

Plant Bug Management in the Midsouth

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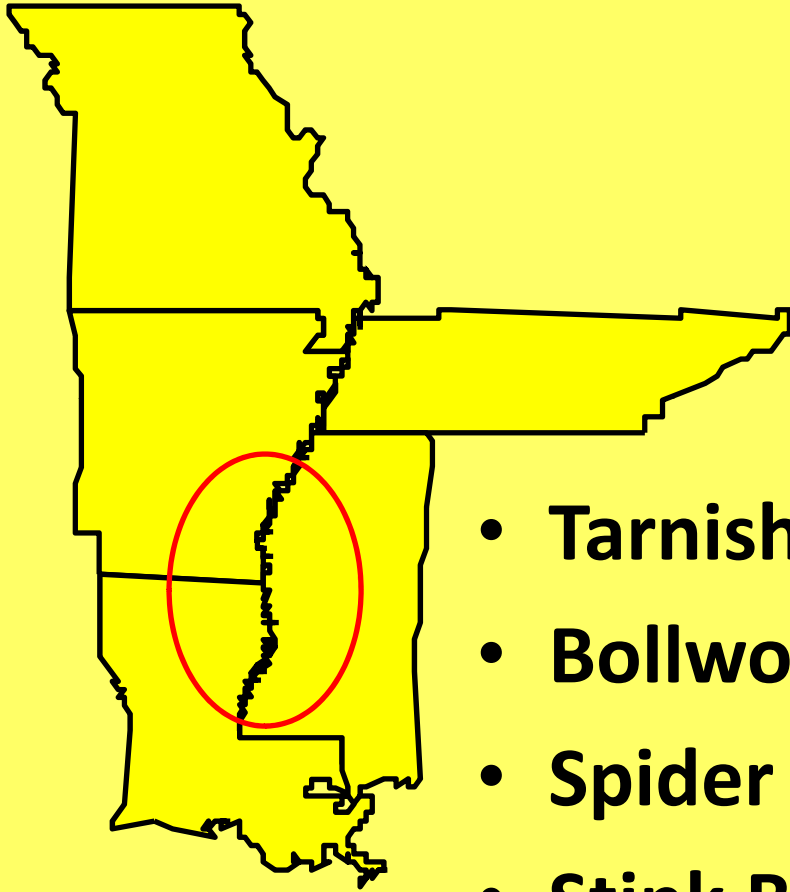
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A Changing Production System

- Recent changes in the midsouth production system including transgenics, BWE, shifting crop acreages, increased cost of production, have changed the pest status and population dynamics of many of our pests
- These changes necessitate the need for re-evaluation of thresholds, sampling procedures and control tactics to meet the current needs of growers in Arkansas and the Midsouth
- New insecticides and the rising cost of tech. fees mandates the constant need for reevaluation of current pest mgmt practices

2009 Cotton Insect Losses MS Delta



- Tarnished Plant Bug= **\$20,392,404**
- Bollworm/Budworm= **\$3,861,684**
- Spider Mites= **\$2,657,774**
- Stink Bugs= **\$2,323,851**
- *Average # of Sprays 6.5 for TPB*
- **\$75/ Acre**

MULTISTATE EVALUATION
of Tarnished Plant Bug
Sampling Methods
in Blooming Cotton



Represents the first collective effort of the Midsouth Research and Extension Entomologists to begin addressing the current need to work on sampling and thresholds.



U of A UNIVERSITY OF ARKANSAS
DIVISION OF AGRICULTURE

Mississippi State
UNIVERSITY



UT Extension

Objectives

- Identify **efficient** and **accurate** TPB sampling methods in cotton
- Verify or adjust current TPB thresholds
- Standardize recommended scouting procedures and thresholds in the midsouth





Our Experiences in the Past
Several Years Tell Us It Will
Take a Program Approach to
Achieve Acceptable Control of
Plant Bugs.....

So, What Can We Do?
Starts with Landscape
Awareness and Cultural Control

Change in Production and Shifts in Pest Status

- Has resulted in achieving timely burndown of broadleaf weeds in and around fields becoming one of the most important cultural practices for growers and consultants in insect pest mgmt today... "avoiding the green bridge"



Wild Hosts for TPB

- Sampling conducted by the USDA researchers has shown tarnished plant bugs can be found on more than 350 species of wild host plants. In early spring, this can include buttercup, evening primrose, butterweed, annual fleabane, sourdock, vetch, crimson clover and cutleaf evening primrose



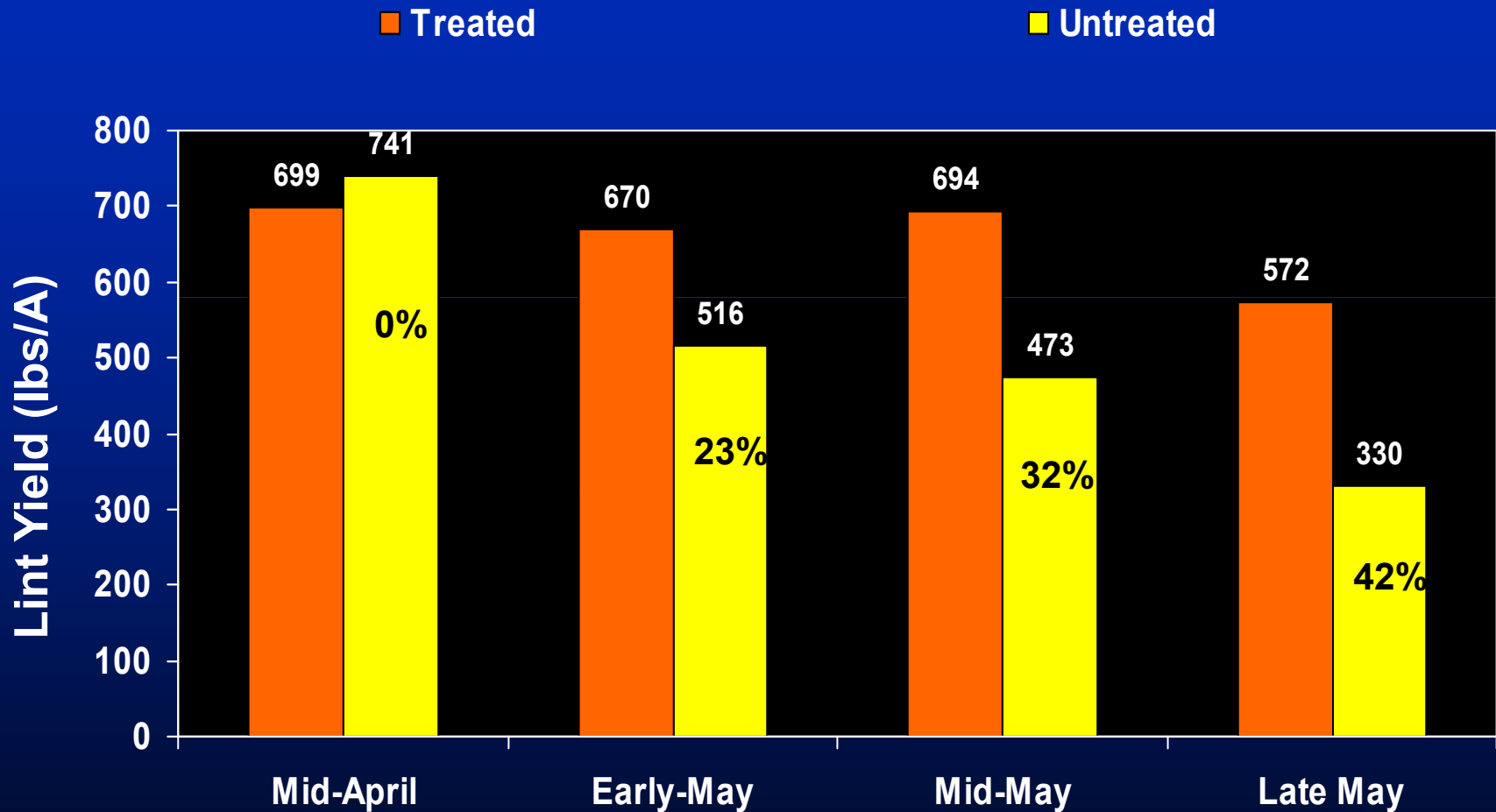
Burndown and Insect Pest Management

- Be aware of the importance and significance of achieving timely burndown and how to achieve it
- All broadleaf weeds in and around field should be controlled at least 3 weeks prior to planting, applications made 4-6 wks prior to planting
- Many of these pests are very mobile and areas of potential sources for these pests should be scouted (adjacent crops, levees, ditch banks, fallow fields, CRP, WRP, etc.)
- If burndown is not effective or regrowth occurs an insecticide/ miticide application may be needed

