

Cotton Insect Management

Great Plains Cotton Conference

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UofA **DIVISION OF AGRICULTURE**
RESEARCH & EXTENSION
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Considerations For 2020

- **Insecticide & Trait Resistance**
- **Tobacco Thrips**
- **Plant Bug Management**
- **Bollworms**
BGII or BGIII?
- **IPM?**



Tobacco Thrips



- **Confirmed resistance to thiamethoxam (Cruiser) seed treatment in cotton.**
- **Some indications resistance maybe developing with imidacloprid (Gaucho, Aerial)**
- **Currently testing for acephate resistance**

Tarnished Plant Bug



So now it's the most important pest of cotton

Factors That Influence Pest Populations

- **Landscape Diversity**
 - Cultivated Crops
 - Wild Hosts
 - Proximity to each other
- **Planting Date and Tillage Practices**
- **Pest Management Practices Across the Landscape**
 - What you do in one crop can influence the other
 - Resistance
 - Traits
 - Pesticide Usage
- **Environment- Weather**

Edge Effects



Corn

Landscape Effects with TPB



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, cutleaf evening primrose, butterweed, annual fleabane, sourdock, vetch, crimson clover, henbit



2018

2 row buffers



6 Applications

12 Applications



TPB Sampling and Thresholds:

- The sweepnet is the best way to assess plant bug populations prior to bloom
- Black shakesheets are best for after bloom and evaluating square retention helps even more
- Early season threshold work indicates a threshold of about 9-12/ 100 sweeps
- The threshold of 3 plant bugs/ 5 row ft in after bloom



Sampling Early Season Plant Bugs



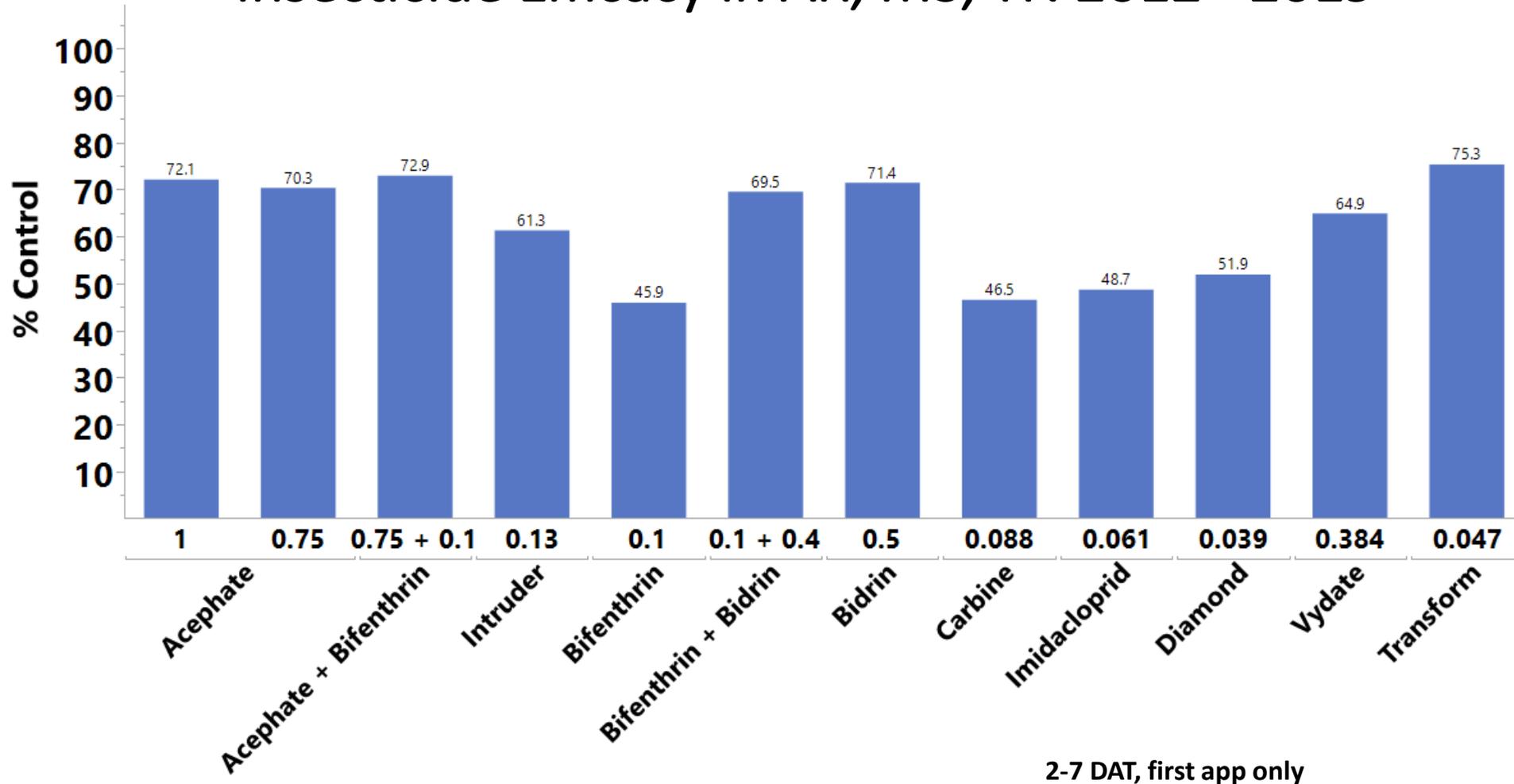
Sampling Mid- and Late Season Plant Bugs



