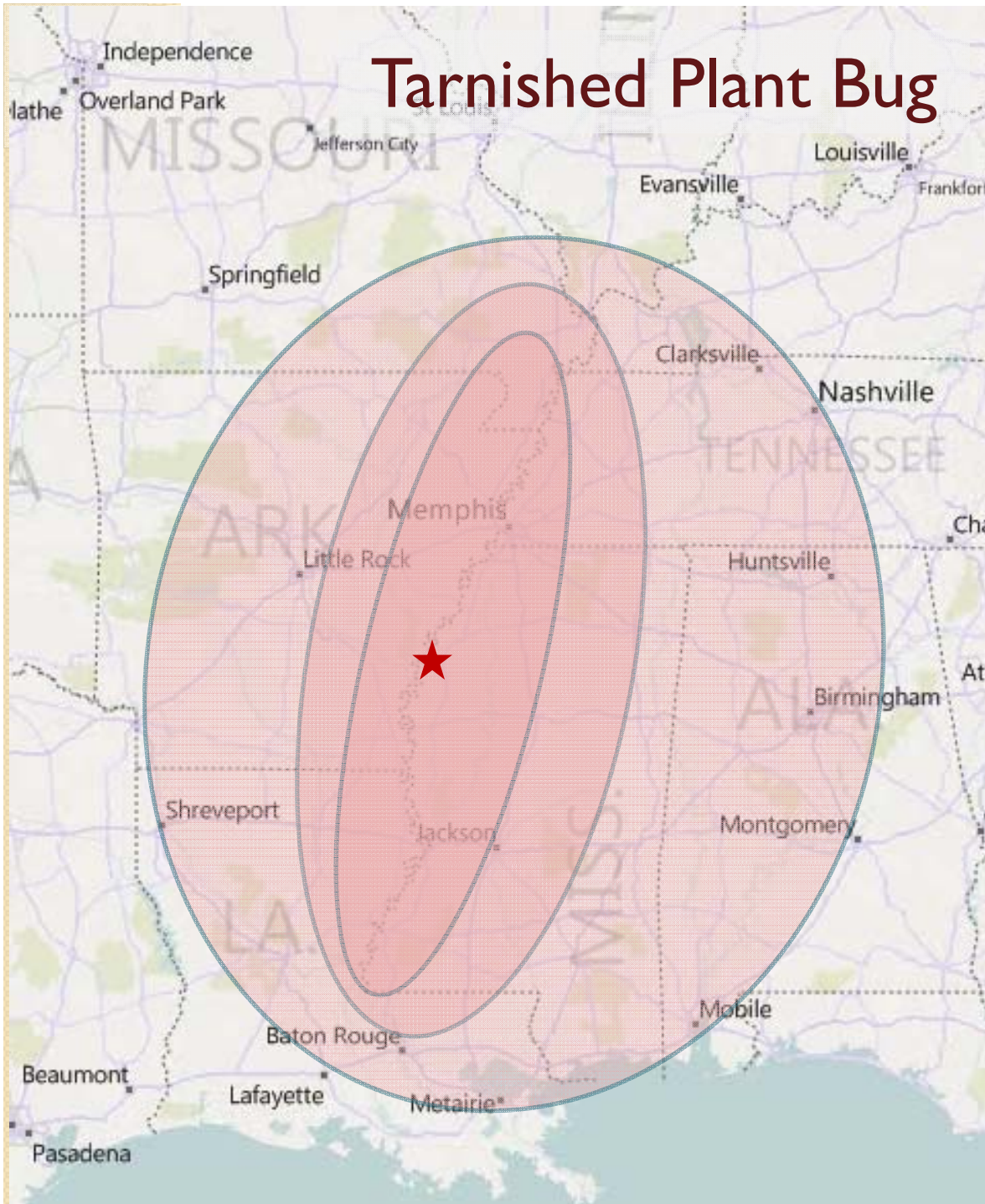


# A Multi-Tactical Approach for Managing Tarnished Plant Bugs

Scott Stewart, UT Extension, and  
the Midsouthern Entomology Team



# Tarnished Plant Bug



## Some Midsouth Facts

- Currently about 2,000,000 acres of cotton in LA, MS, AR, TN, MO
  - 700,000 acres in the hot zone
- 2009 Stats for TPB
  - 103,391 bales lost (≈ \$33 Million)
  - Insecticide costs (≈ \$49 Million)

Using multiple control tactics is especially important in the hot zone

# We know what the problem is ...

- High and sustained populations of TPB
  - Insecticide resistance (Dr. Snodgrass' presentation)
- Increased insect control costs
  - Yield loss
  - Secondary pests outbreaks (e.g., spider mites)
  - Insecticide resistance (plant bugs, cotton aphid, others)

5 Applications:

1700 lbs

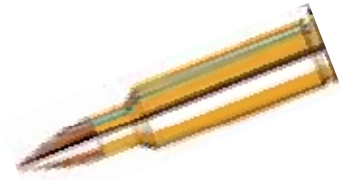
vs.