Edge Effects



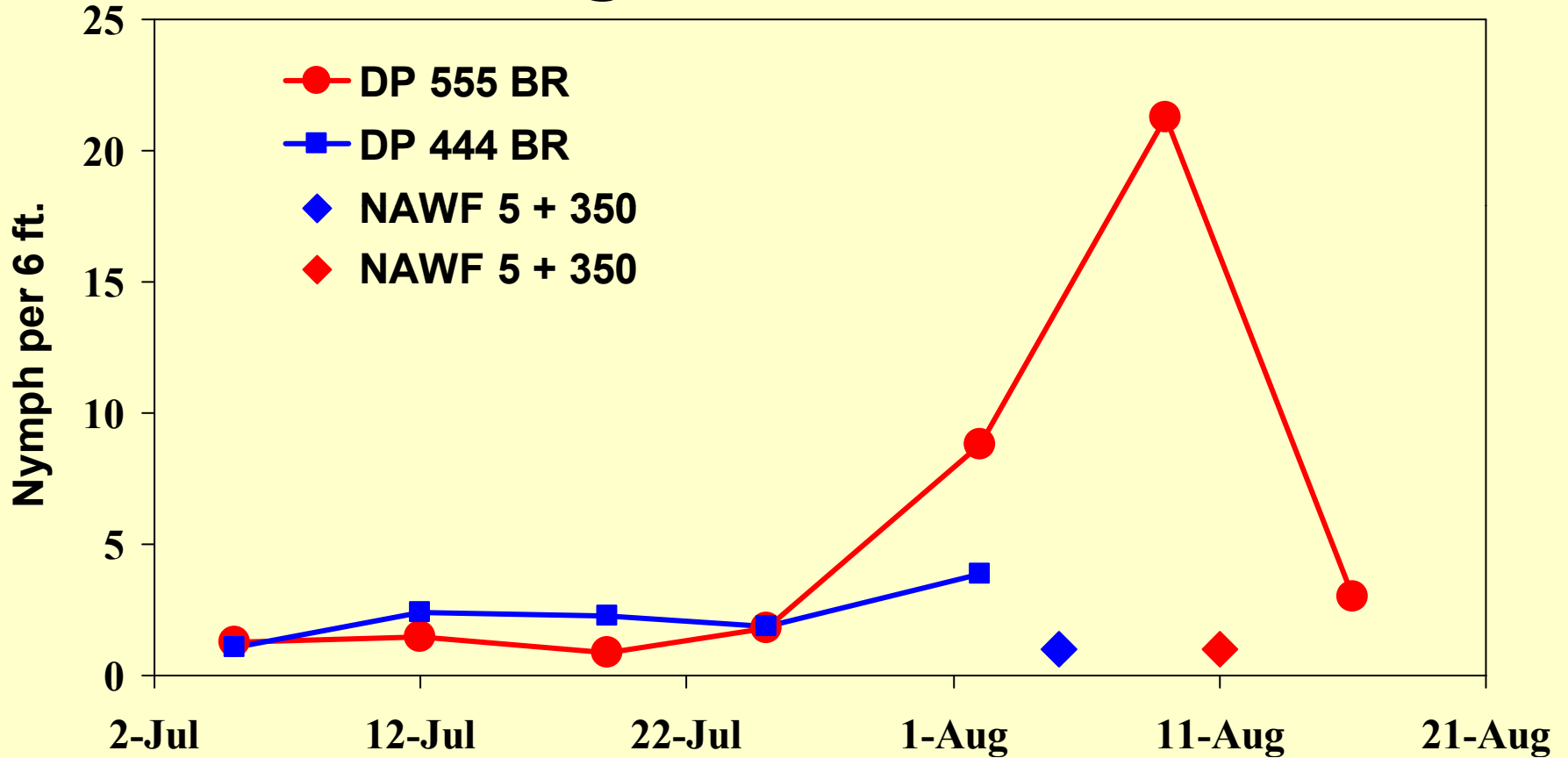
Impact of Planting Date on TPB



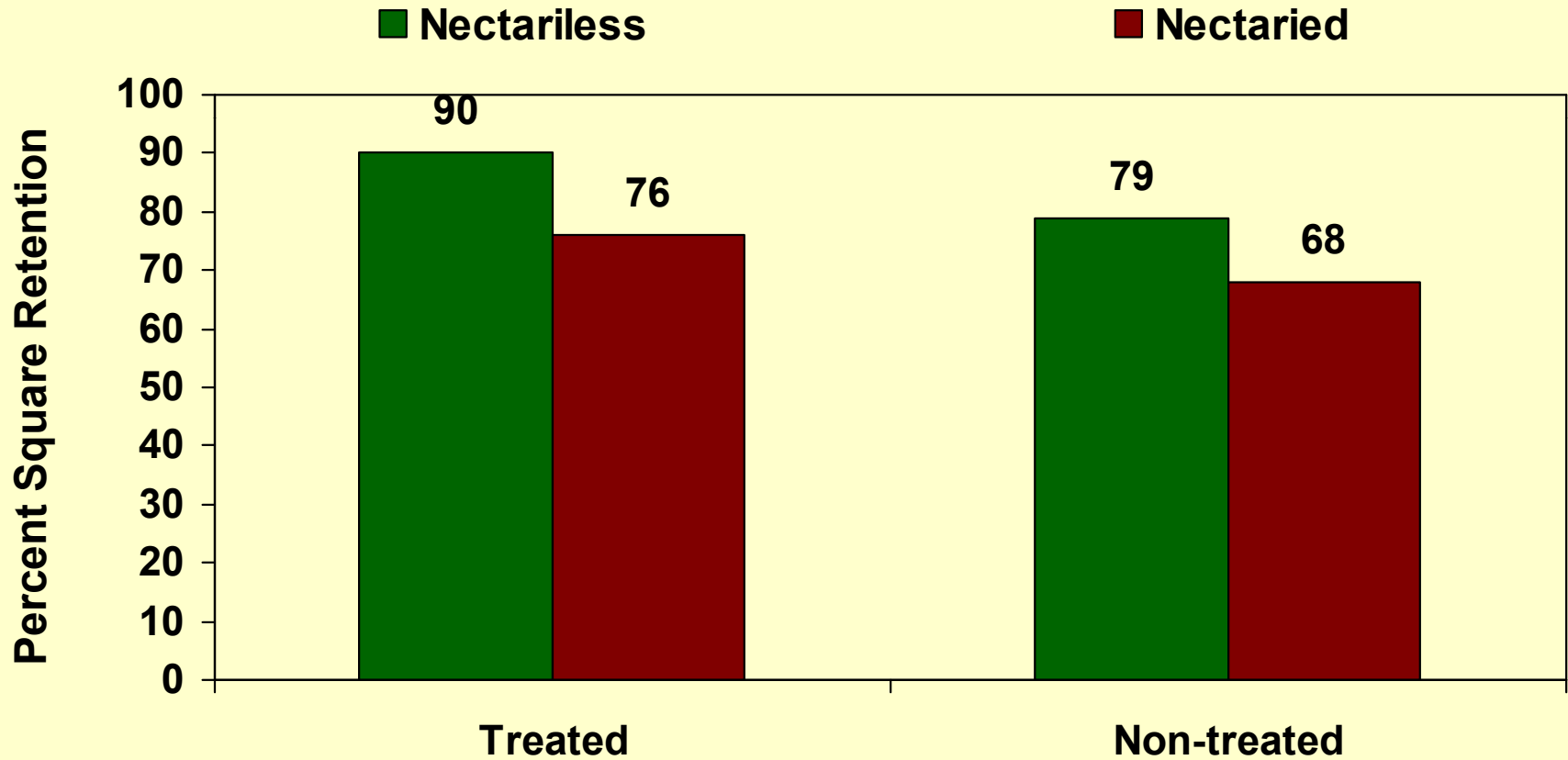
Treated plots were sprayed once or twice per week throughout the season.