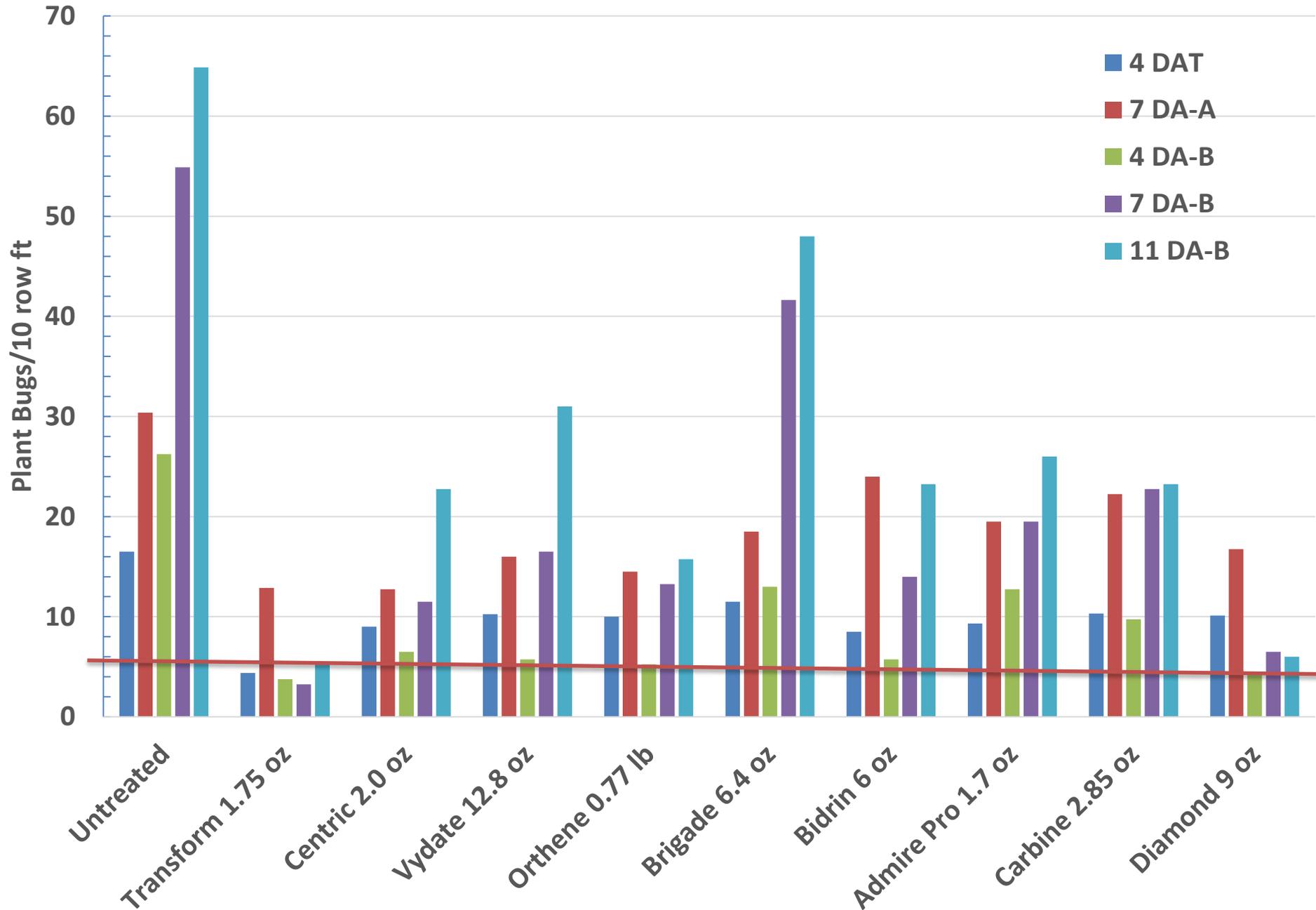
Insecticide Performance for Tarnished Plant Bug in Cotton



