

Spider Mites: A Persistent Problem in Mid-South Cotton

2008 Crop Management Seminar

Cotton Incorporated

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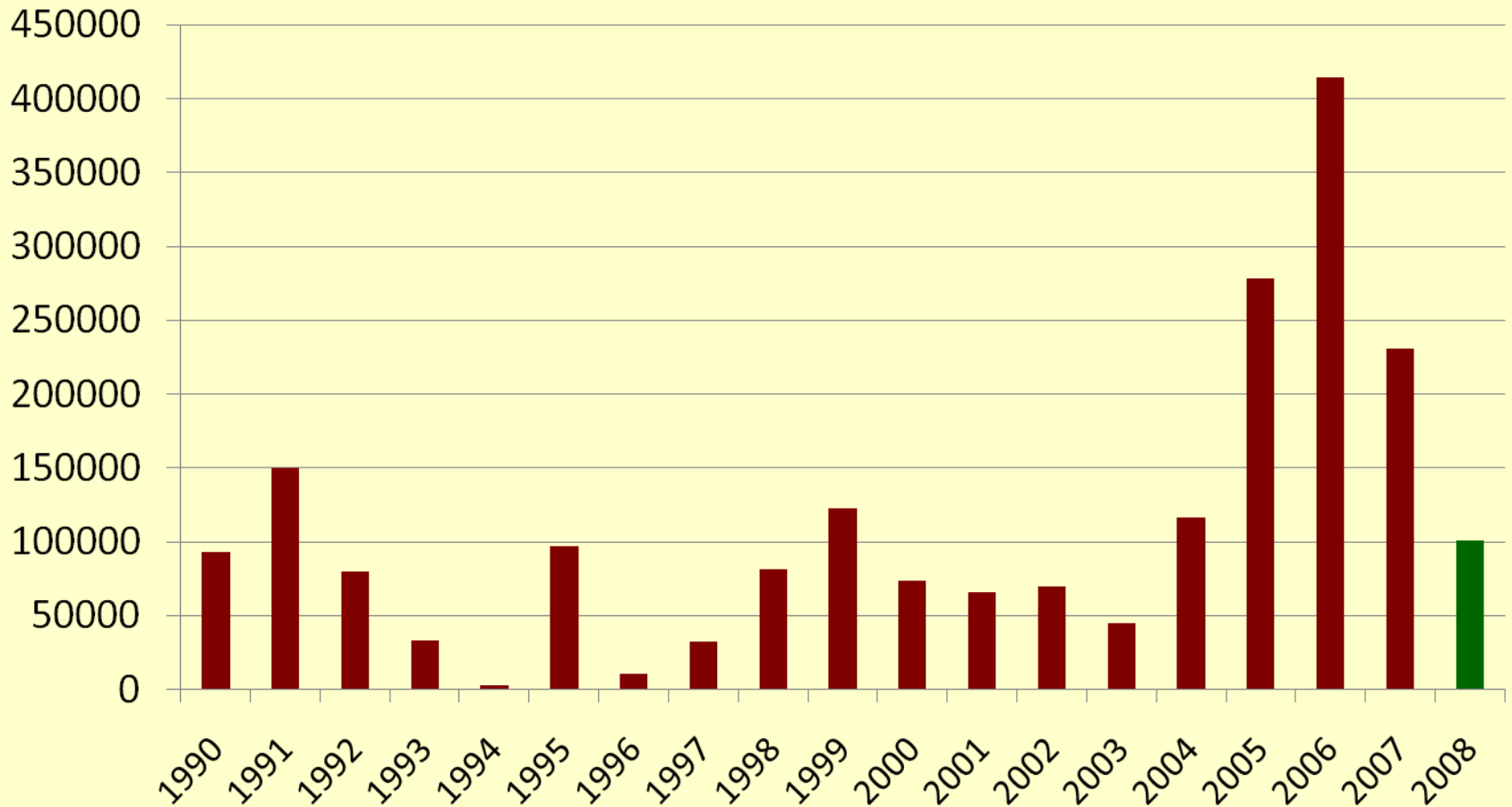
(QUOTE FROM 2006)