Variety Selection

Plant Bugs in DP 444 vs. 555



Variety Selection



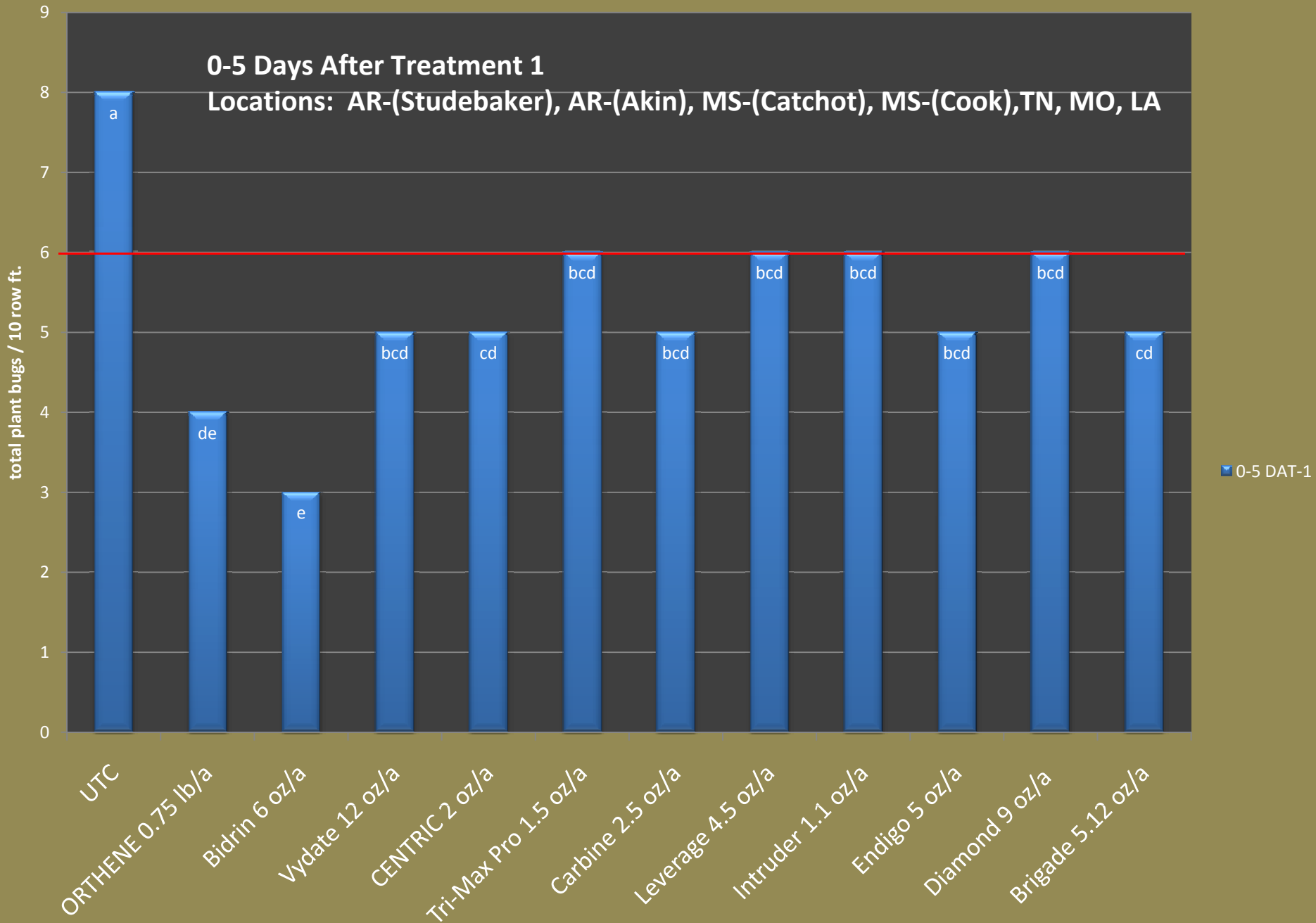
Regional Plant Bug Efficacy Trial, 2009



Across Location Regional Plant Bug Summary 2009

0-5 Days After Treatment 1

Locations: AR-(Studebaker), AR-(Akin), MS-(Catchot), MS-(Cook), TN, MO, LA

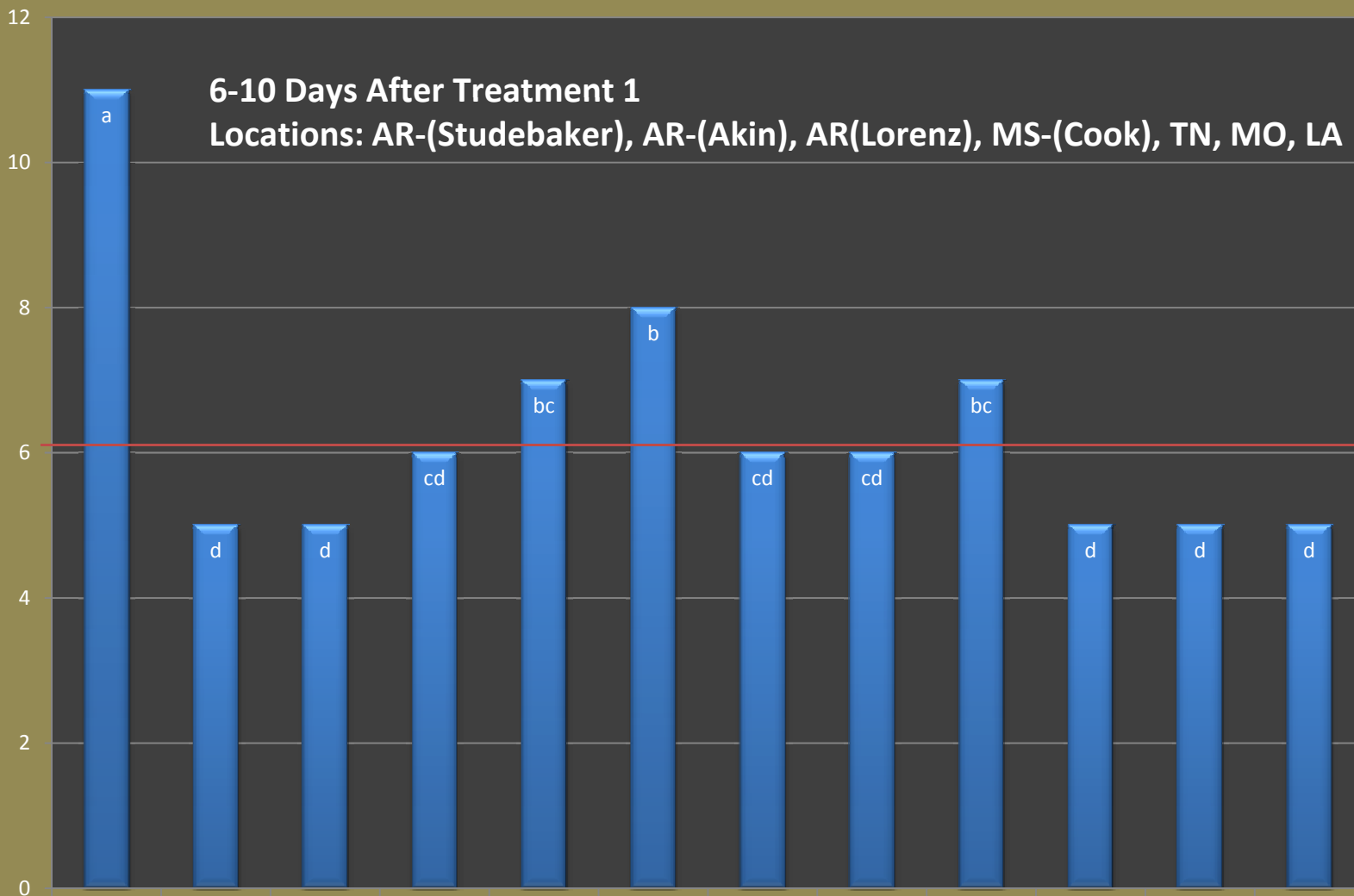


Across Location Regional Plant Bug Summary 2009

6-10 Days After Treatment 1

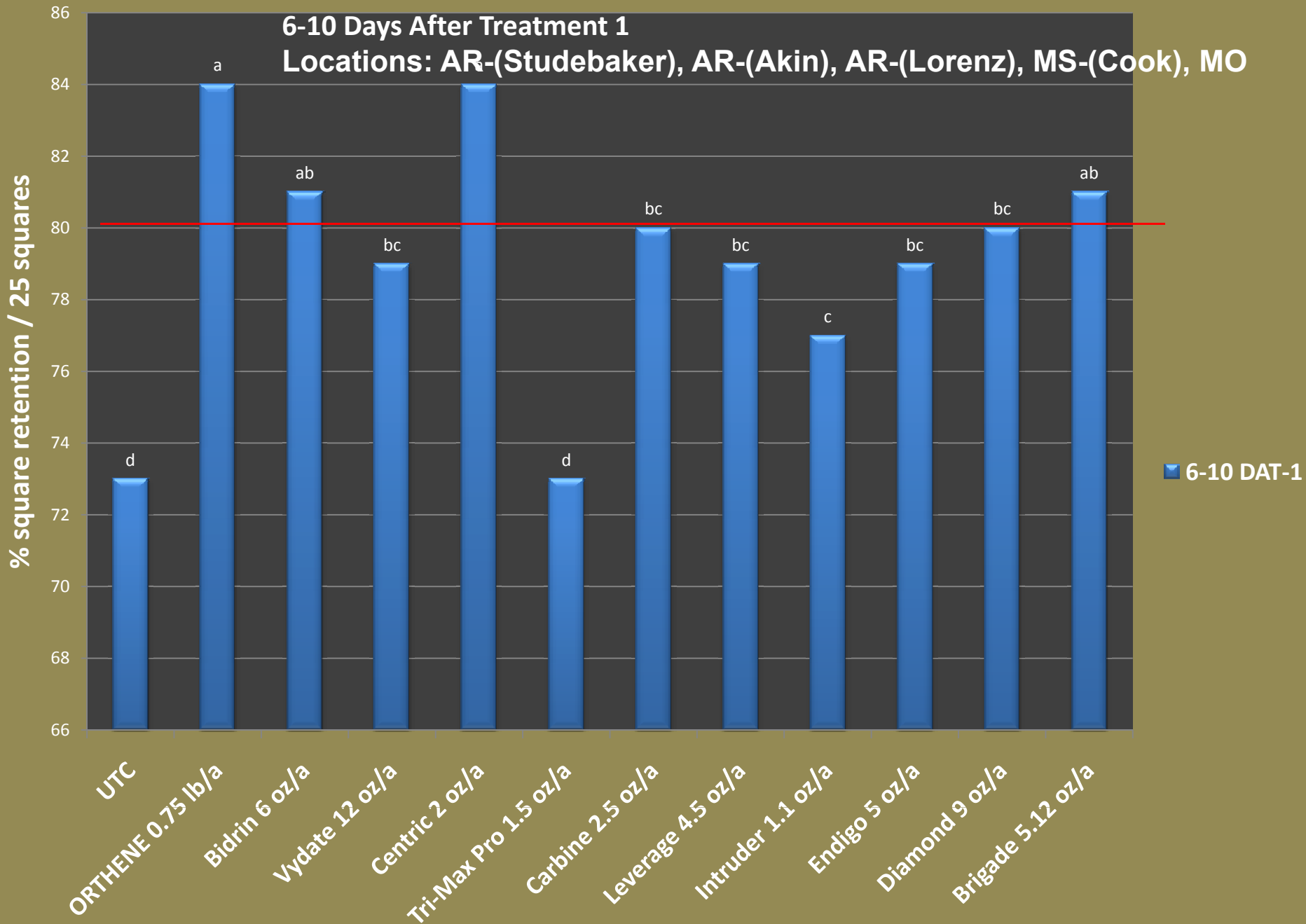
Locations: AR-(Studebaker), AR-(Akin), AR(Lorenz), MS-(Cook), TN, MO, LA

total plant bugs / 10 row ft.



6-10 DAT-1

Across Location Regional Plant Bug Summary 2009

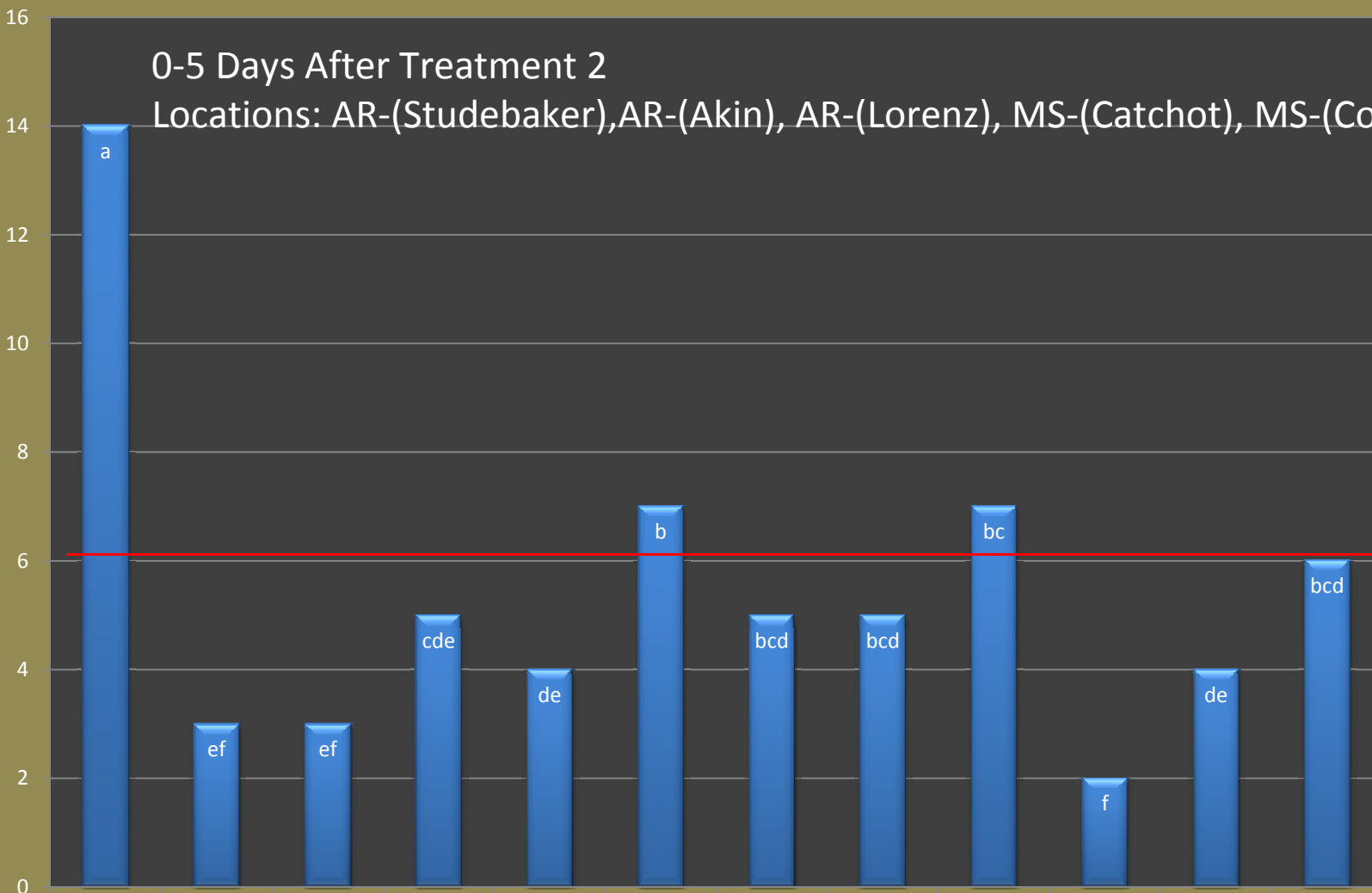


Across Location Regional Plant Bug Summary 2009

0-5 Days After Treatment 2

Locations: AR-(Studebaker),AR-(Akin), AR-(Lorenz), MS-(Catchot), MS-(Cook), TN, LA

total plant bugs / 10 row ft.



0-5 DAT-2

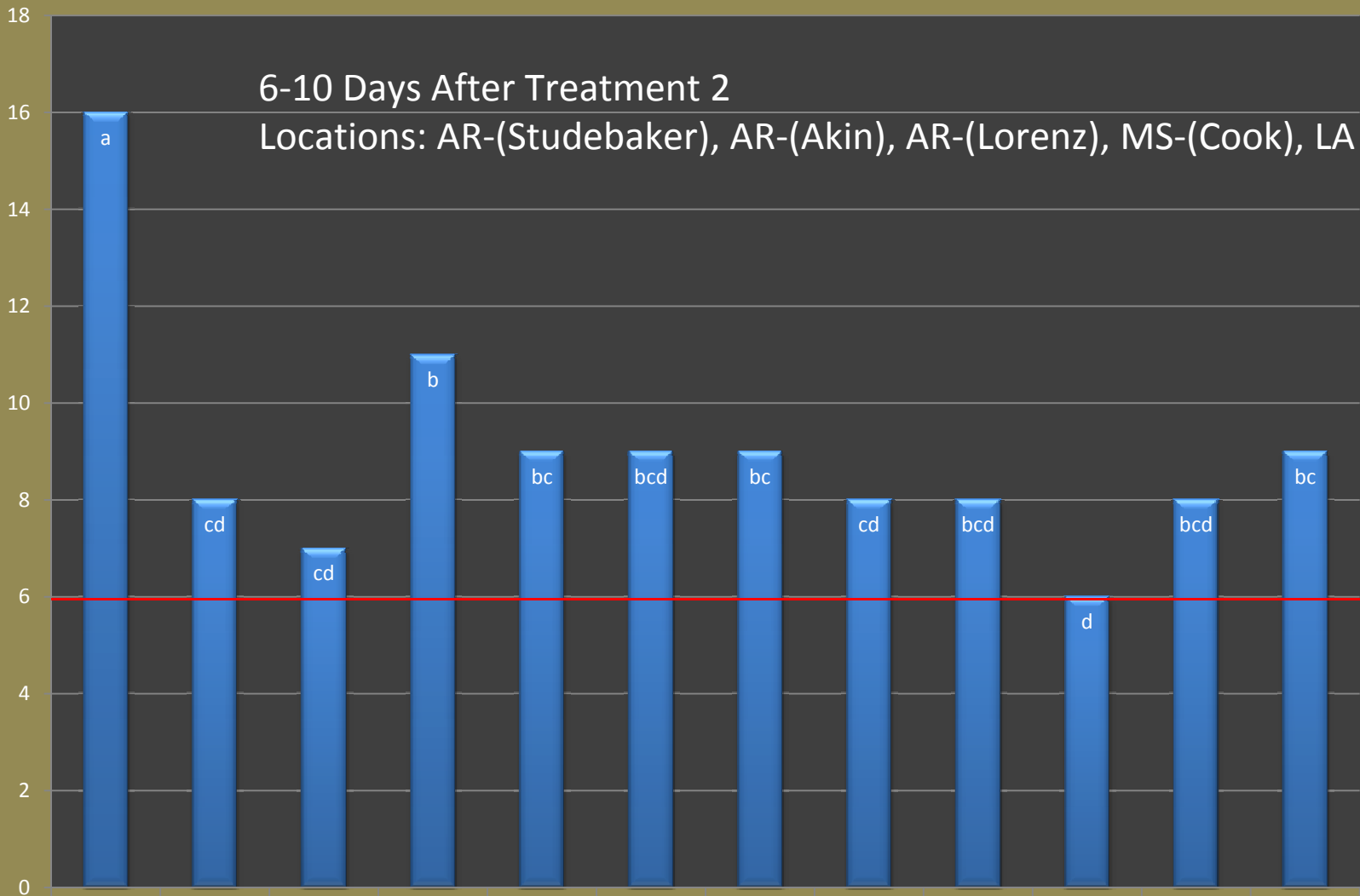
UTC
ORTHENE 0.75 lb/a
Bidrin 6 oz/a
Vydate 12 oz/a
CENTRIC 2 oz/a
Tri-Max Pro 1.5 oz/a
Carbine 2.5 oz/a
Leverage 4.5 oz/a
Intruder 1.1 oz/a
Endigo 5 oz/a
Diamond 9 oz/a
Brigade 5.12 oz/a