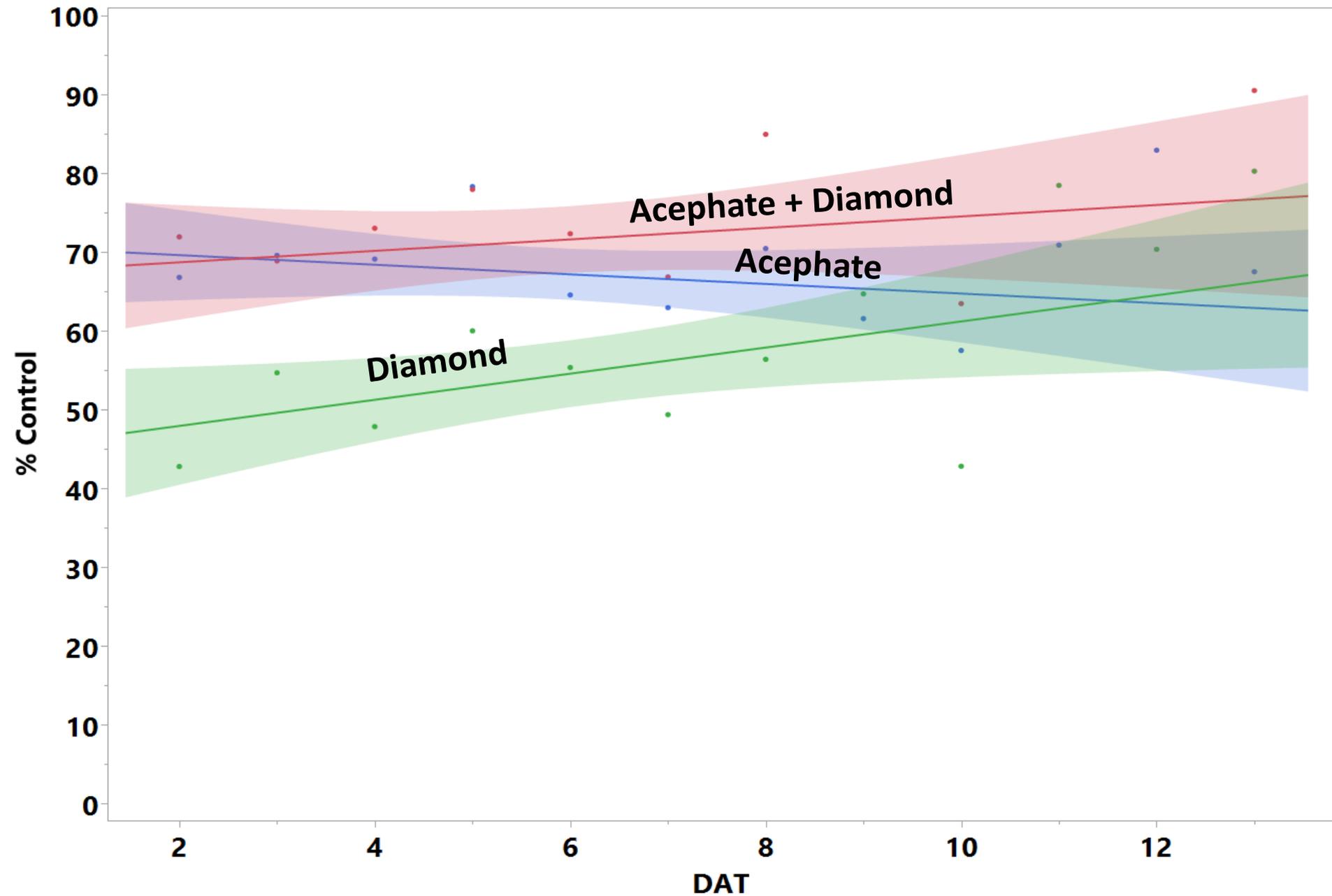
Insecticide Efficacy in AR, MS, TN 2012 - 2019