Spider Mites

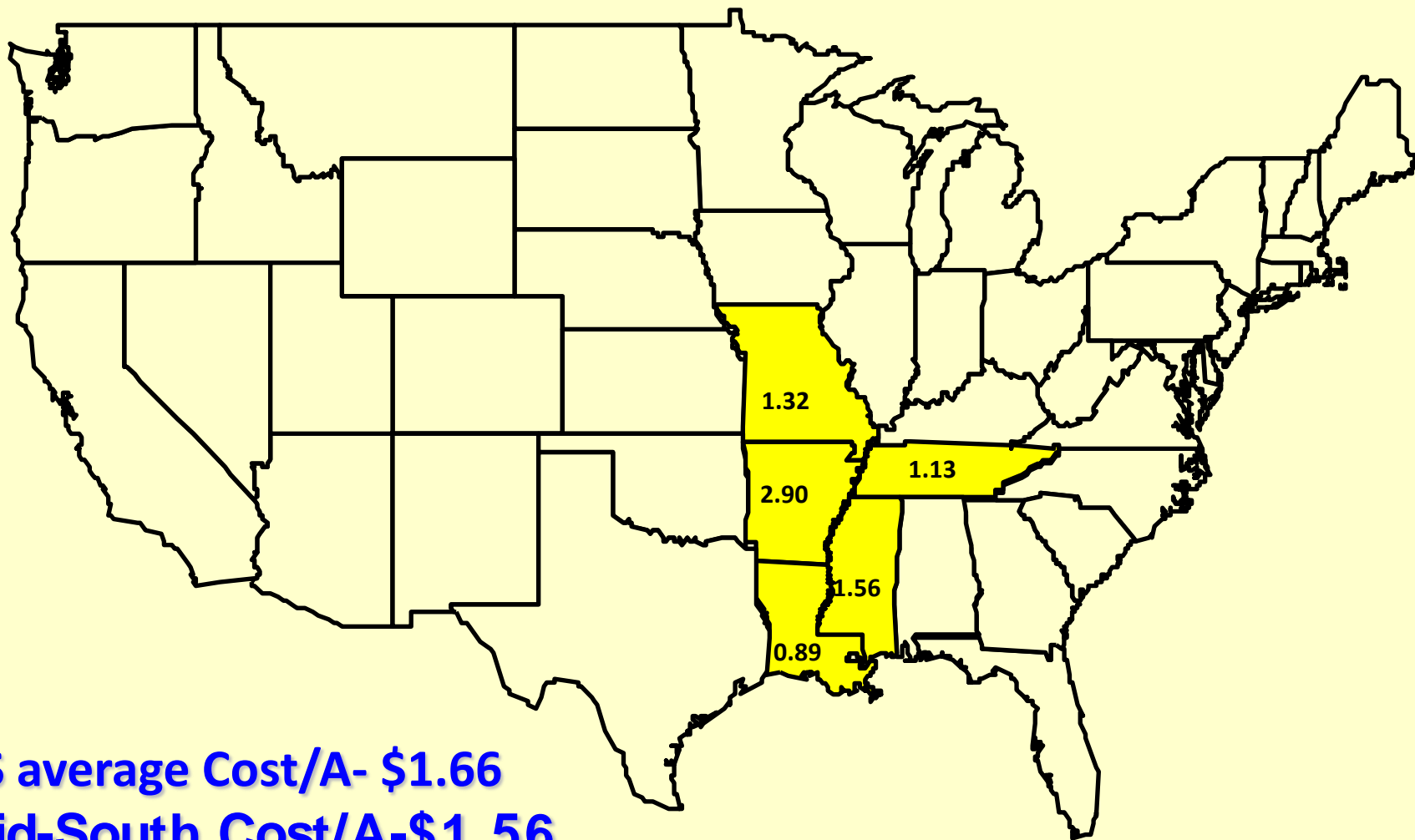
***“The Insecticide Budget
Busters of Cotton Production
in the Mid-South”***

STILL TRUE IN 2008!

Trends in Spider Mite Treatments in Mississippi (Acres Treated)



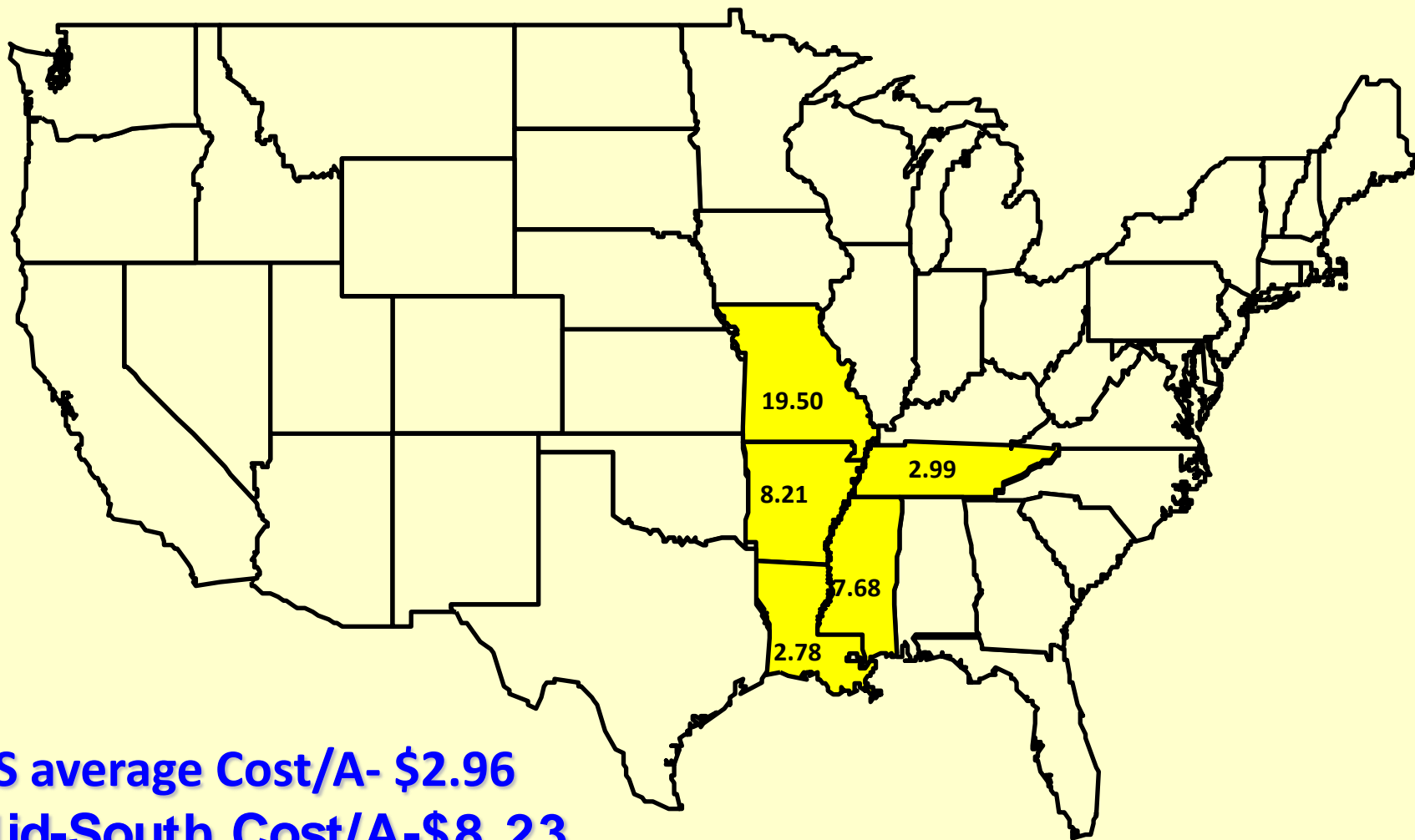
Mid-South *Spider Mite* Control Costs - 2004