700 lbs



# So is there an answer?

- Improved decision making
  - Better sampling methods and thresholds
  - Improve the timing of insecticide applications
- Cultural controls and other non-insecticidal approaches
  - Dr. Cook's presentation
  - Managing for earliness, variety selection, management of non-crop habitats, farmscaping, etc.
- **The better use of insecticides**



**MULTISTATE EVALUATION**  
**of Tarnished Plant Bug**  
**Sampling Methods**  
*in Blooming Cotton*



- Regional Research on Plant Bugs
  - Sampling
  - Thresholds
  - Efficacy trials
  - Alternative approaches



# These publications are available ...

MID-SOUTH MULTI-STATE EVALUATION OF

## Treatment Thresholds for Tarnished Plant Bug in Pre-Flowering Cotton



Scott Stewart (University of Tennessee)

Gus Lorenz, Glenn Studebaker, Scott Akin (University of Arkansas)

Fred Musser, Angus Catchot, Don Cook, Jeff Gore, Chris Daves (Mississippi State University)

Kelly Tindall (University of Missouri)

Ralph Bagwell and B. Rogers Leonard (LSU AgCenter)

Ryan Jackson (USDA ARS)

THE UNIVERSITY OF TENNESSEE   
INSTITUTE of AGRICULTURE

*Midsouth Multistate Evaluation  
of  
Treatment Thresholds*

*for*

*Tarnished Plant Bug*

*in*

*Flowering Cotton*





# Plant Bug Sampling & Thresholds

Making Our Decisions with More Confidence

Crop Stage	Per 100 Sweeps	Per Drop Cloth
First 2 weeks of squaring	8+	1 (0.2 per foot)
Third week to first bloom	15+	2 (0.4 per foot)
After first bloom	15+	3 (0.6 per foot)*

Maintain 80% or higher square retention prior to bloom



# Using Insecticides Better

- **Products**

- New insecticides (Dr. Akin's presentation)
  - Rates
- 

- **Use patterns**

- Tank mixes and rotations, consideration for other pests, insecticide resistance management (IRM)

- **Application**

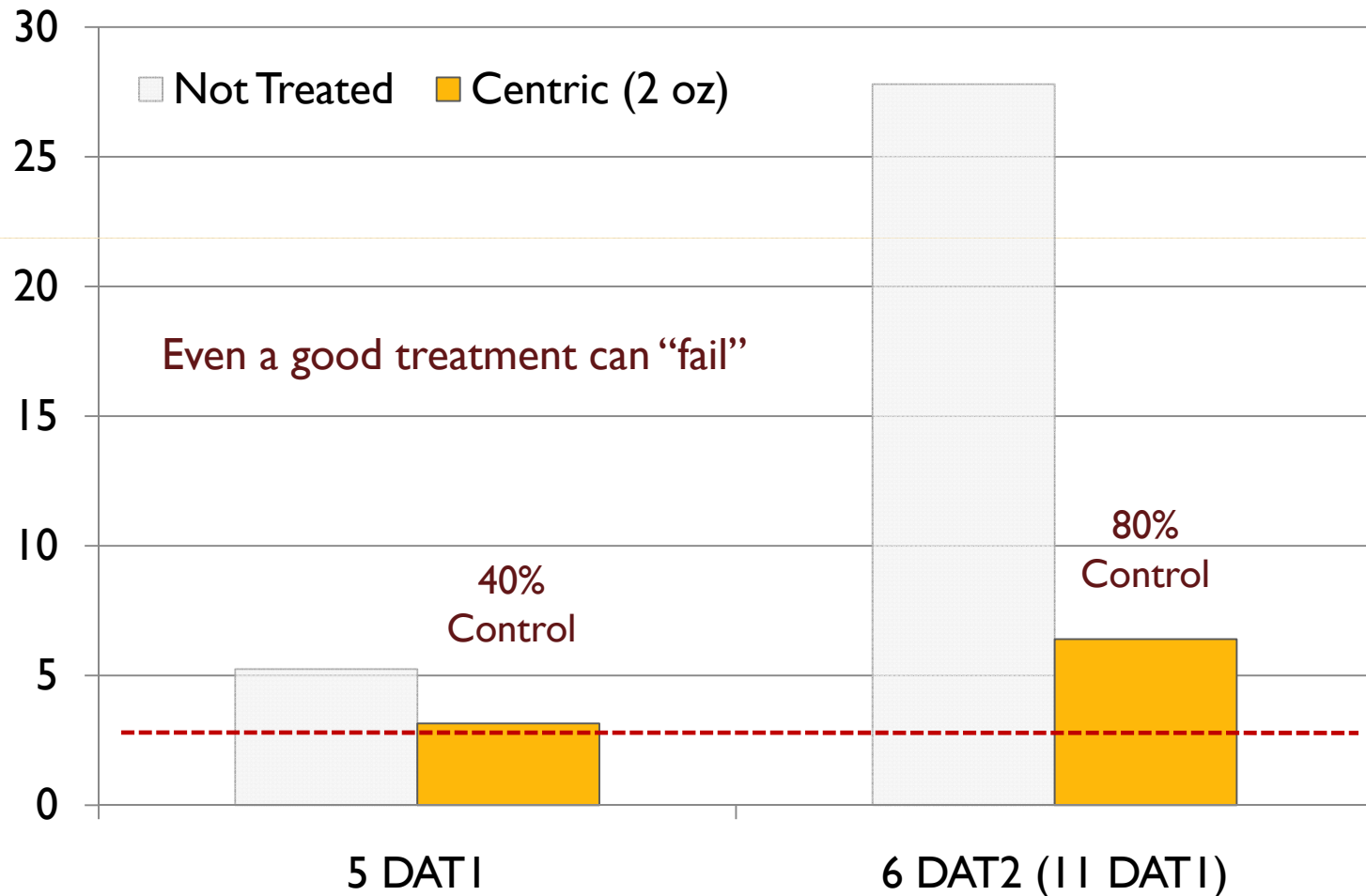
- Nozzle selection, aerial vs. ground, site specific scouting and treatment