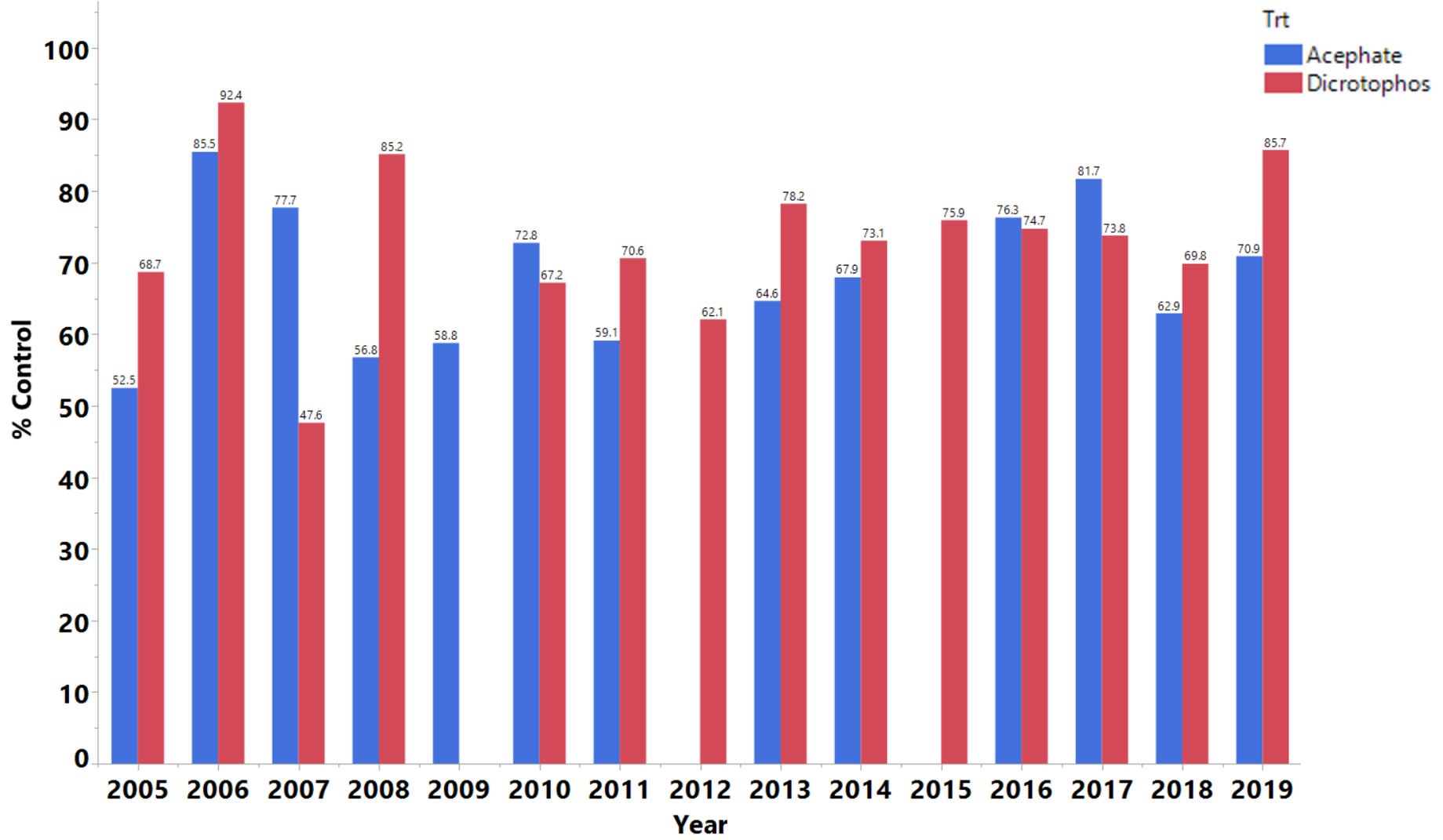
Regional Efficacy for Control of Tarnished Plant Bug, 2018 Marianna AR



Acephate + Diamond Residual



Acephate vs Dicrotophos by Year in AR



Conclusions on Plant Bug Insecticides

- **Plant bug insecticide efficacy can vary drastically from year to year and between locations even with good applications**
- **Diamond works, use it in medium to high populations**
- **Pay attention to the amount of control you are receiving from your insecticides and change if necessary**
- **Still a lot of work to do**

Tarnished Plant Bug Management

- Insecticide Selection
 - Rotate chemistry
- Spray Intervals
 - Shorten intervals under heavy pressure
 - Diamond
- Plant Early/ Variety Selection
- Double threshold at cutout (NAWF=5)
- Terminate at cutout plus 250 heat units



This is IPM!!