US average Cost/A- \$1.66

Mid-South Cost/A-\$1.56

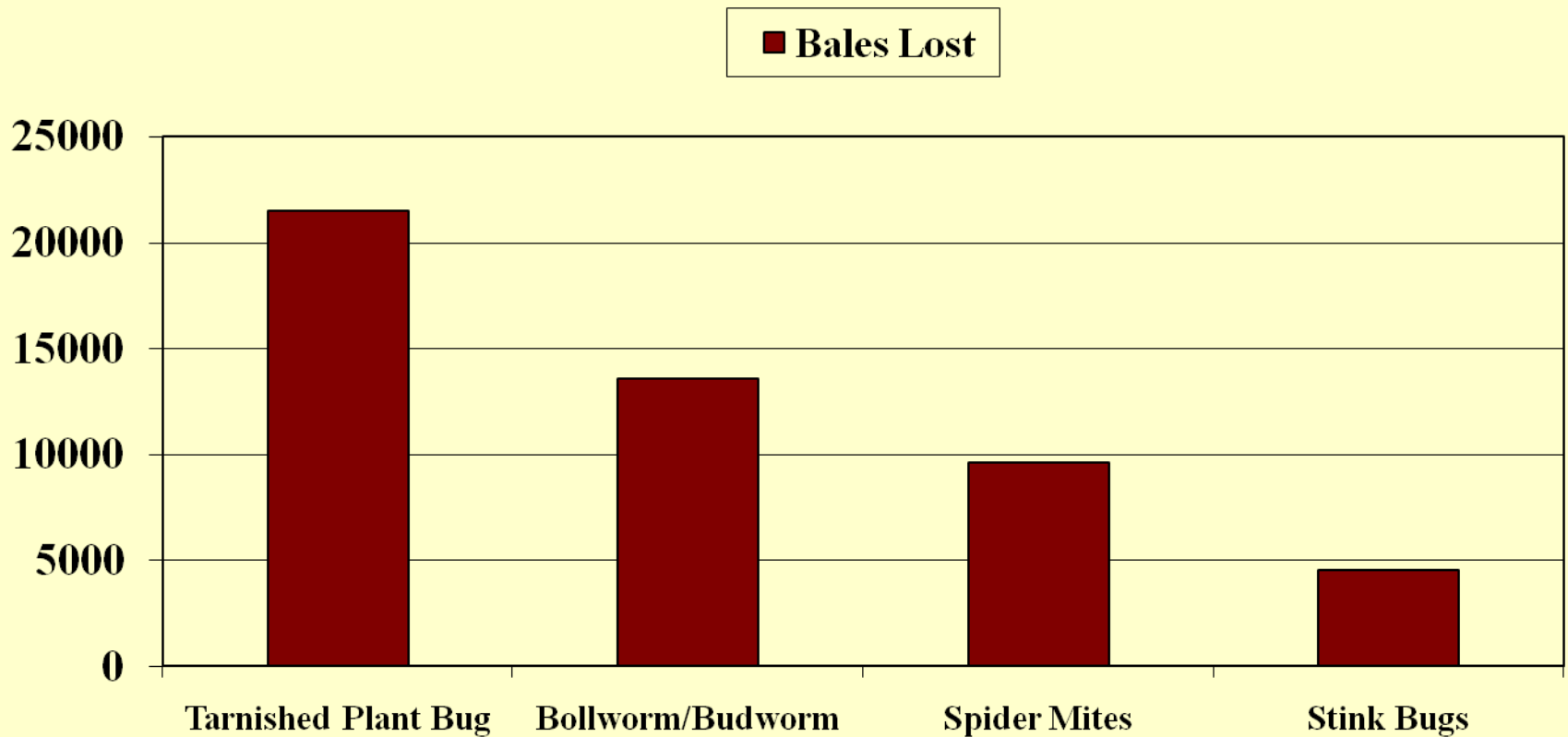
Mid-South *Spider Mite* Control Costs - 2007



US average Cost/A- \$2.96

Mid-South Cost/A-\$8.23

2007 Mississippi Cotton Insect Losses



Twospotted Spider Mite

Biology

- Egg, larval (3 pair of legs), two nymphal stages, adult
- Generation time is highly temperature dependent
- Lay ~100 eggs in 2-4-week lifespan
- Multiple overlapping generations per year
- Adults overwinter in leaf litter or debris
- Become active in early-spring



**Spider mites feed on the underside of leaves
puncturing epidermal cells, reducing
photosynthesis**



Early-Season Damage



Late Season Damage



Possible Factors Contributing to Increased Frequency of Spider Mite Outbreaks in the South

- **Delayed burndown/Field Border Management**
- **Hot and Dry Conditions**
- **Beneficial Insect Reduction (Flaring)**
- **Increased use of Insecticide Seed Treatments vs. Temik?**
- **Resistance**