# Size matters ...sometimes even winning is like kissing your sister

TPB

Numbers / 5 Row Ft



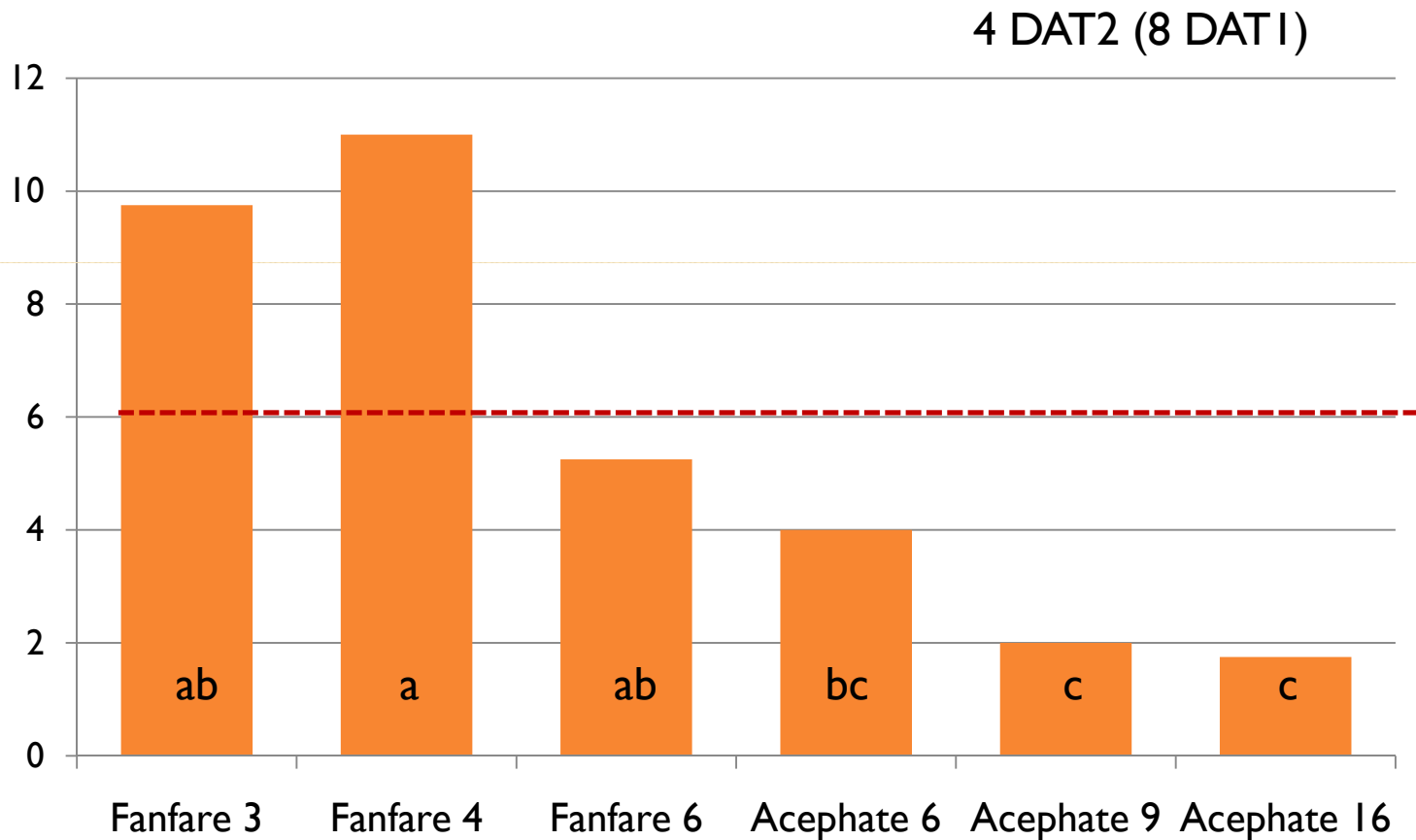
Tennessee, 2010

# Product Selection and Rate Matter

## Tennessee, August, 2010

TPB

Numbers / 10 Row Ft



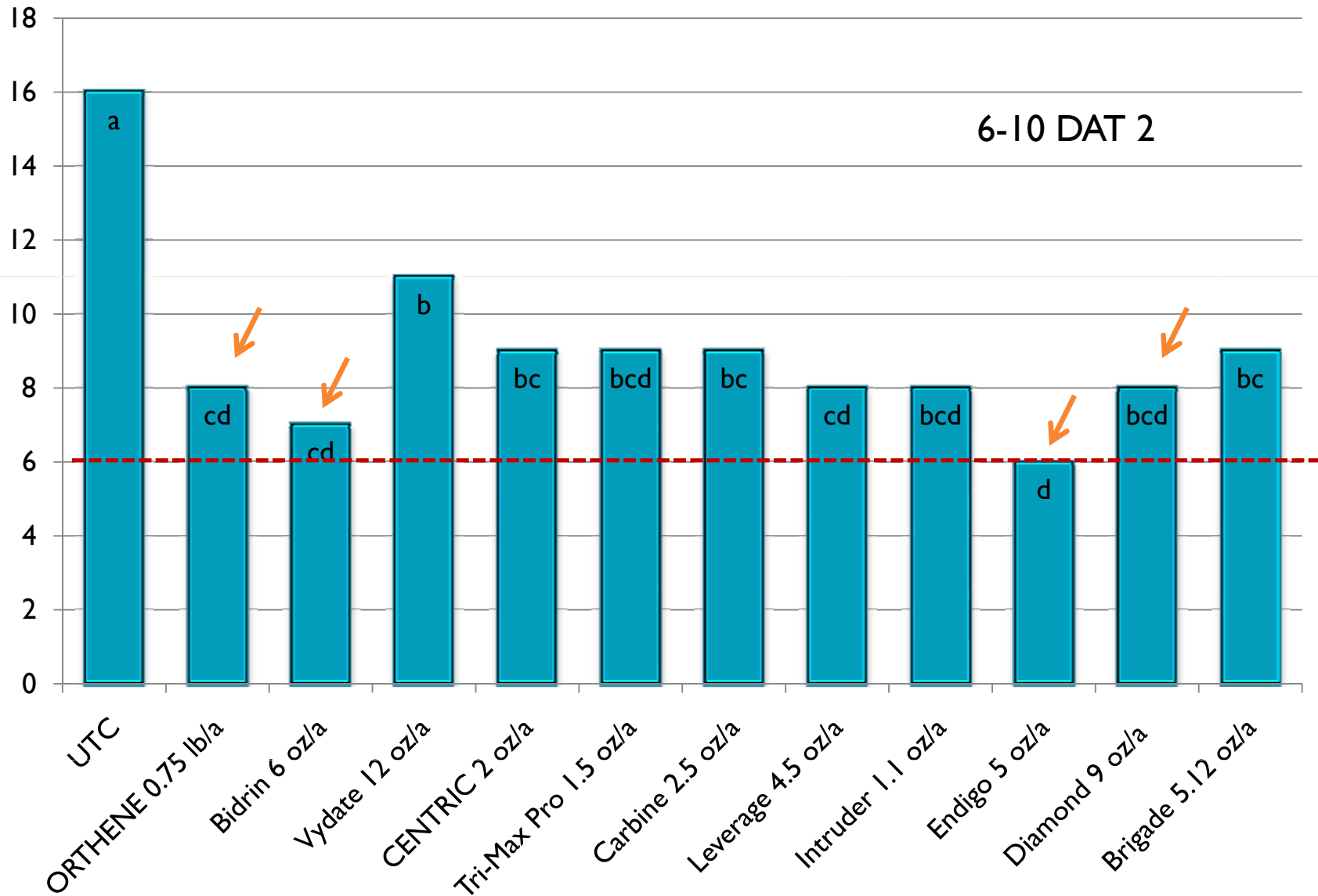
**Check = 28 per 10 Row Ft (4 DAT1) and 49.3 per 10 Row Ft (4 DAT2)**