Stink Bugs

- Piercing/sucking mouthparts
- Boll damage in cotton



Leaf-footed bug



Symptoms of Feeding Damage





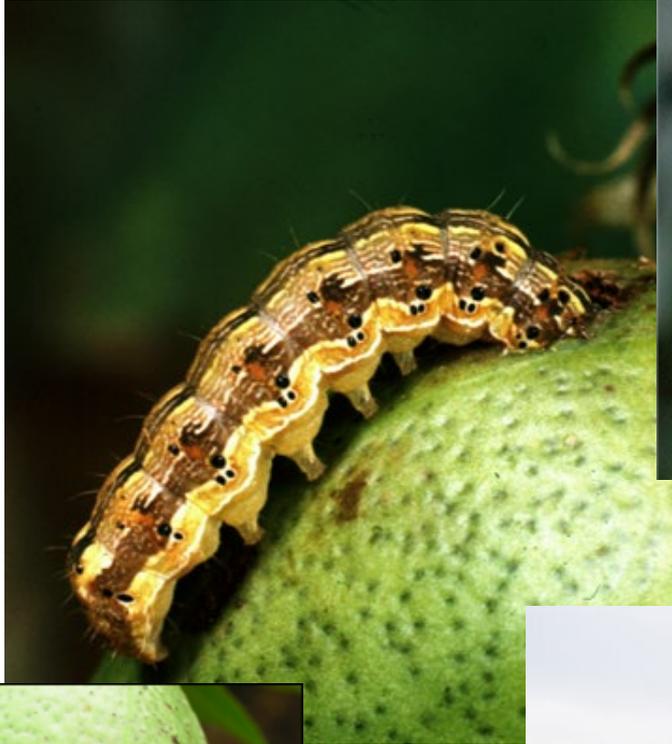
Stink Bug Threshold

- 1 bug per 6 row feet
- 20% damaged bolls
 - Quarter sized bolls



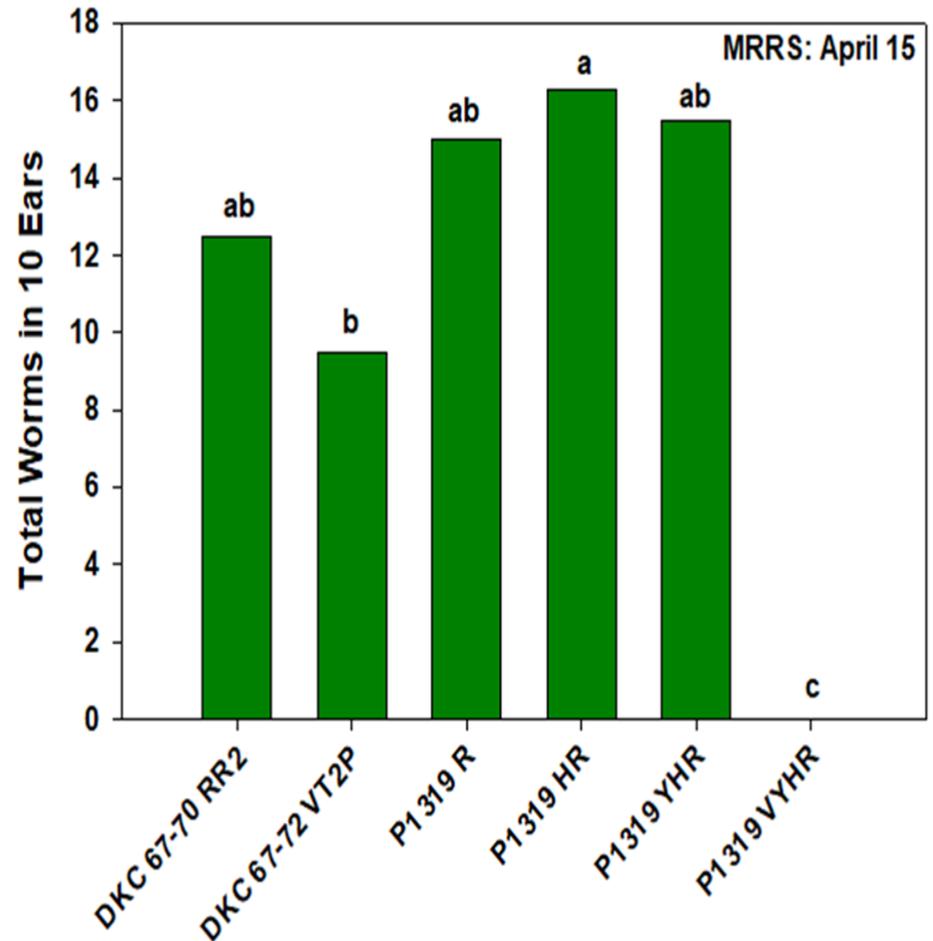
Bidrin and Acephate are excellent for stink bugs