Across Location Regional Plant Bug Summary 2009

6-10 Days After Treatment 2

Locations: AR-(Studebaker), AR-(Akin), AR-(Lorenz), MS-(Cook), LA

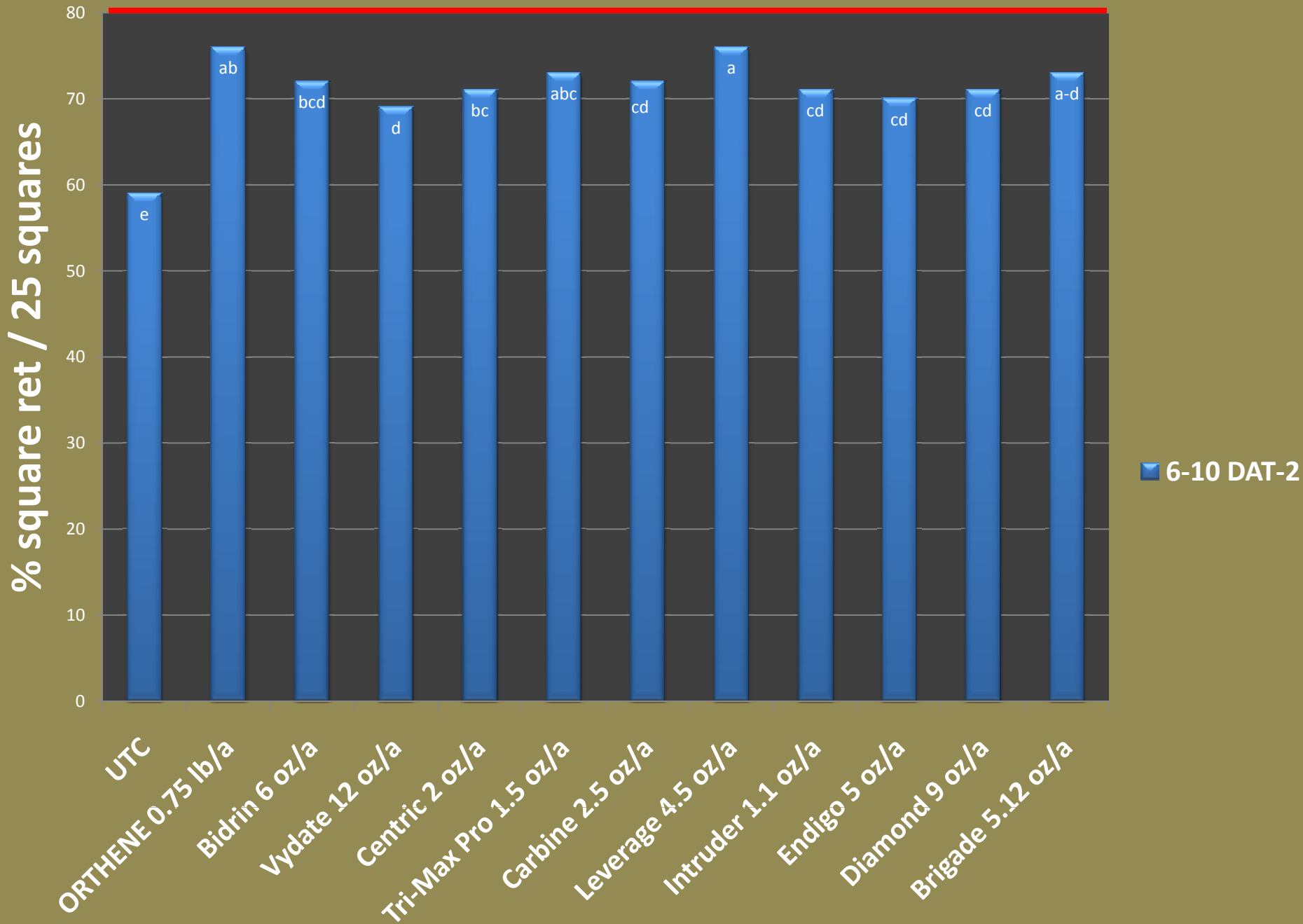
total plant bugs / 10 row ft.



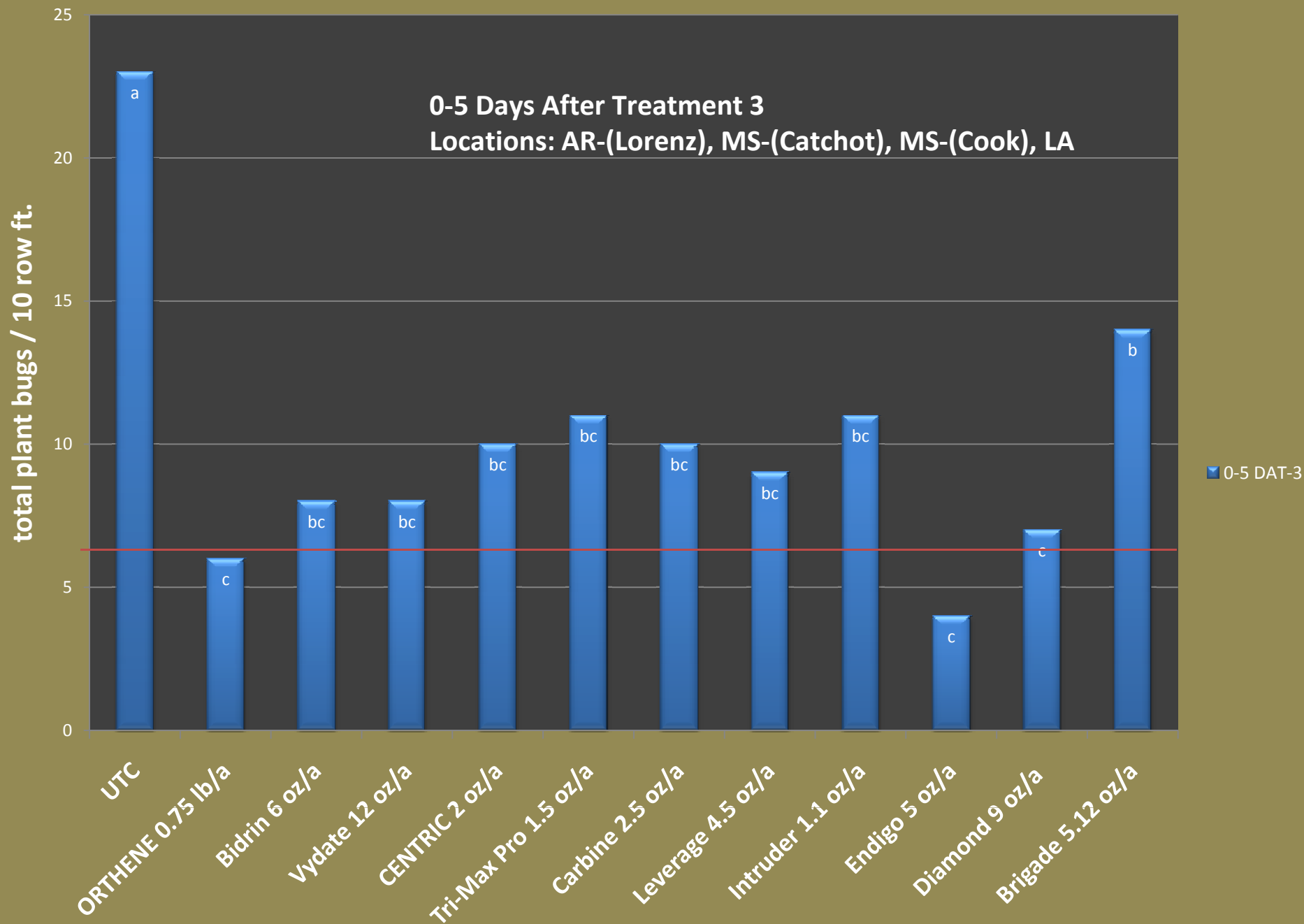
6-10 DAT-2

UTC
ORTHENE 0.75 lb/a
Bidrin 6 oz/a
Vydate 12 oz/a
CENTRIC 2 oz/a
Tri-Max Pro 1.5 oz/a
Carbine 2.5 oz/a
Leverage 4.5 oz/a
Intruder 1.1 oz/a
Endigo 5 oz/a
Diamond 9 oz/a
Brigade 5.12 oz/a