Impact of Spring Burndown Timing on Mite Outbreaks

4/3/08 – Date of First Burndown



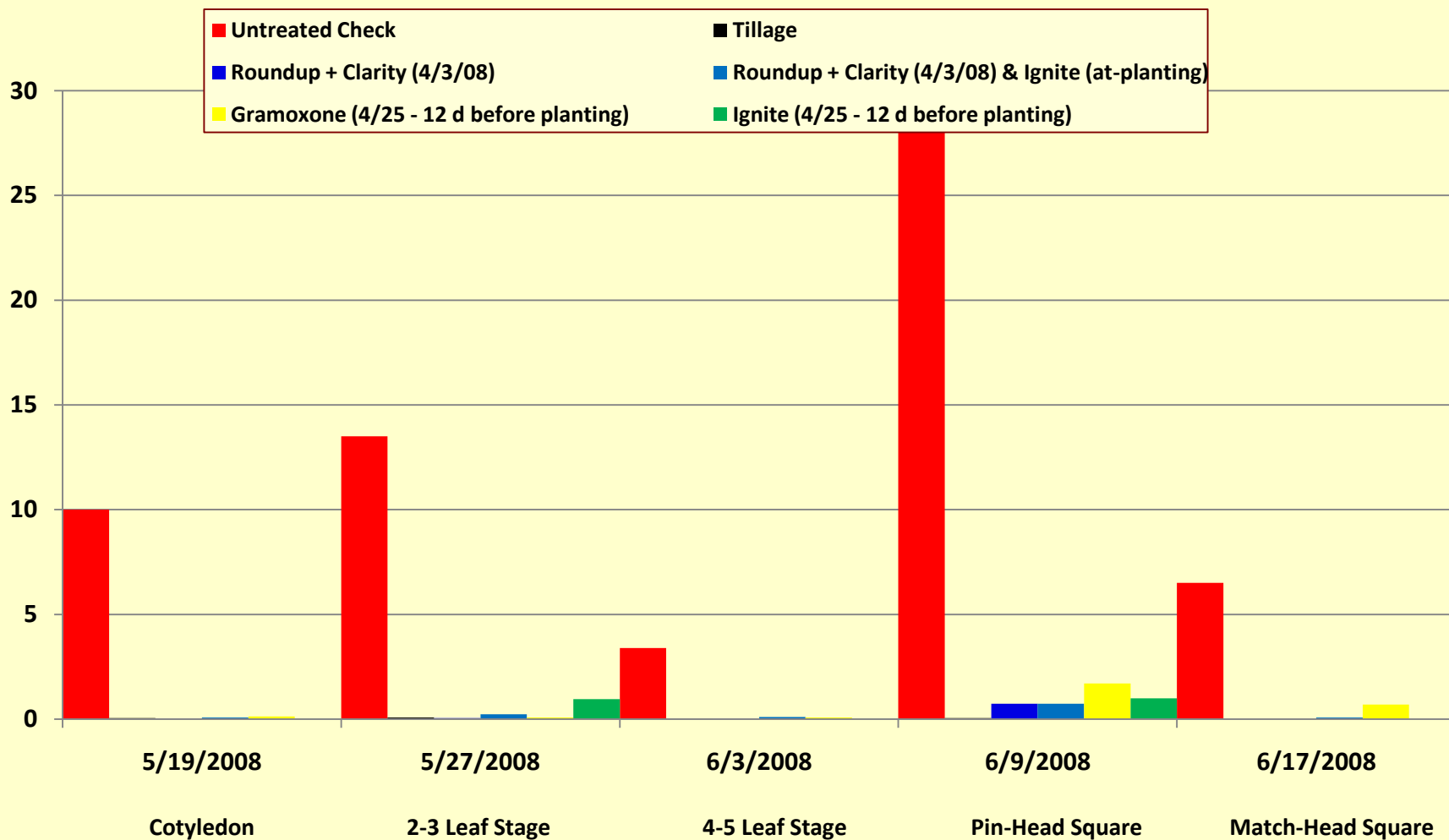
Impact of Spring Burndown Timing on Mite Outbreaks