Bollworms



What is driving bt resistance?

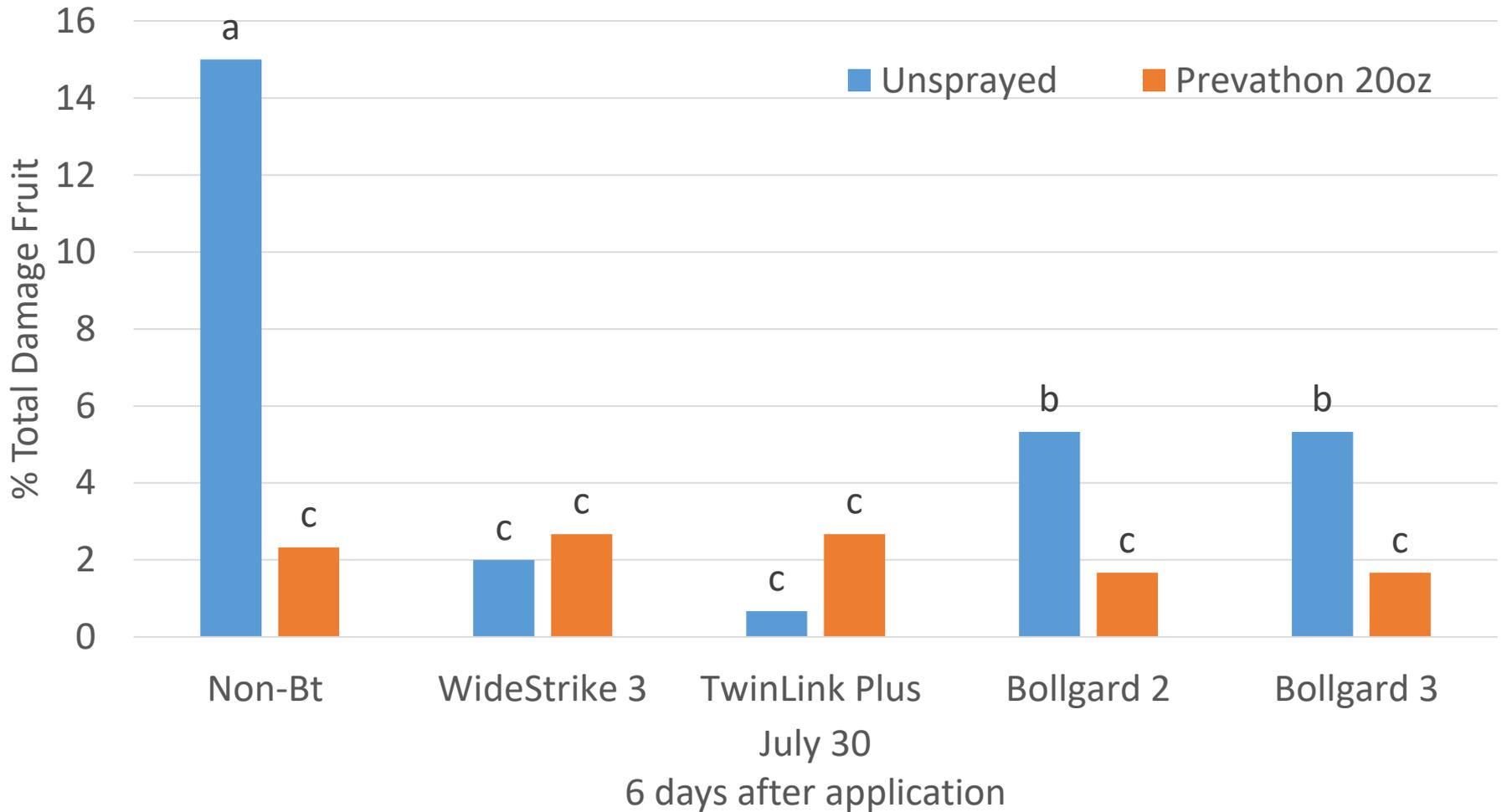
- **Bollworms/corn earworms are being selected for resistance to Bt technologies in corn**
- **Progeny from populations developed in corn infest cotton**
- **So what does this mean for Vip3A?**