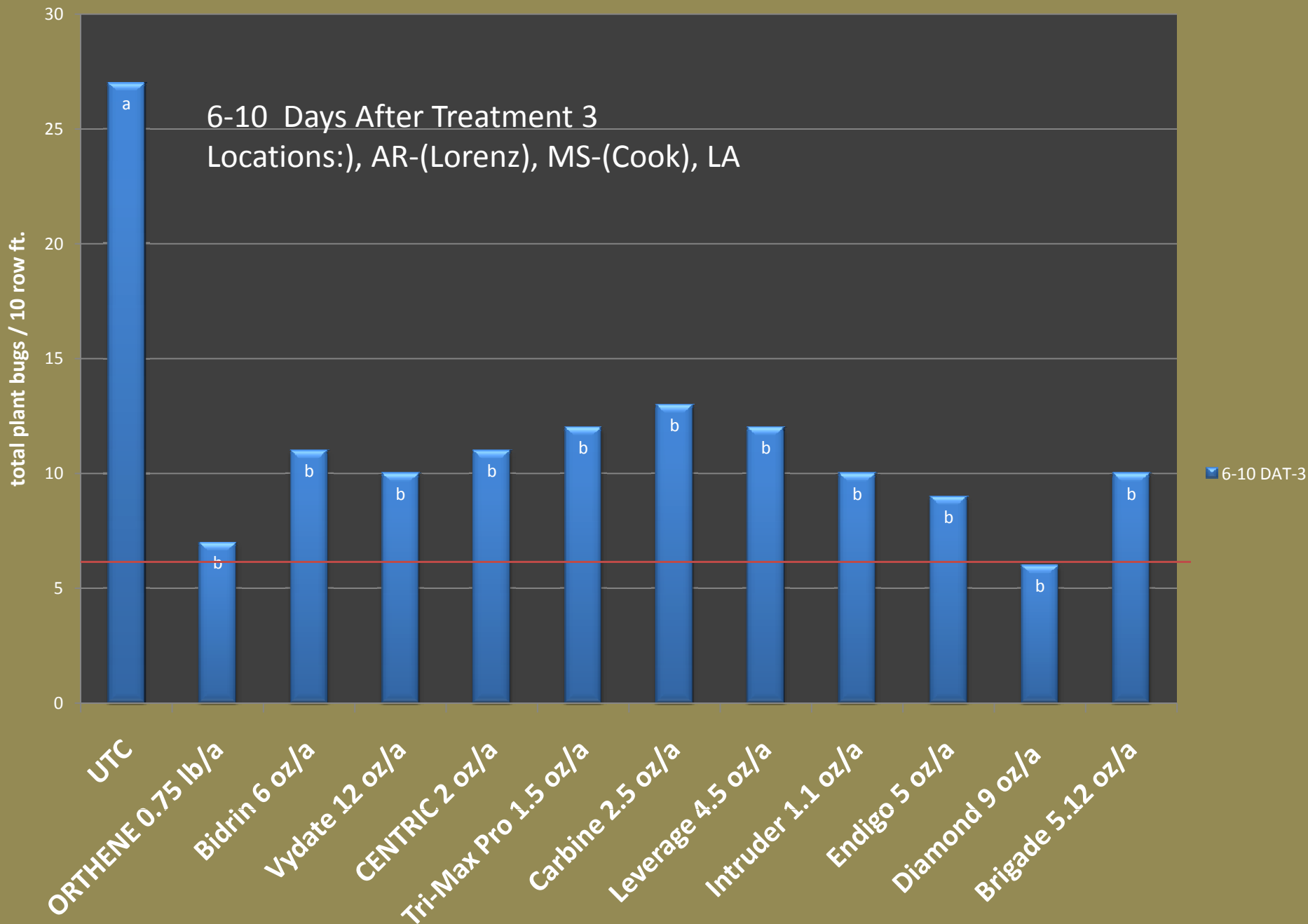
Across Location Regional Plant Bug Summary 2009



Across Location Regional Plant Bug Summary 2009



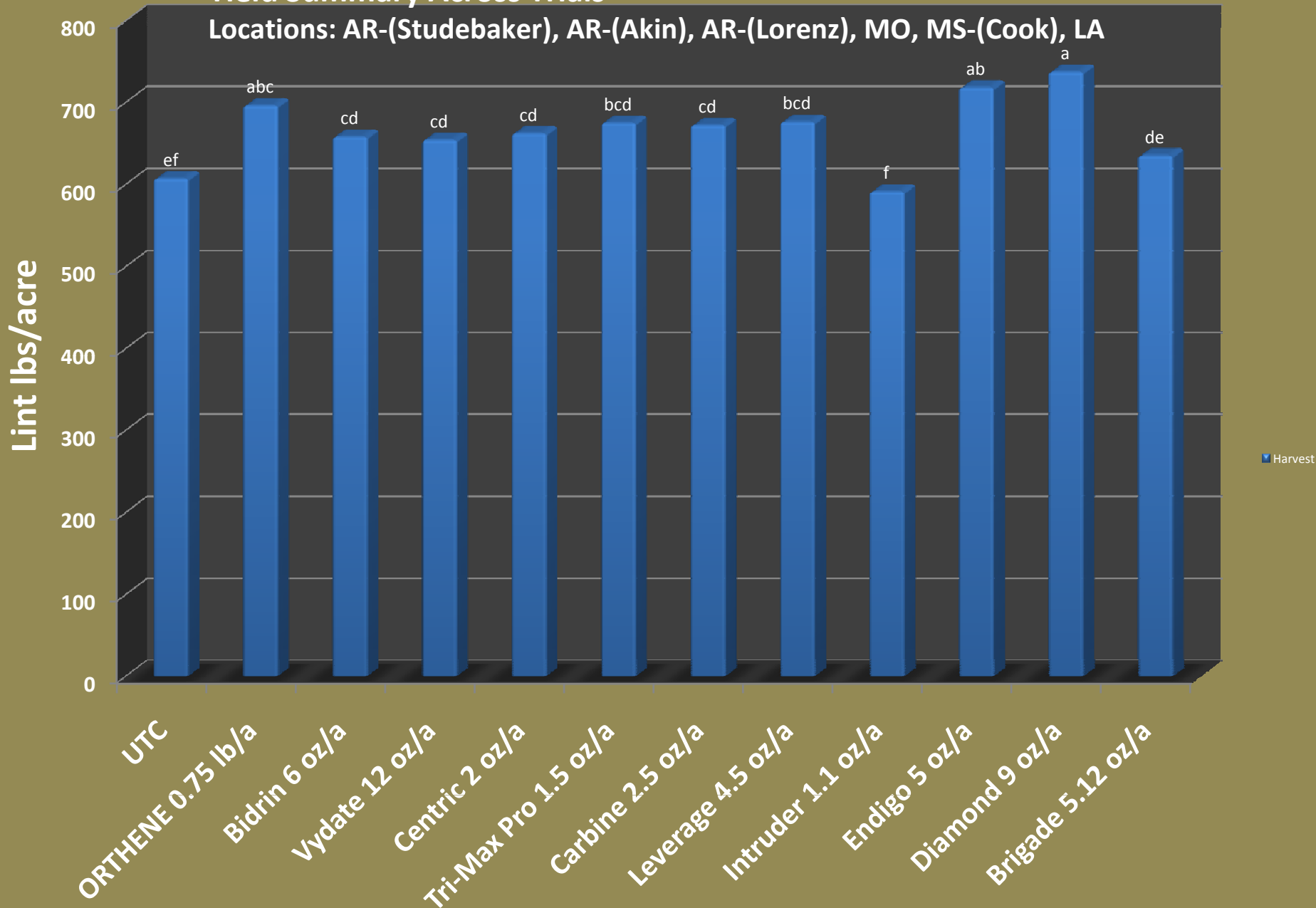
Across Location Regional Plant Bug Summary 2009



Across Location Regional Plant Bug Summary 2009

Yield Summary Across Trials

Locations: AR-(Studebaker), AR-(Akin), AR-(Lorenz), MO, MS-(Cook), LA



Summary on Regional Trial

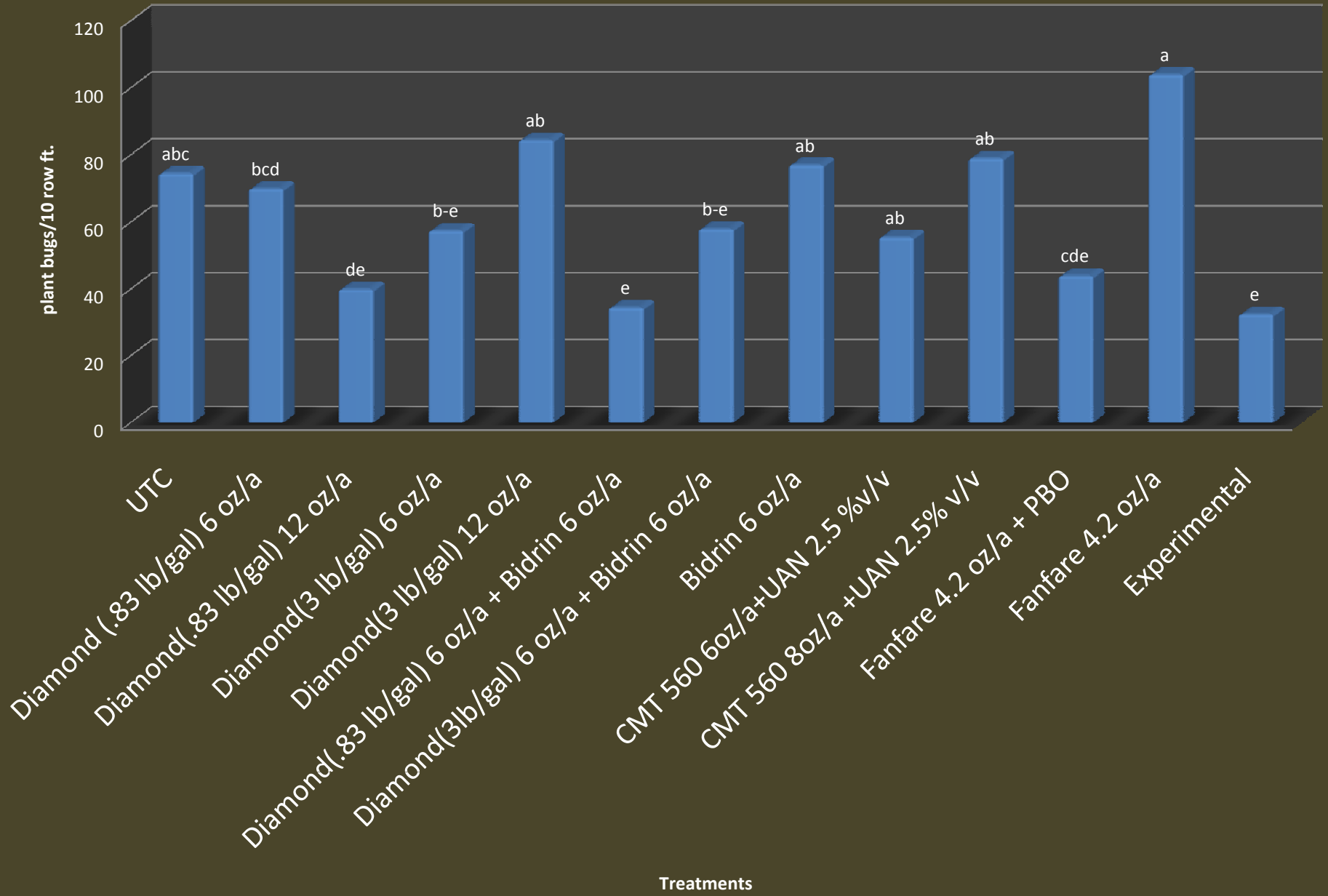
- None of the treatments effectively controlled plant bug numbers
- Square retention numbers indicate we lost yield in all treatments
- Best efficacy didn't necessarily equate to highest yield
- Standards didn't do as good as expected
- Points out the need for additional/ new products
- Shows need for rotation of chemistries

What Can We Do to Improve Control?