5/8/08 – at-planting



Impact of Spring Burndown Timing on Mite Outbreaks

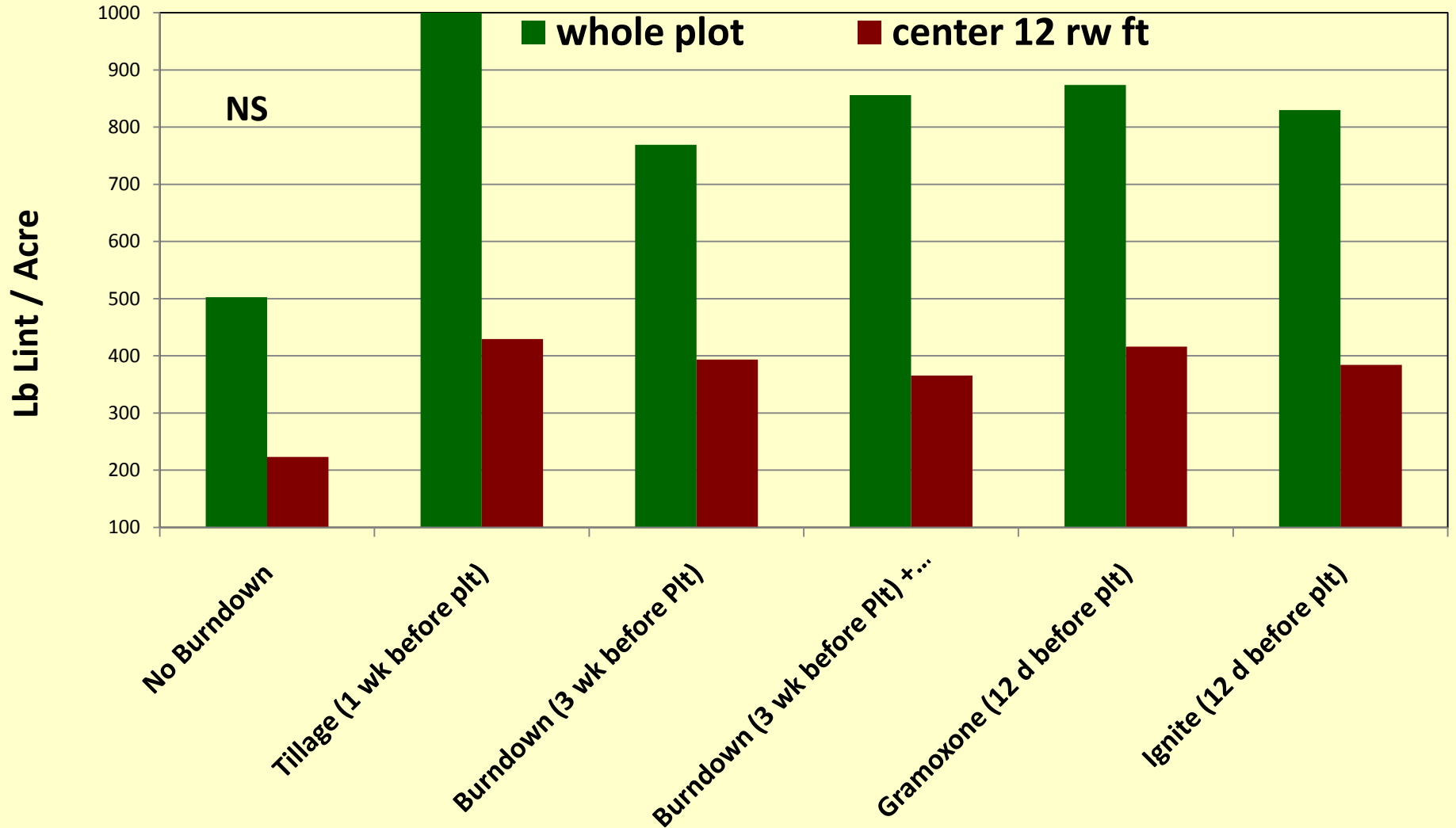
Number Mites/Leaf in Cotton



Avoid the “Green Bridge”



Yield Effects of Spring Burndown



Seed Treatments



Materials and Methods

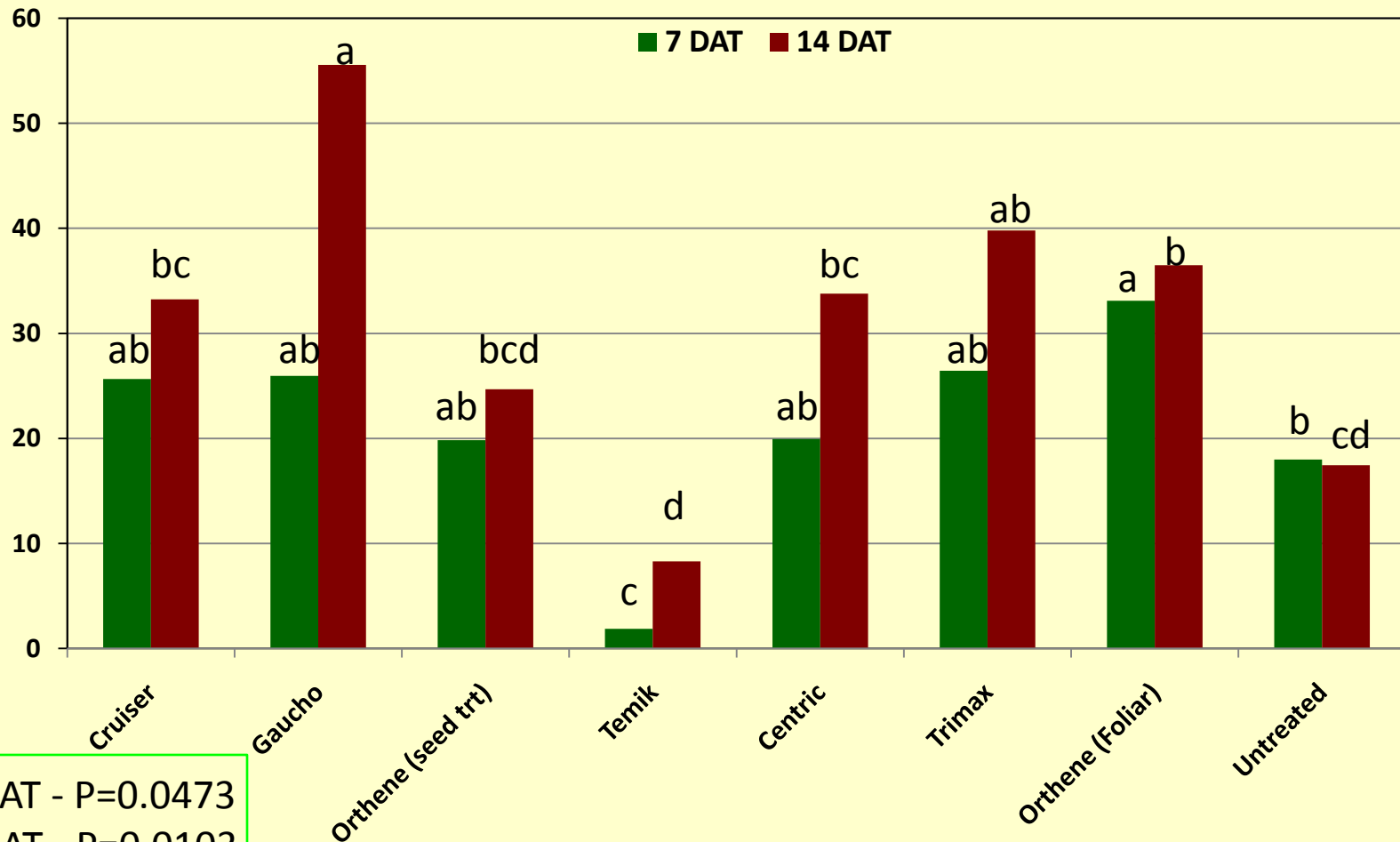
- Cotton infested from 1st to 4th true leaf
- Bean leaves w/ mites stapled to cotton cotyledons
- Uppermost full-size leaf examined with a microscope for mites/eggs at ~7 and 14 DAI
- 4-6 reps, 5-10 plants/plot
- 5 trials conducted in 2007
2 trials conducted in 2008



Effect of Seed Treatments, Temik and Foliar Insecticides on Mites

Starkville, MS - June 2008.