# No. of TPB - Regional TPB Efficacy Trial

## Averaged Across Five Locations, 2009

TPB

Numbers / 10 Row Ft

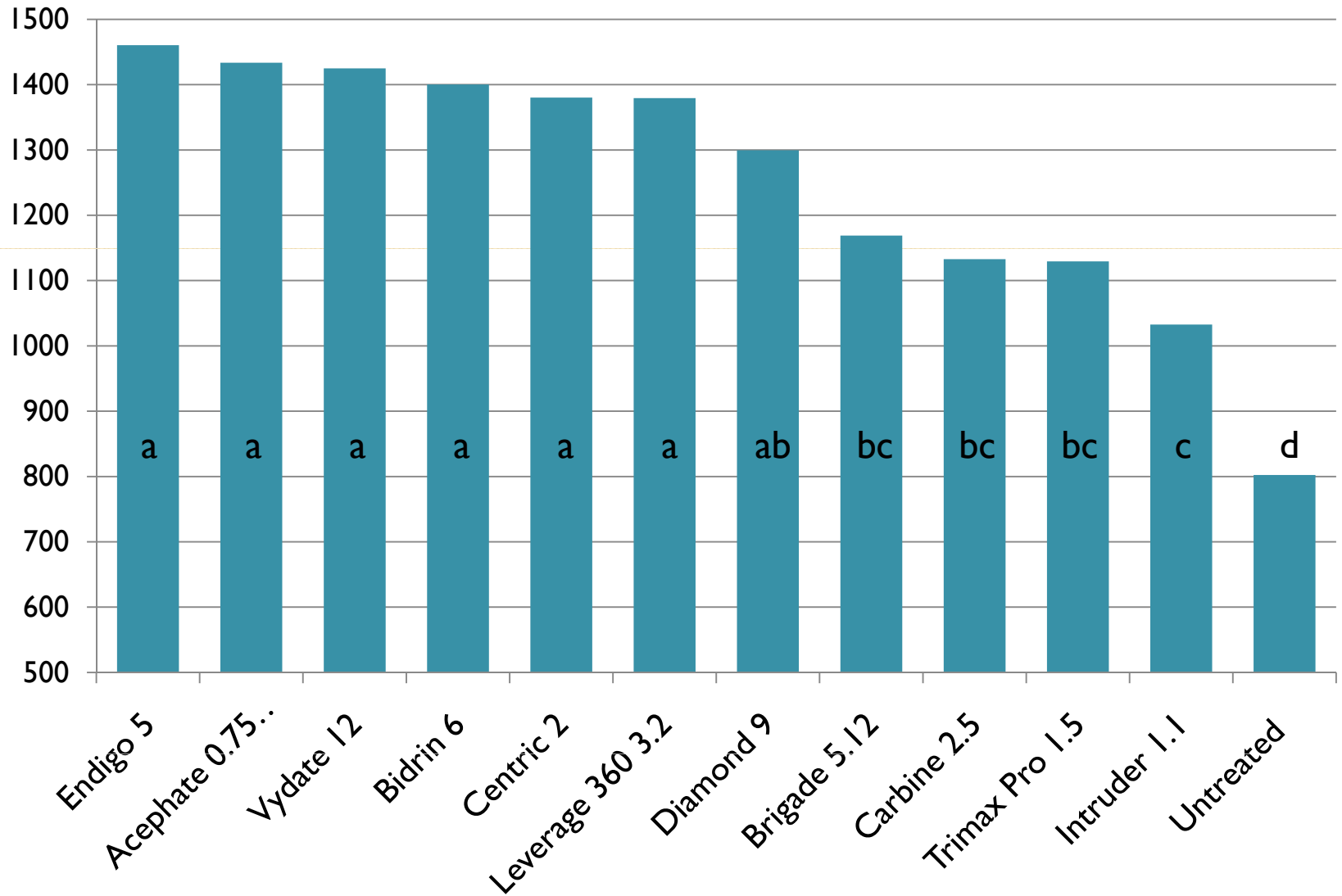


# Yield - Regional TPB Efficacy Trial

Tennessee, 2010 (4 Applications)