- Old Chemistry- PBO, ULV Malathion
- New Chemistry – Sulfoxaflor
- Figure out how to use existing products-
Diamond
- Rotate Chemistry
- Tankmixing

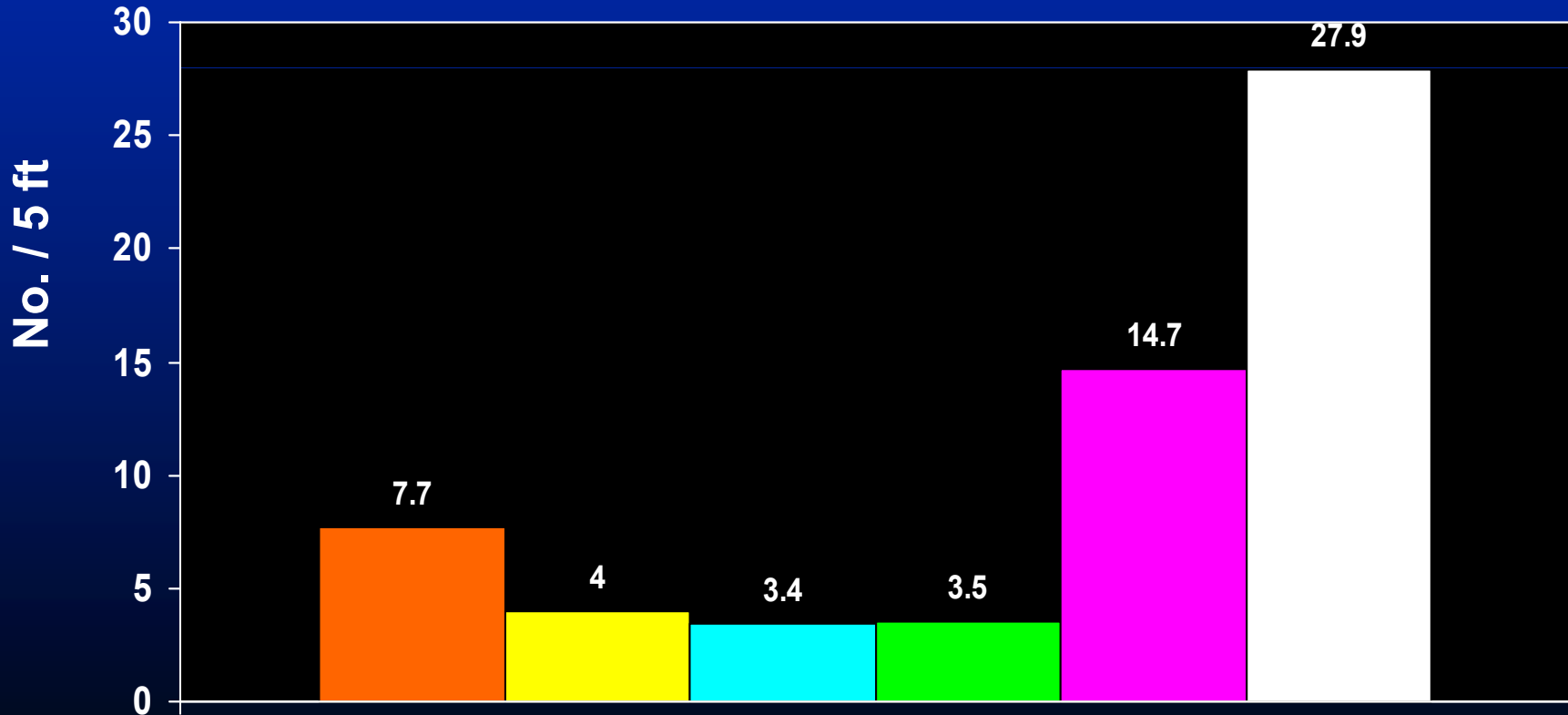
Diamond Plant Bug 3

Season Total Plant Bugs

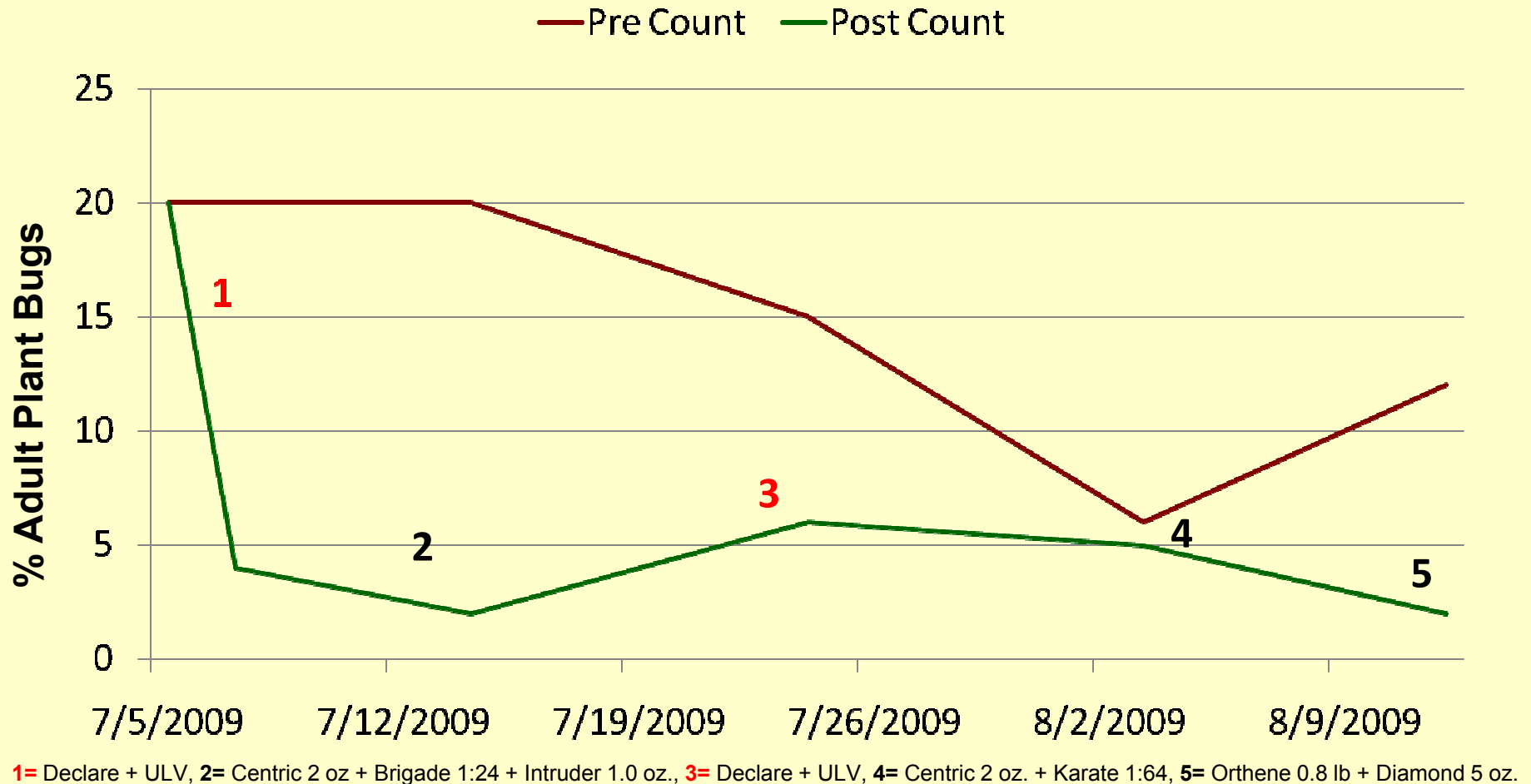


Plant Bug Control with PBO 2 DAT2

- Acephate (0.5)
- Brigade (6.4) + PBO (4)
- Brigade (6.4)
- Acephate (0.5) + PBO (4)
- Brigade (4) + Acephate (0.5) + PBO (4)
- Non-treated

