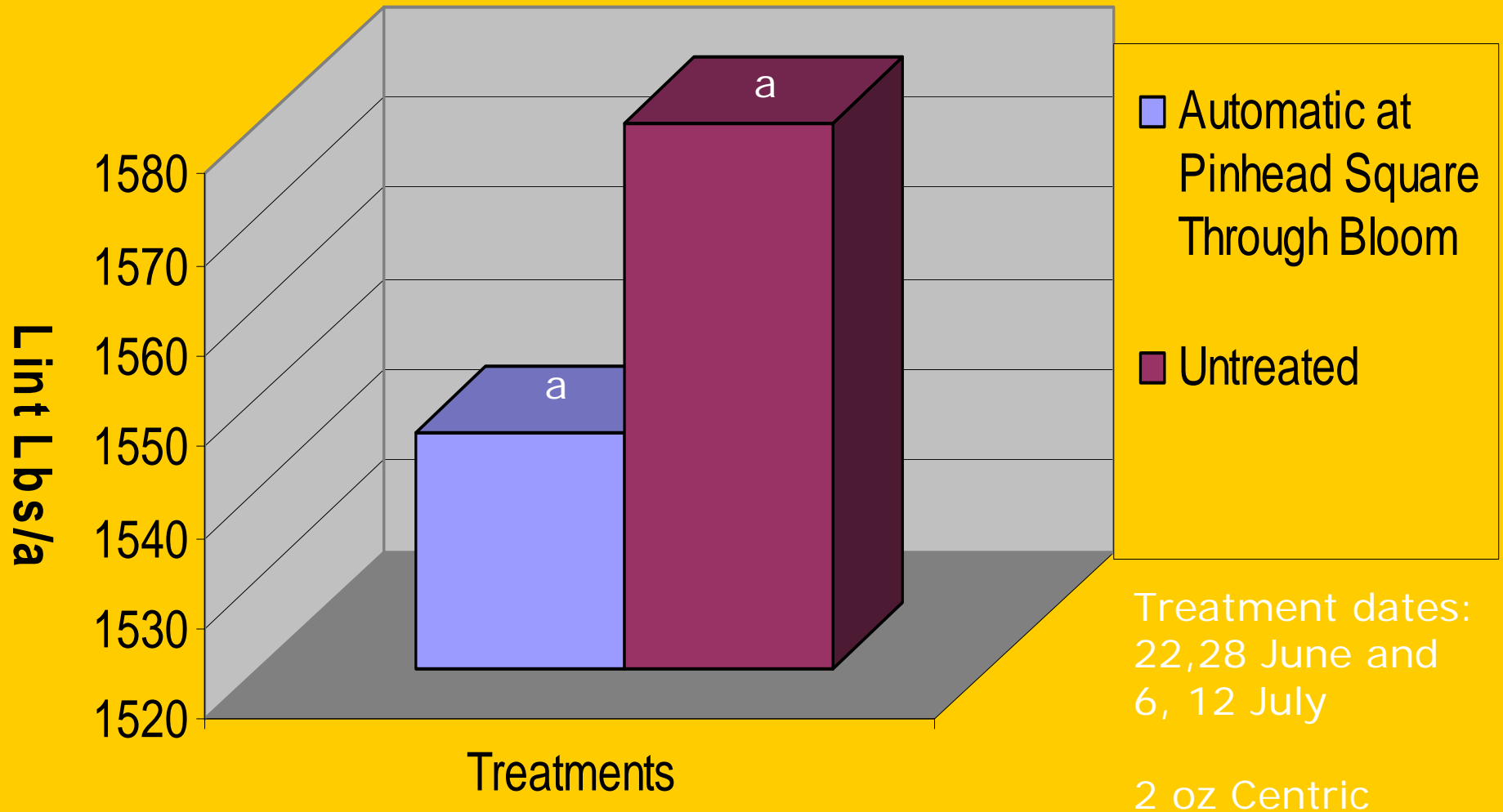
# Early Season Plant Bug Threshold at Soudan Treated vs. Untreated