Regional Technology Sprayed vs Unsprayed 2019

Tillar, AR

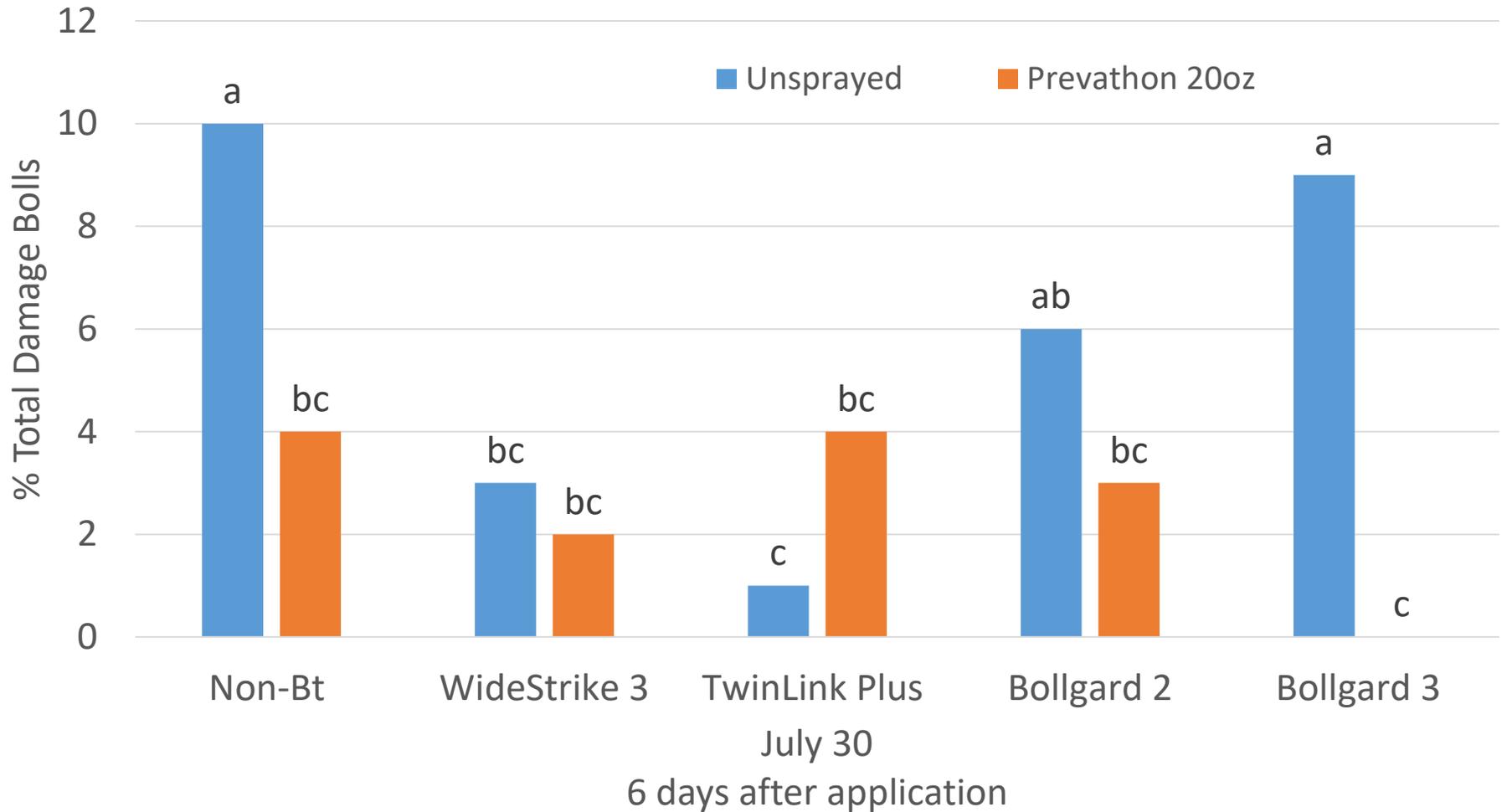
Sprayed July 24



Regional Technology Sprayed vs Unsprayed 2019

Tillar, AR

Sprayed July 24



2019 Bollworm Thresholds

- **Non-Bt, WideStrike, TwinLink, and BG2 cotton varieties:**

Before bloom: Treat when population reaches or exceeds 8 larvae/100 plants or 6% fruit injury of any kind.