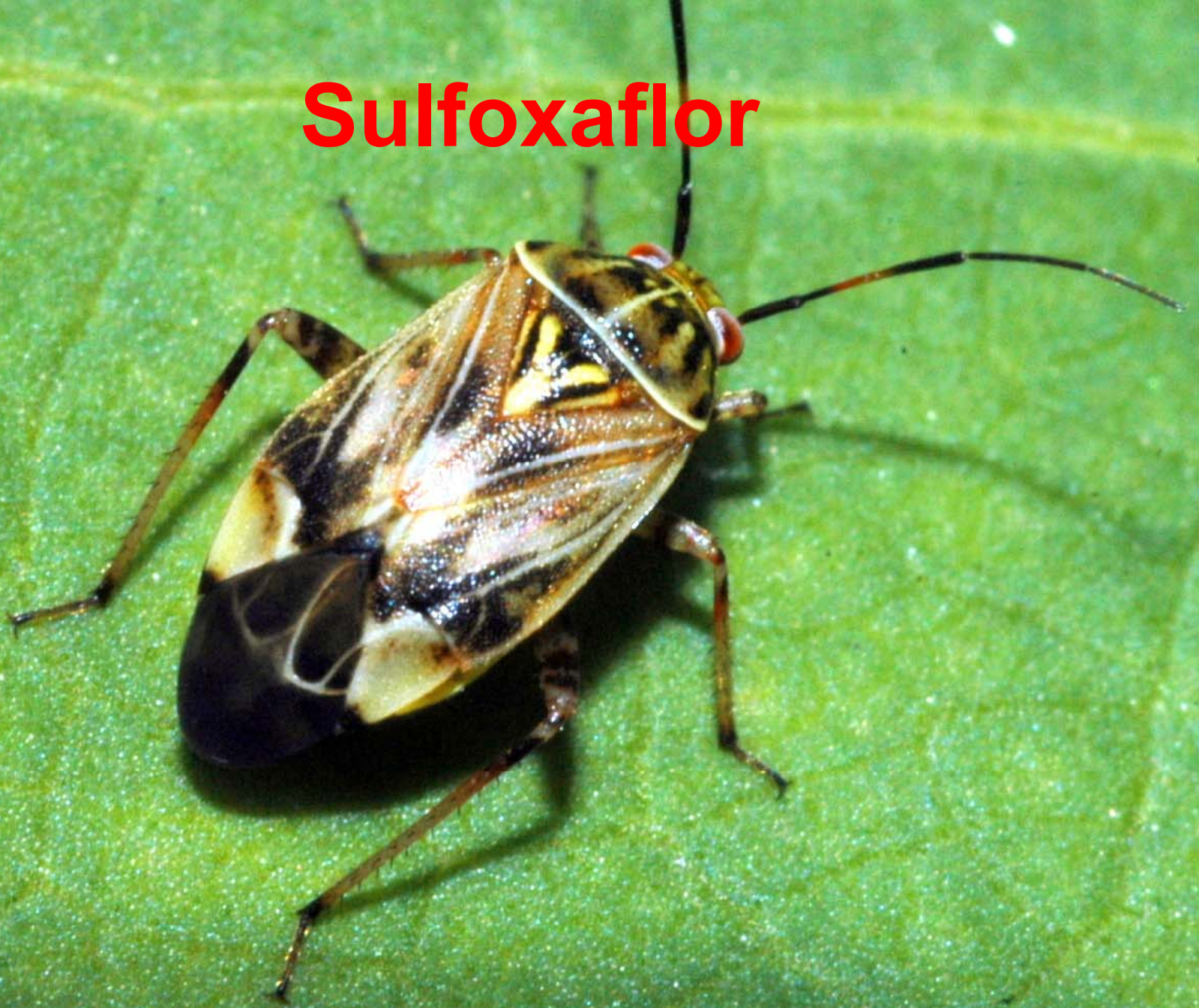


Tarnished Plant Bug Management with ULV Applications



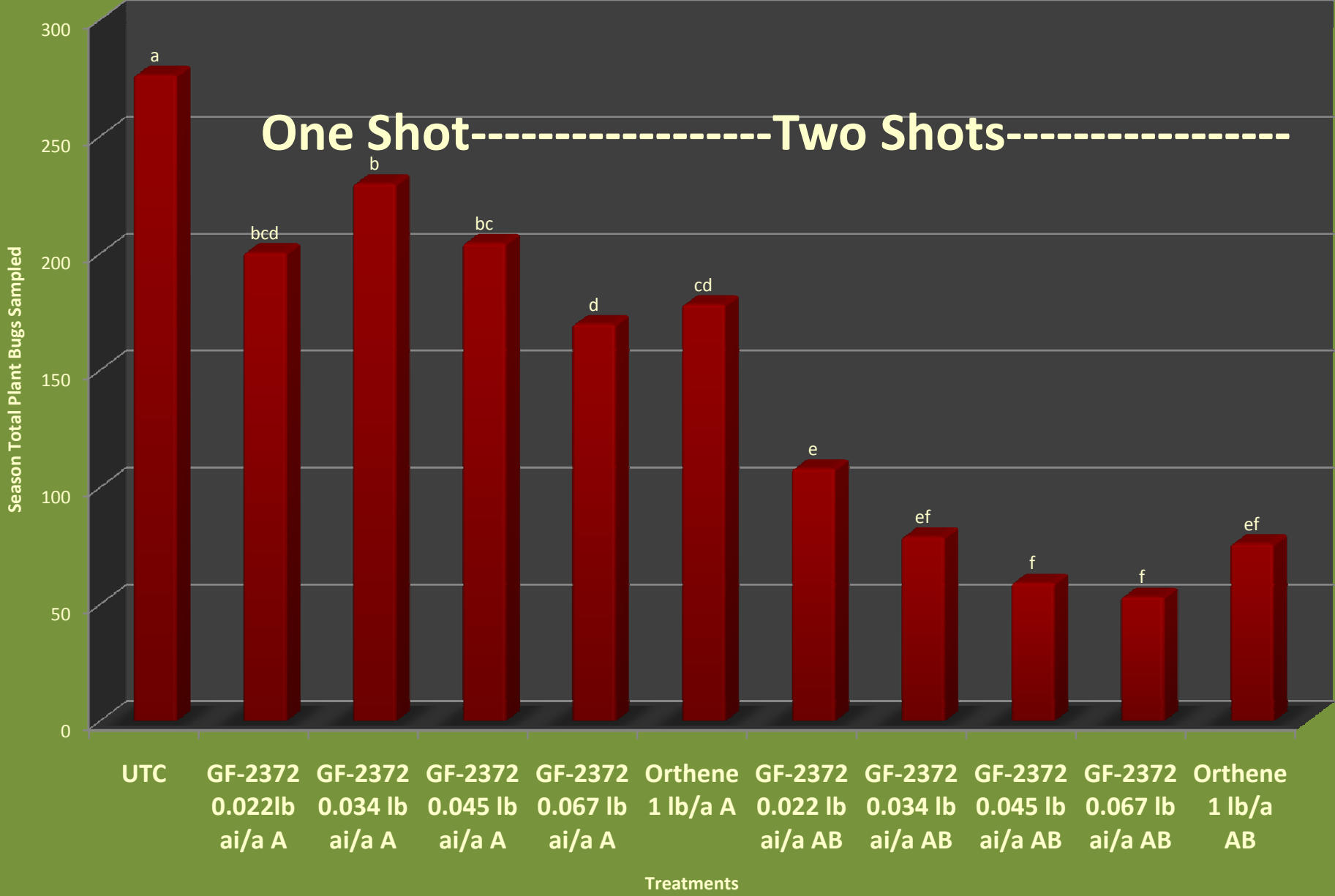
= sprays based on pre-counts

Sulfoxaflor

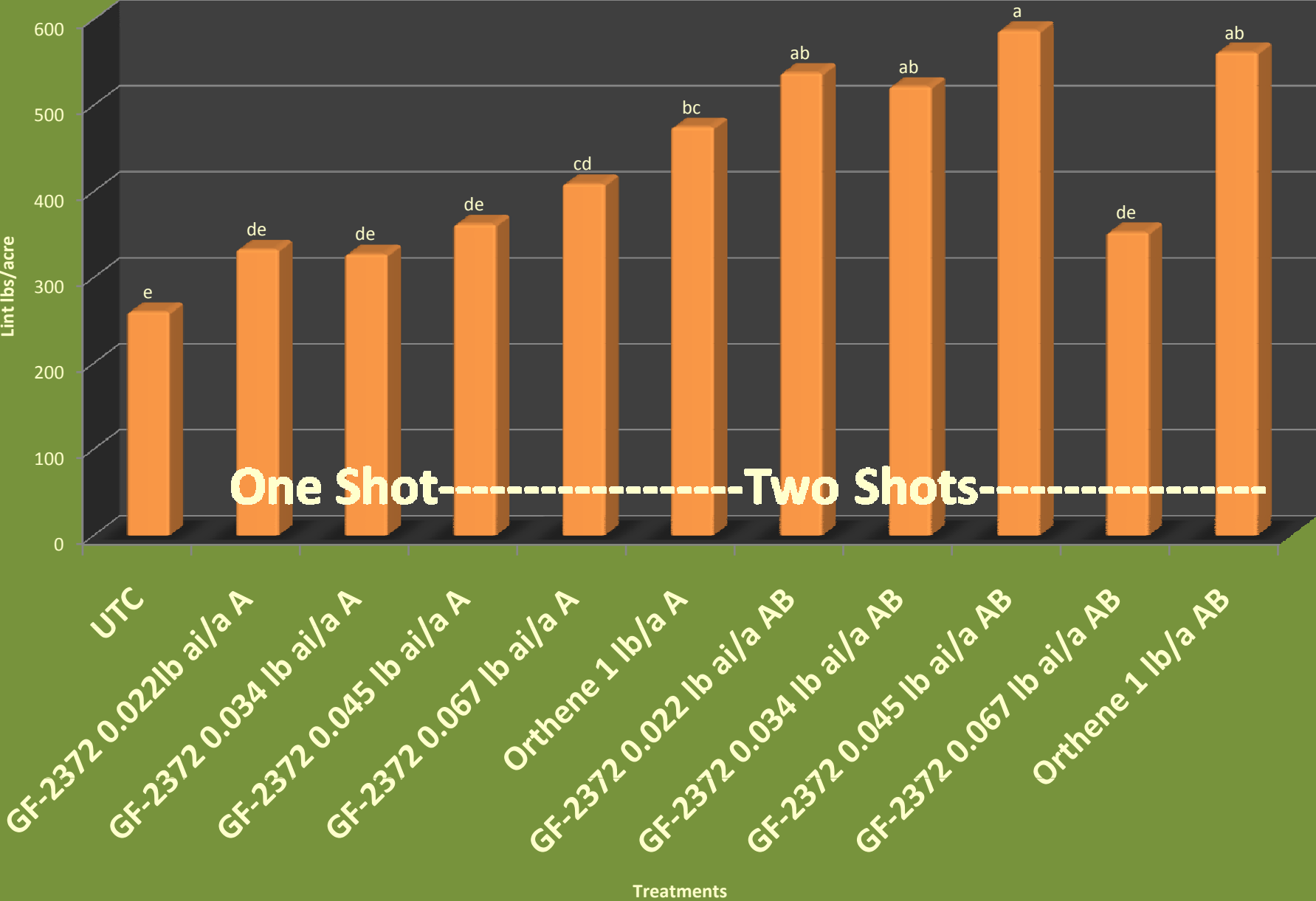


Dow Plant Bug at Marianna Season Total

One Shot-----Two Shots-----



Dow Plant Bug Harvest

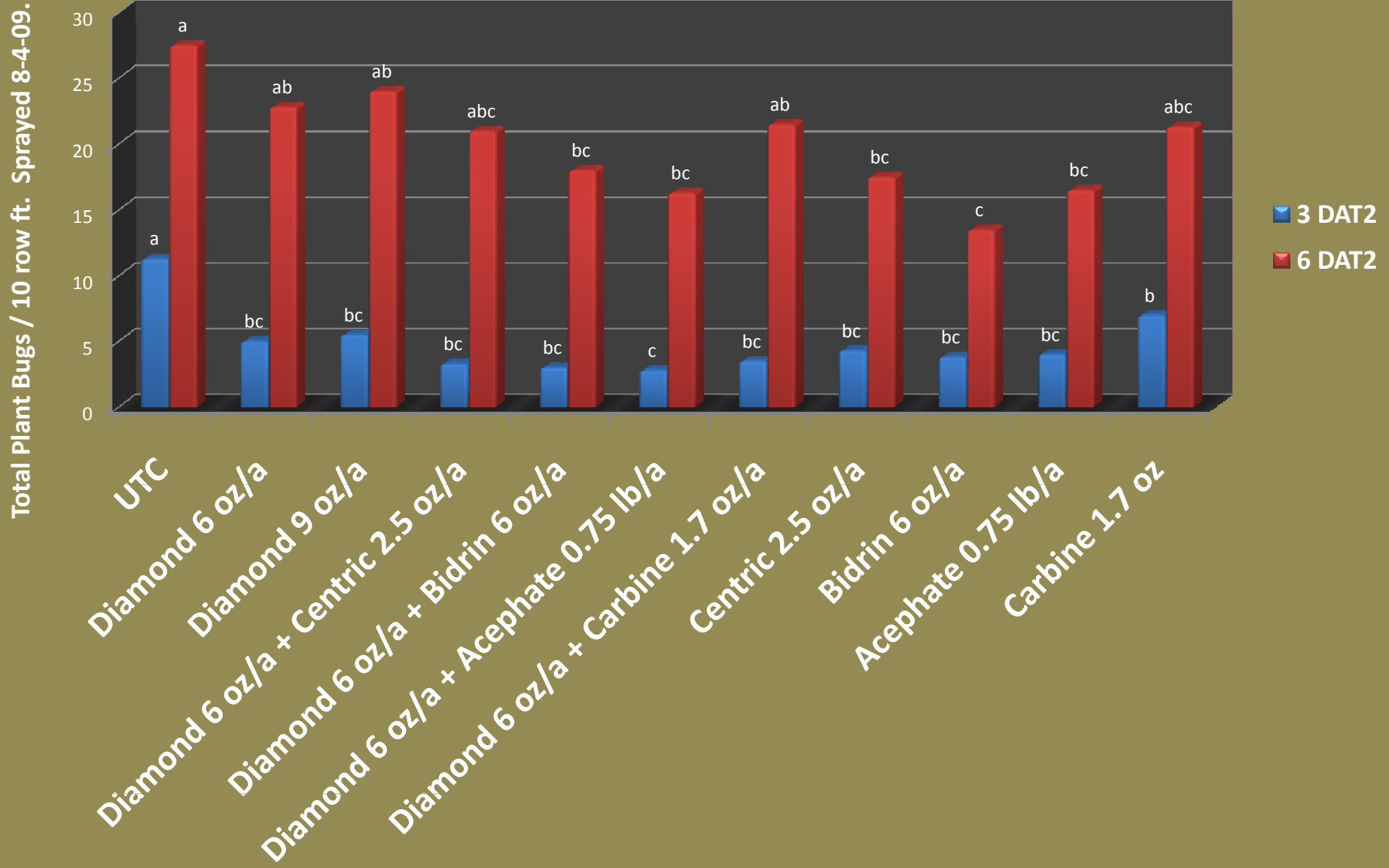




Diamond

Diamond Plant Bug at Marianna

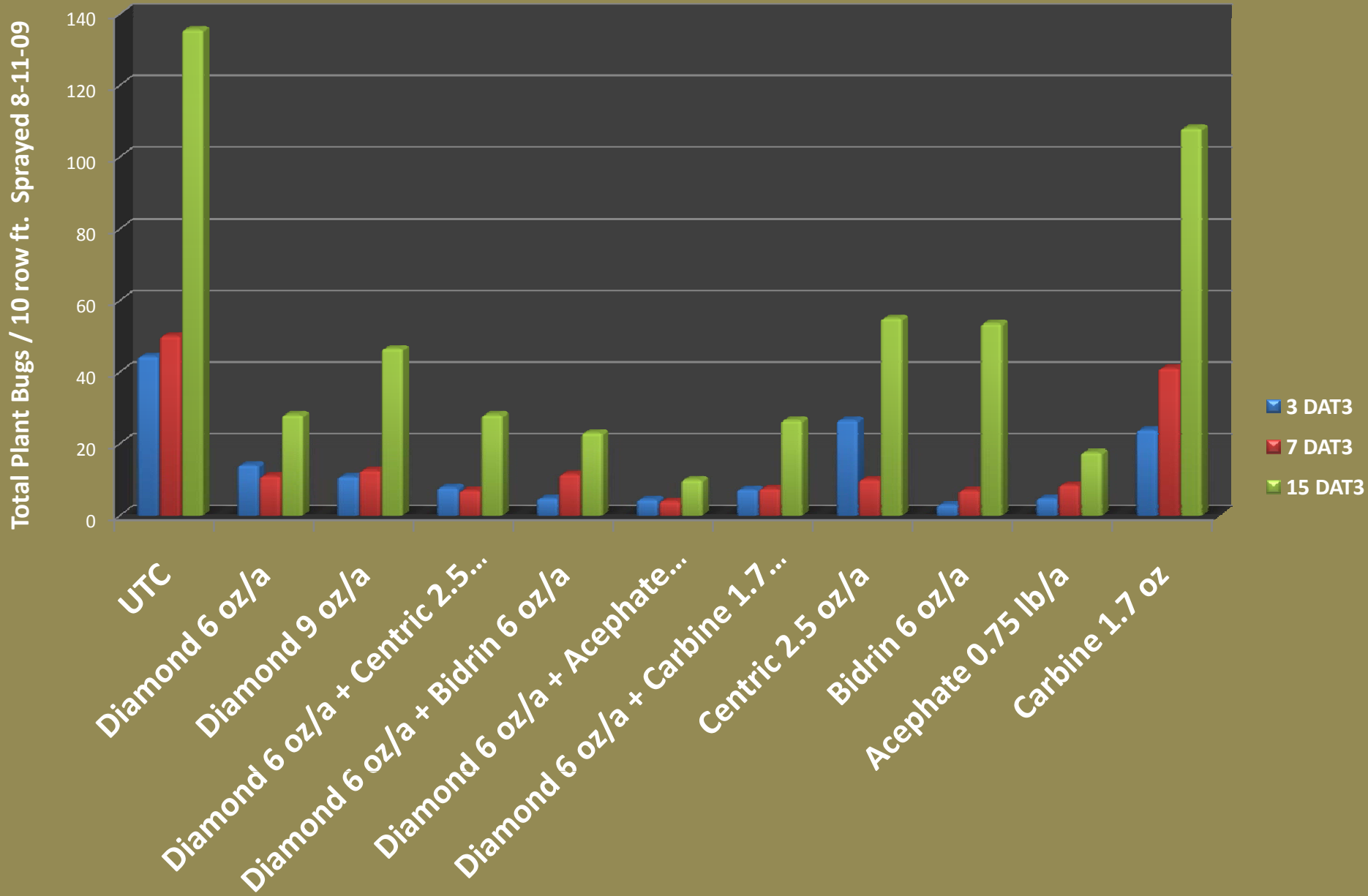
Total Plant Bugs After 2nd Application - 8/4/09



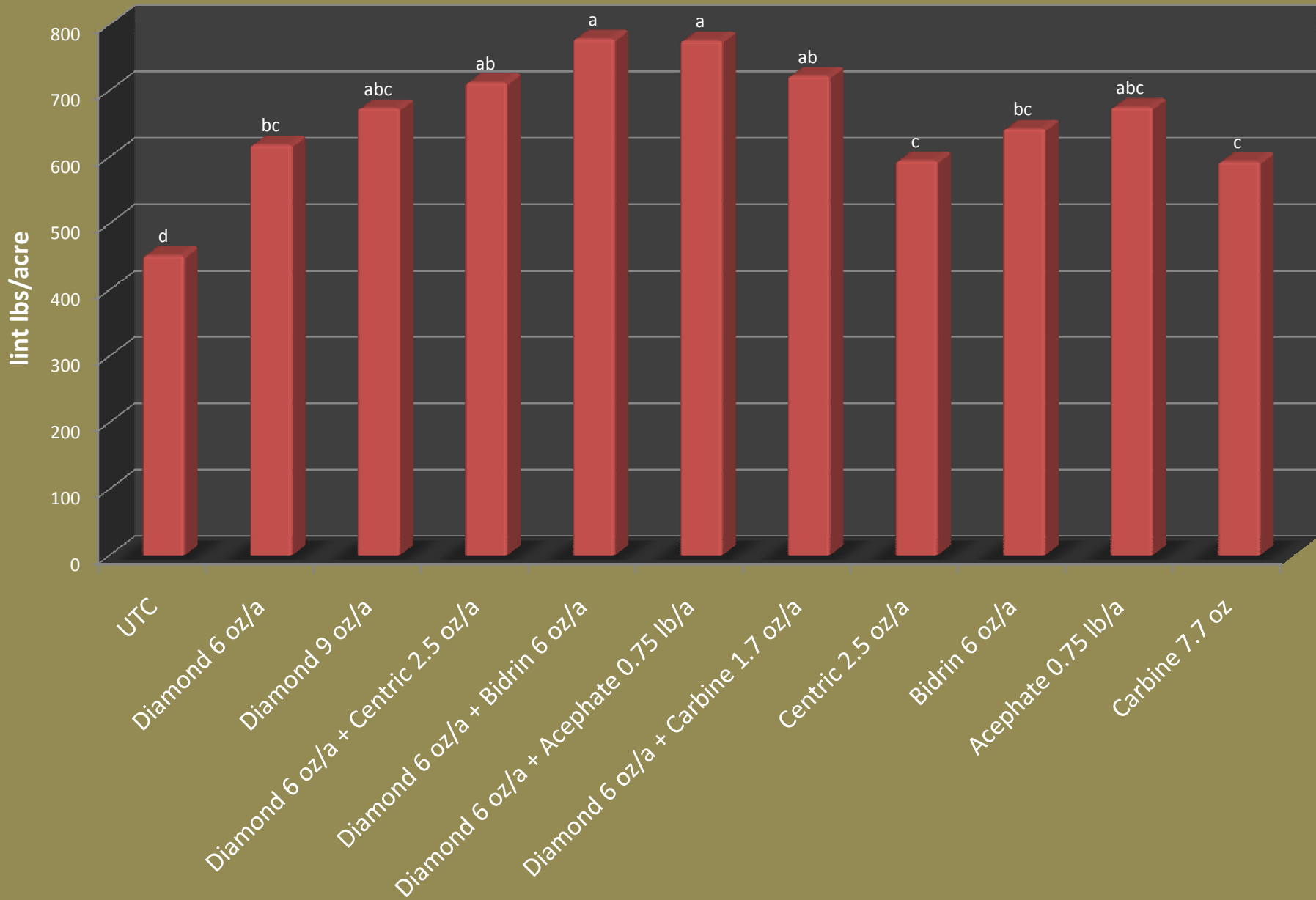
*Means on each date followed by same letter are not Sig. different

Diamond Plant Bug @ Marianna

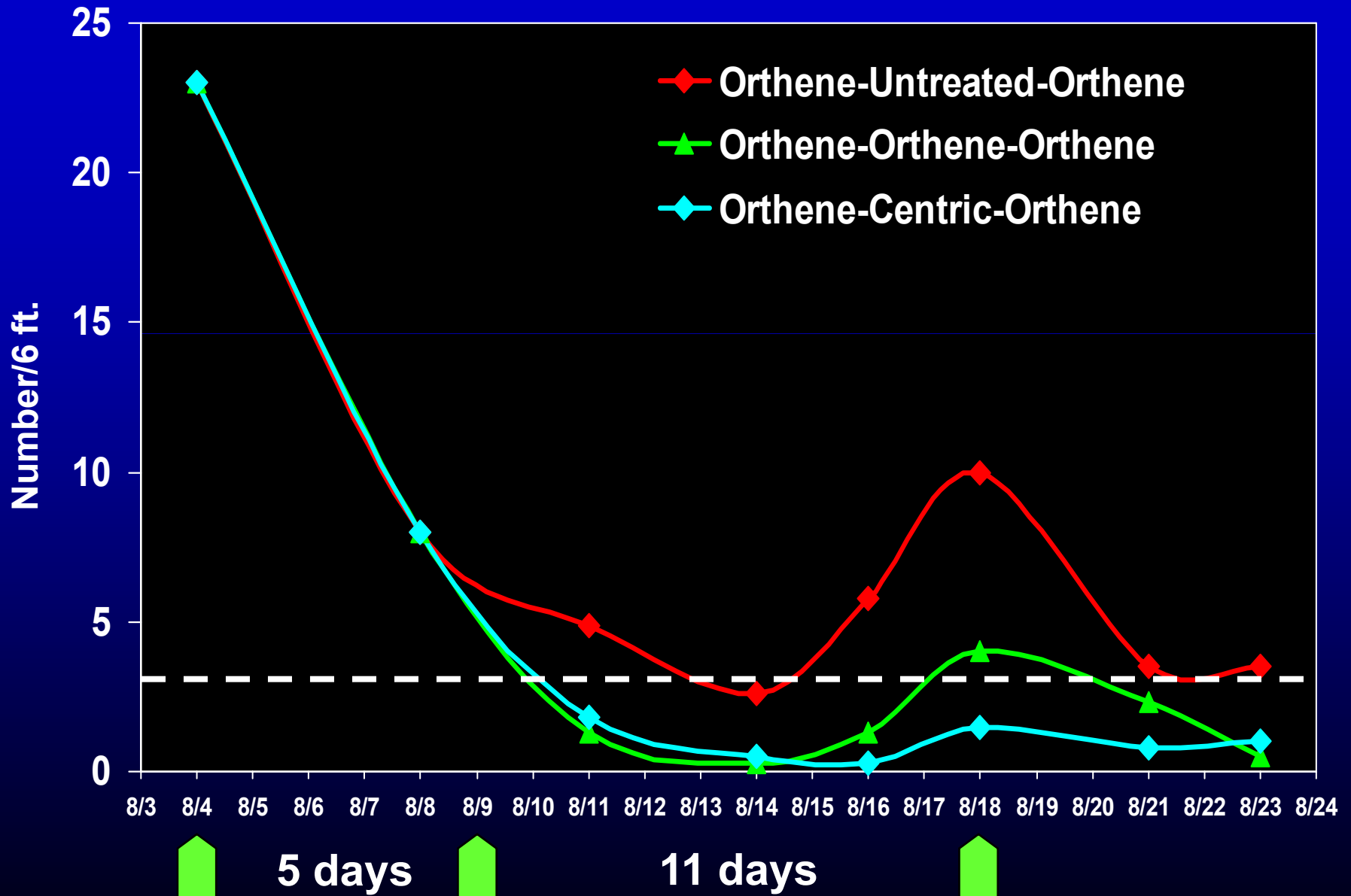
Total Plant Bugs After 3rd Application - 8/11/09



Diamond Plant Bug at Marianna Harvest Data



Insecticide Rotations



Summary and Conclusions

- **Standard insecticides do not provide the same level of control they once did.**
- **Tank mixes and pre-mixes will be important.**
- **Crop maturity impacts tarnished plant bug management.**
- **Plant based thresholds such as dirty squares or square damage will become important given the current levels of resistance.**

Summary and Conclusions

- **New management options will not be available in the near future.**
- **An integrated approach that relies on many different tactics in addition to chemical insecticides will be the only way to economically and effectively manage tarnished plant bugs.**
- **There's no silver bullets out there**