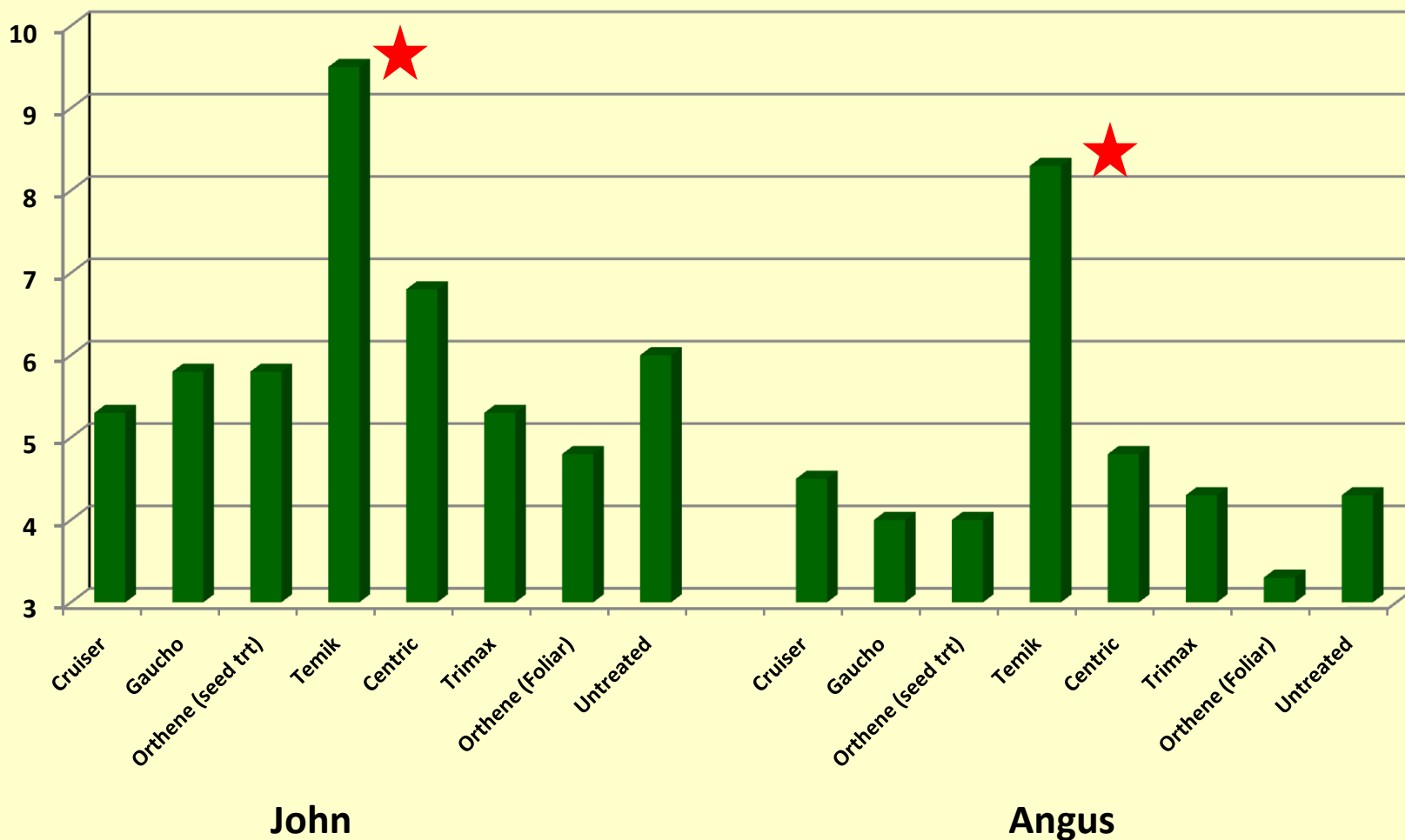
Number of Immature Mites/Leaf.



Effect of Seed Treatments, Temik and Foliar Insecticides on Mites

Starkville, MS - June 2008

Visual Rating of Mite Injury (1-10, 10=best)



Number of Times That Each Treatment Had the Greatest Number of Mites or Eggs in Each Test or Sampling Date