Lint

Pounds / Acre

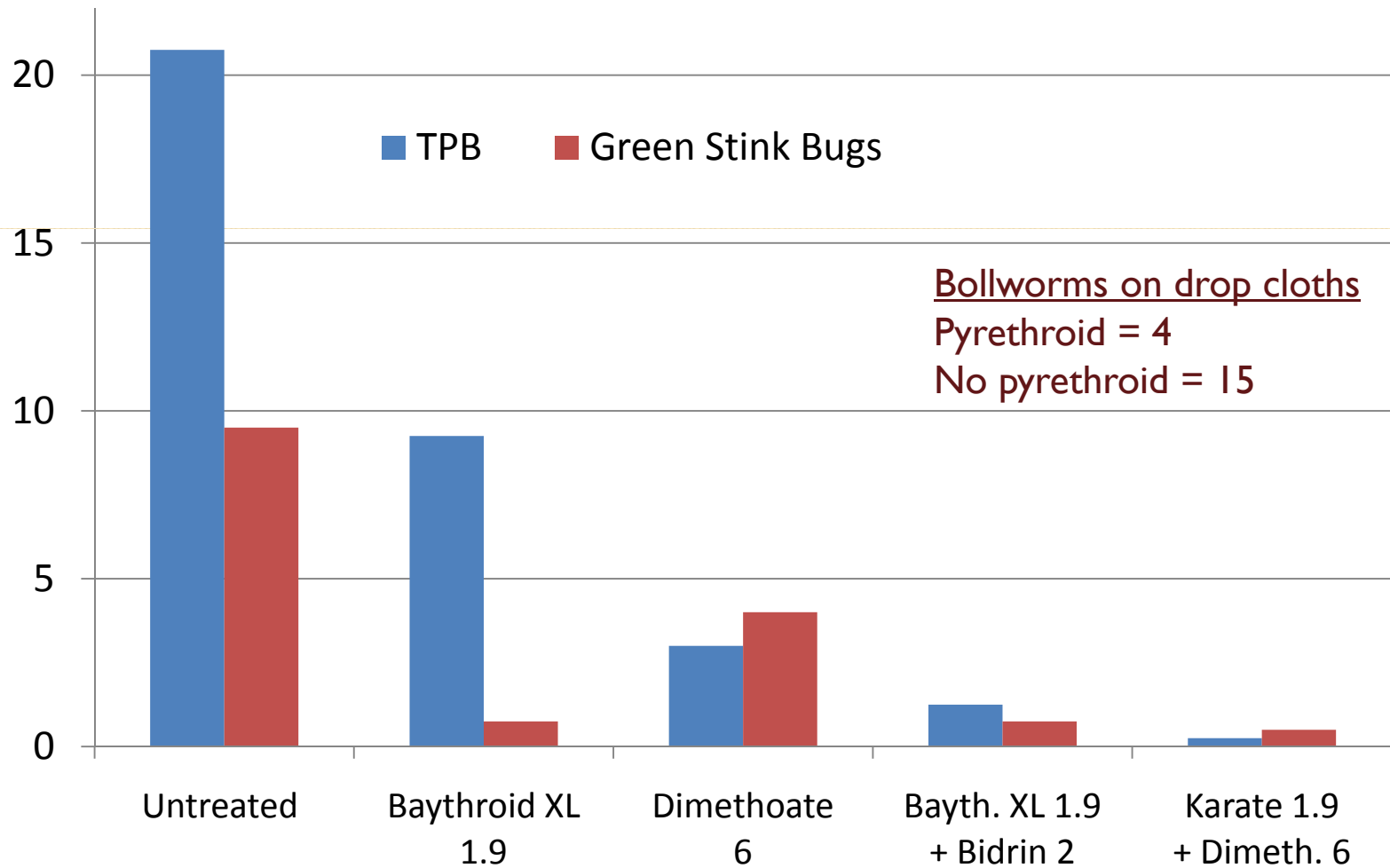


# Tank Mixing Insecticides

6 DAT2, Tennessee, 2010

TPB

Number / 10 Row Ft

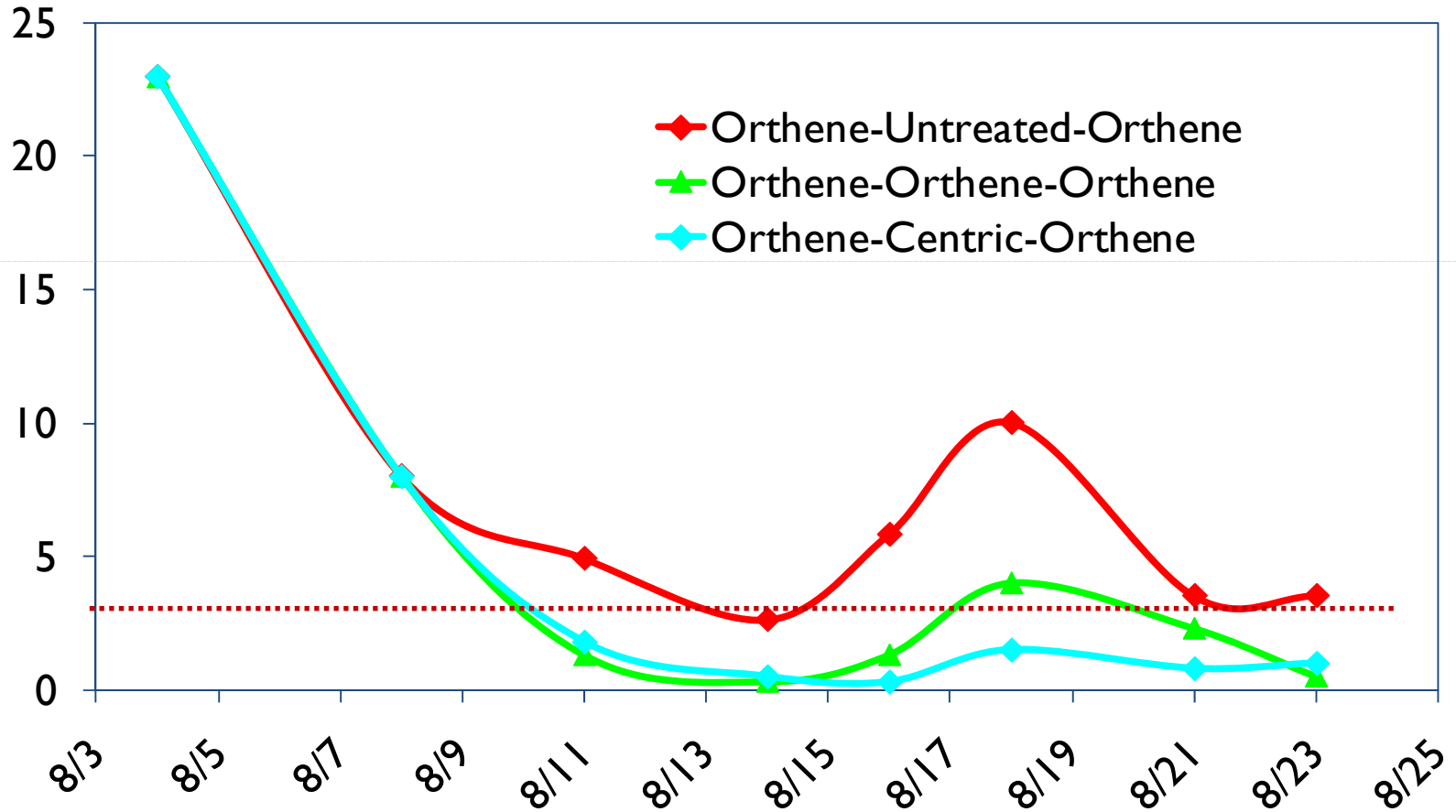


# Rotate Chemistries

Jeff Gore, MSU

TPB

Nymphs / 6 Row Feet

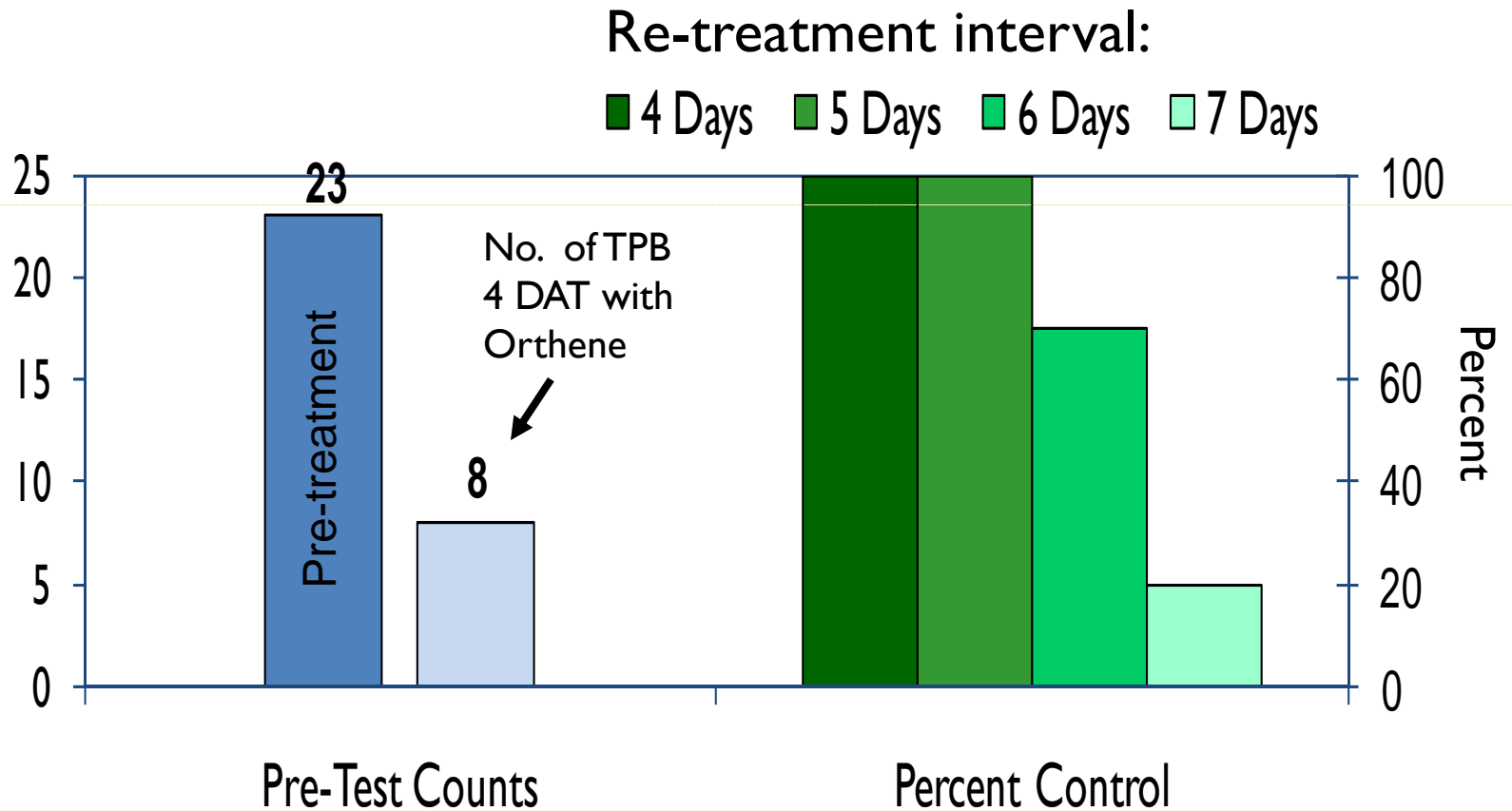


# Shorten Spray Intervals vs. High Pressure

Jeff Gore, MSU

TPB

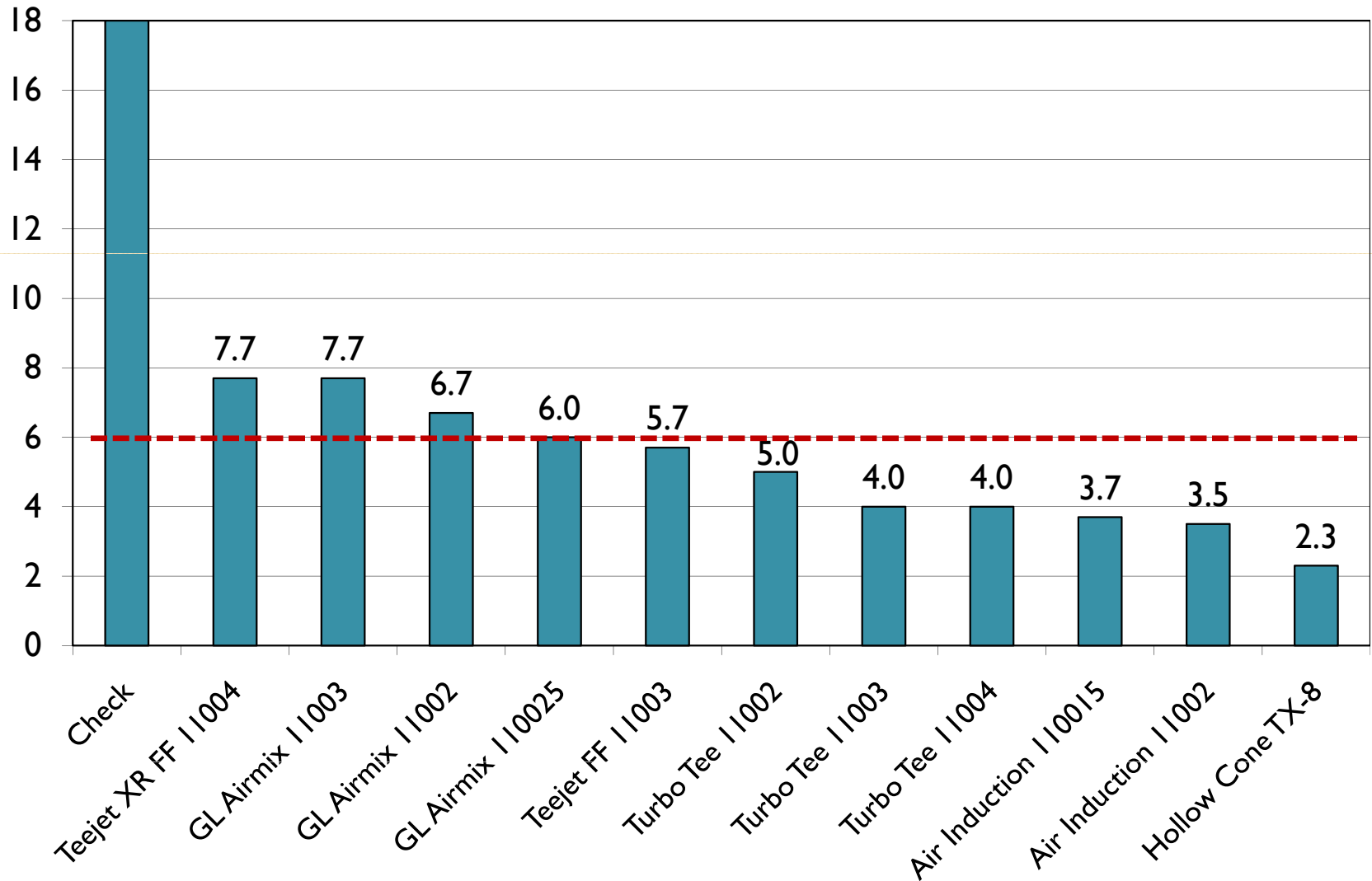
Nymphs / 6 Row Feet