# Early Season Plant Bug Threshold at Steve Stevens Treated vs Untreated

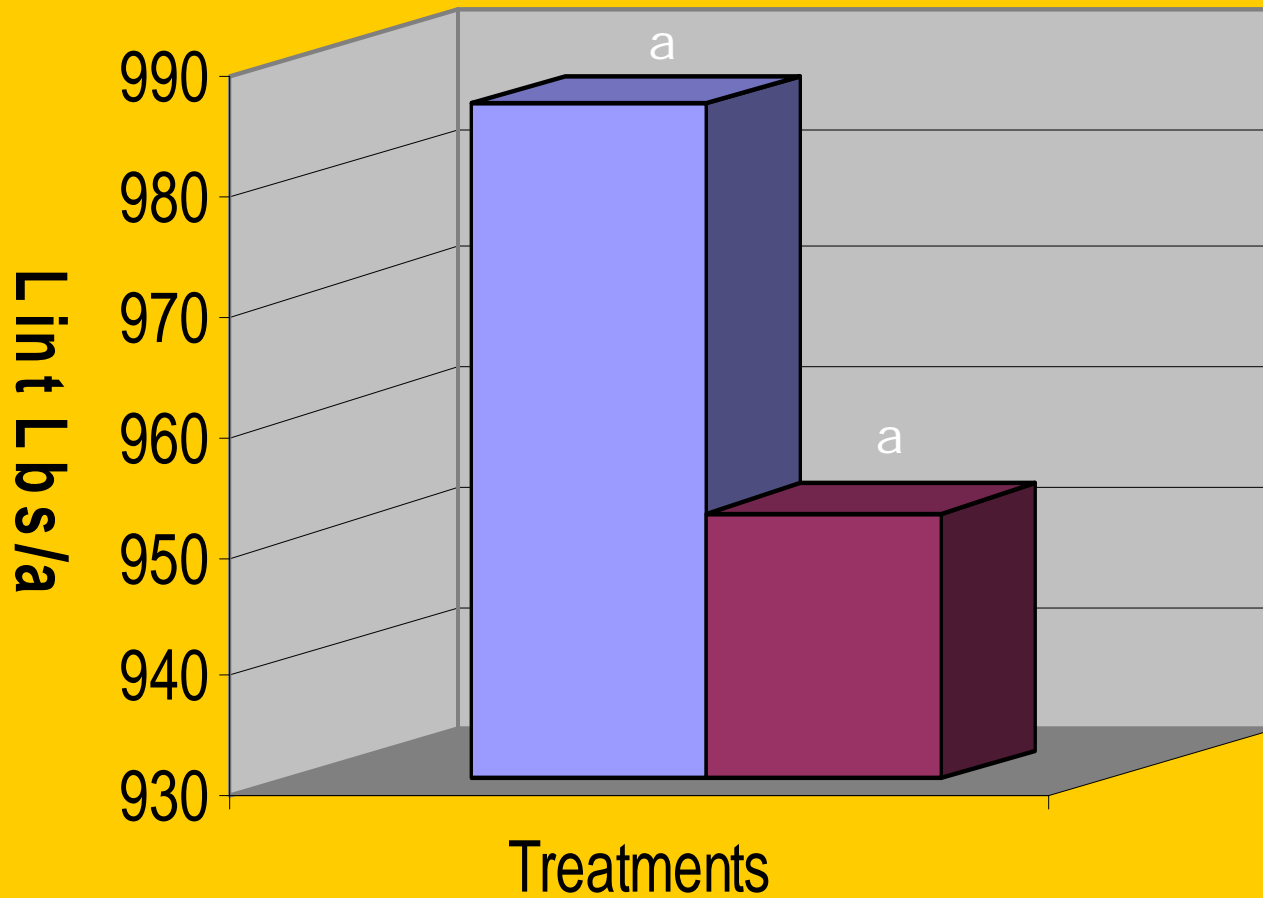


# Early Season Plant Bug Threshold TN-S. Stewart Treated vs. Untreated





# Early Season Threshold Judd Hill Treated vs. Untreated

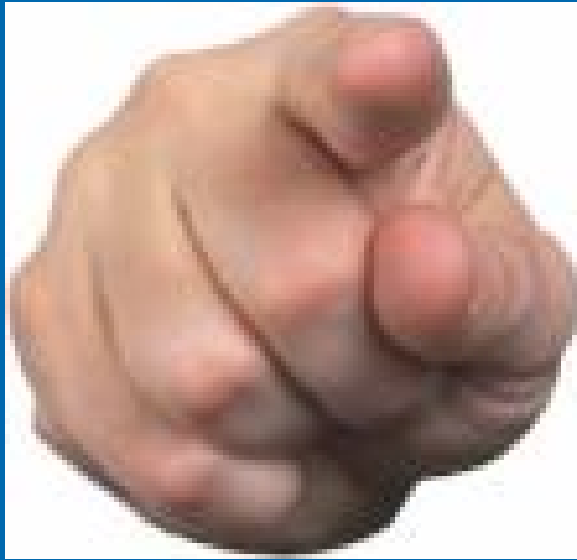


Automatic at  
Pinhead Square  
Through Bloom

Untreated

Treatment Dates:  
21,26,29 June and  
3 July

2 oz Centric



When do **YOU** decide to spray an insecticide??

Do you have “Zero Tolerance” for plant bugs??

## TOP 10 REASONS TO SPRAY

1. When my neighbors do
2. When my neighbors don't
3. I get an urge to kill something invertebrate
4. When Jupiter aligns with Mars and the moon is in the 7<sup>th</sup> hour
5. I hear a voice.....
6. It just feels right... When in doubt put something out
7. Recreational spraying
8. It's convenient, to avoid making additional trips across the field
9. At certain crop stages (PHS, 1<sup>st</sup> bloom)
- 10. When pest populations are close to established thresholds to avoid economic damage and maintain maximum economic yield**

# The Most Expensive Insecticide Application..... Is the one that doesn't work.

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- Currently, we have more insects in cotton with resistance/ tolerance issues than any other time in the history of cotton production in the U.S.
- Budworm, Bollworm, Tarnished Plant Bug, Aphids, Soybean Looper, Brown and Red Banded Stink Bugs
- Over use and misuse can get us resistance problems we don't want