Treatment	Mites	Eggs
Untreated	2	0
Neonicotinoid	6	3
Temik	1	1

*Trends - Only 2 trials had significant differences

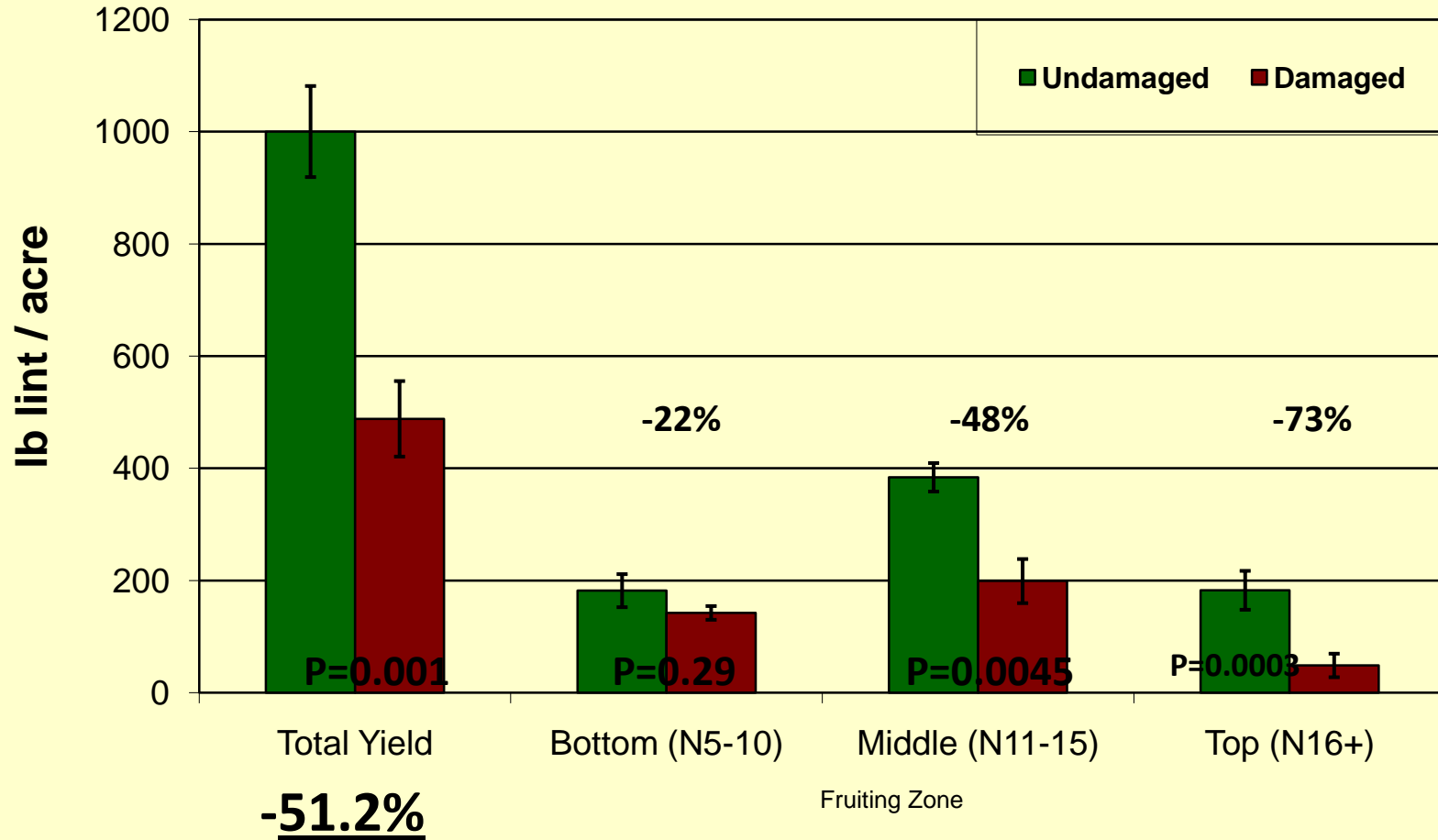
YIELD IMPACT

Greenwood – Non Irrigated



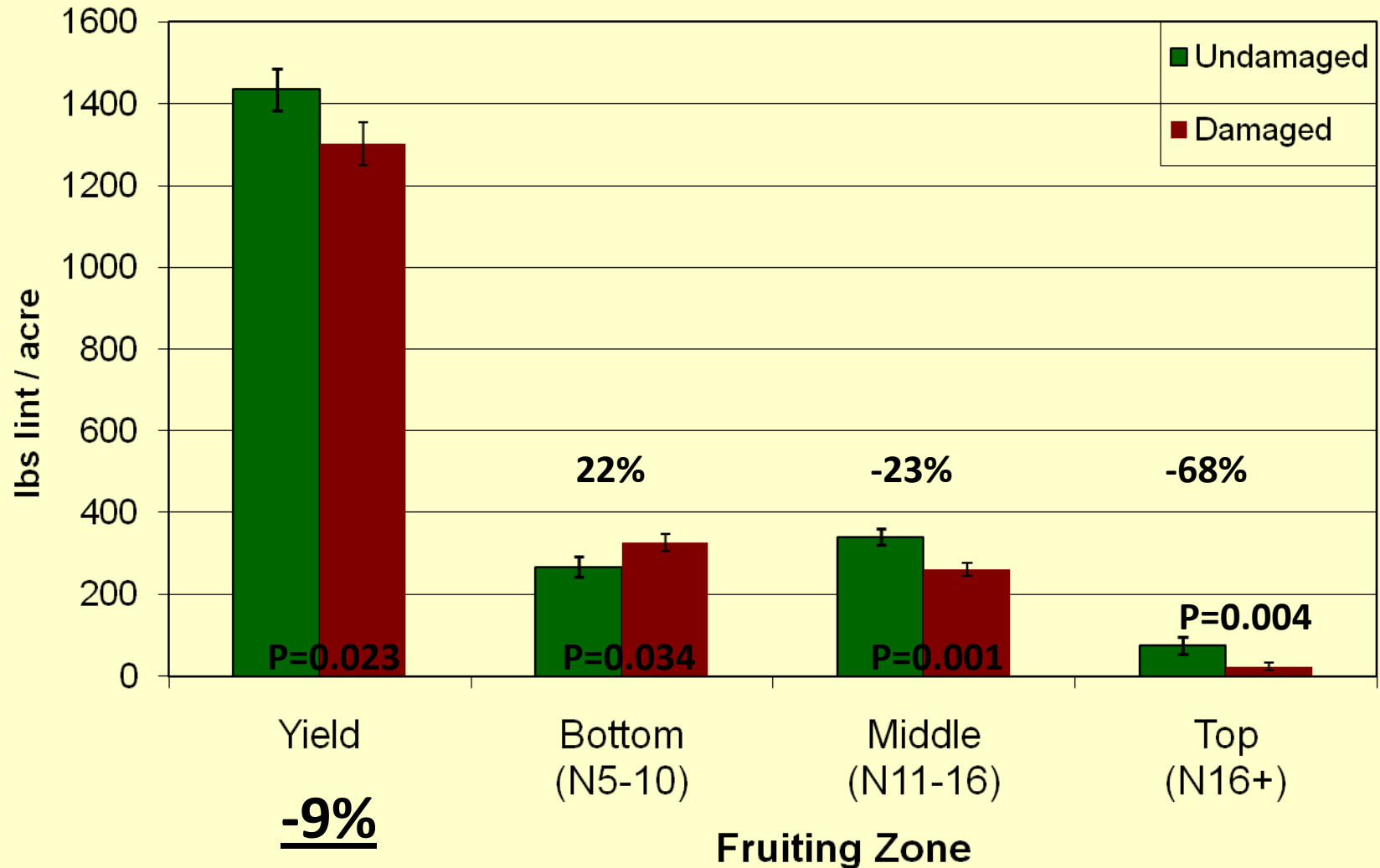
Yield of Damaged and Undamaged Cotton

Dryland Field – Greenwood



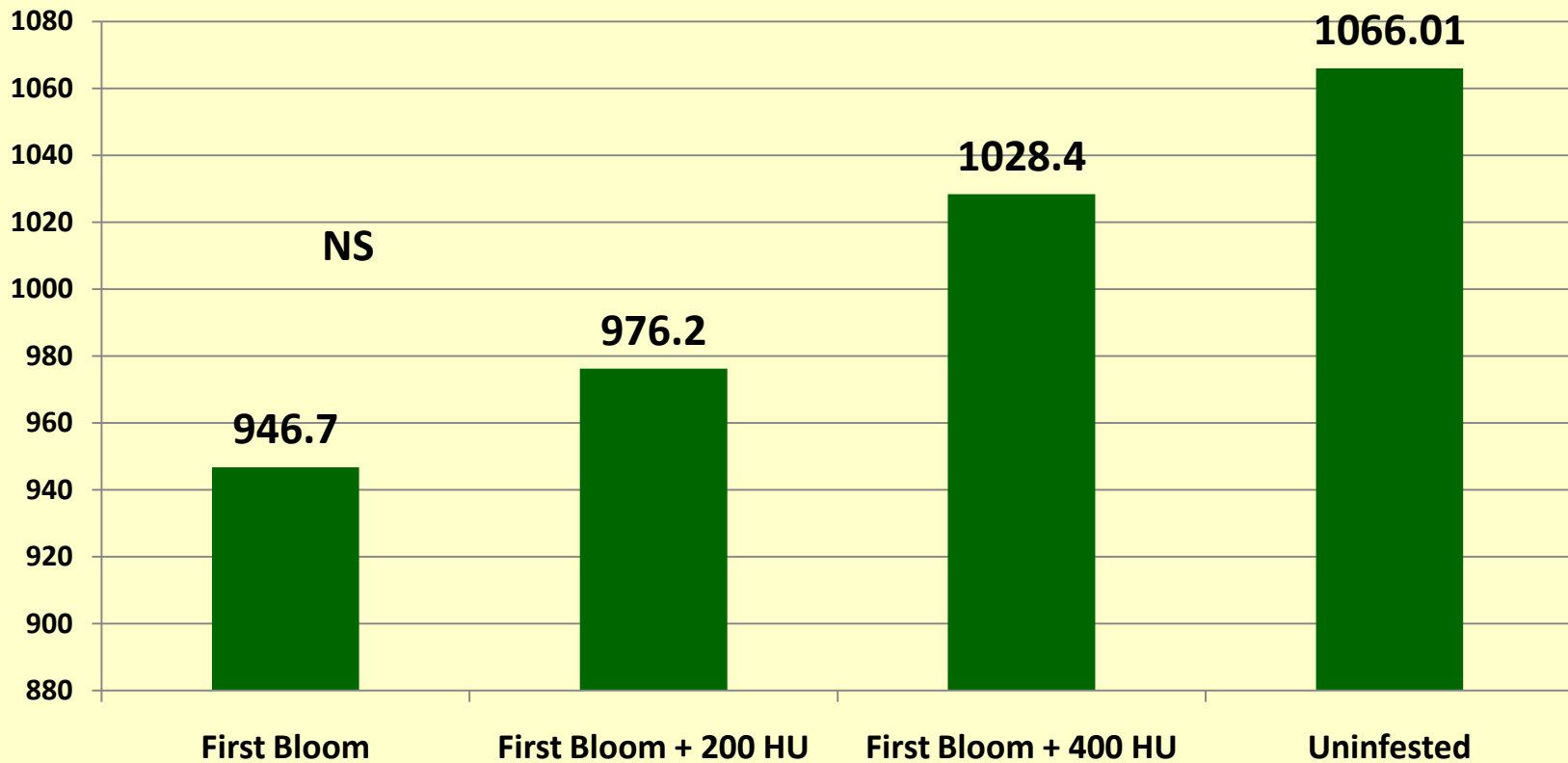
Yield of Damaged and Undamaged Cotton

Irrigated Field - Tchula



**Cotton yield loss from infesting mites
beginning at first bloom then at 200
HU intervals thereafter**

Yield Effects from Spider Mite Infestation



Summary

- **Winter Weed Management**
- **Seed Treatments**
- **Yield Loss**



Questions?

Special Thanks