# Nozzle Effects on Tarnished Plant Bug Control with Acephate 90S (0.5 lb), Tennessee, 2006

TPB

Nymphs / 10 Row Feet





# More Applications by Ground



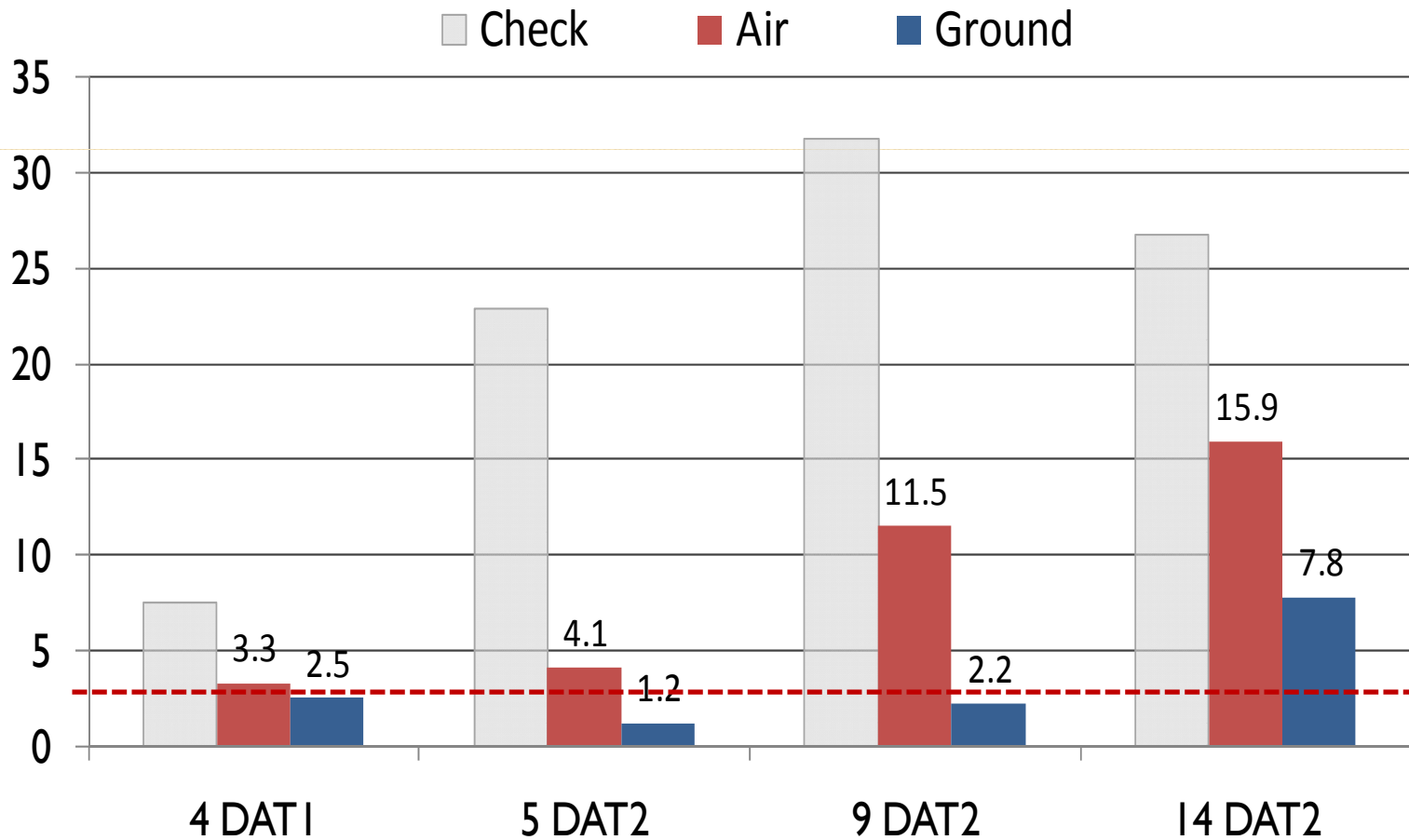
Photo: Larry Steckel

# Aerial vs. Ground Application with Transform (sulfoxaflor)

Angus Catchot, MSU, 2010

TPB

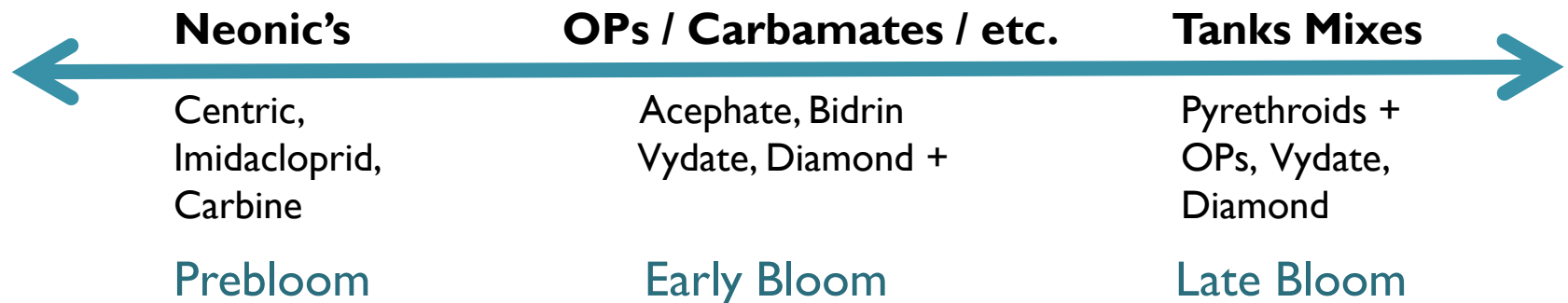
Nymphs / 5 Row Ft



# Insecticide Resistance Management

- Using different classes of chemistry in a logical sequence (and manner) to prevent or delay resistance
  - For example, I typically do not recommend the use of neonicotinoid insecticides after bloom
  - Sometimes easier said than done

## An Encouraged Use Pattern for TPB in Tennessee ...



# Cultural Controls, etc...

- Farmscaping
  - Site specific scouting and targeted insecticide applications
- Nectariless cotton

Scout more often!  
Treat more often?



Photo: Chism Craig

Minimize Corn/Cotton  
Borders



# Summary

- It will take multiple control tactics to manage TPB in high pressure areas
  - Insecticides will still be at the core of this program
    - We must use them efficiently
    - The presence of other pests and resistance levels will dictate insecticide selection
    - New insecticides, especially new classes, and other new technologies are critically needed
  - Cultural controls can help bridge the gap