After bloom: Treat when you find 20-25 eggs/100 plants or 6% fruit injury of any kind. Regardless of size of larvae, treatment may be warranted if damaged-boll counts exceed 2 percent and significant numbers of larvae are present and continuing to cause damage.

**If treating on eggs with a diamide insecticide, do not make additional diamide applications on eggs sooner than 12-14 days apart.*

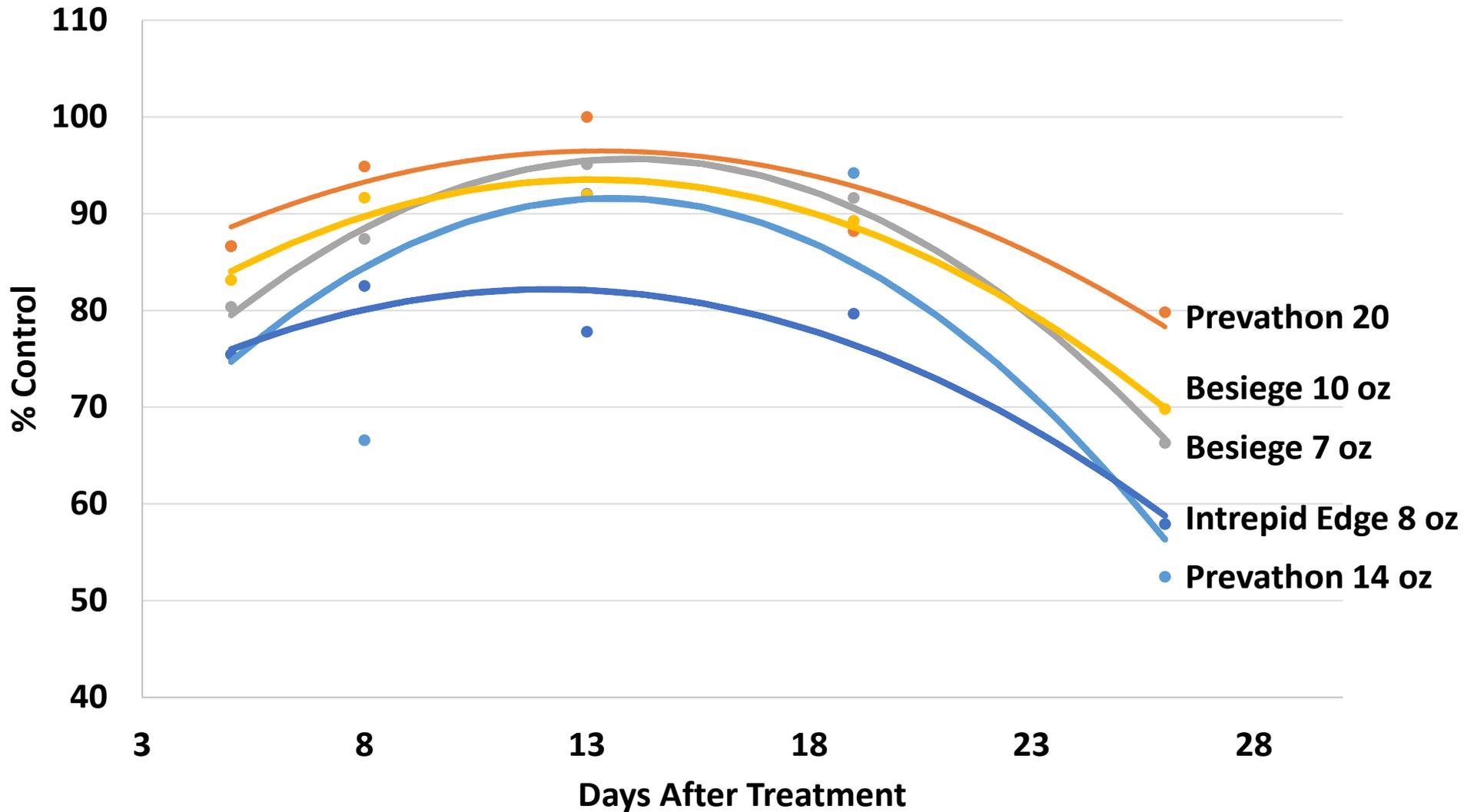
- **WideStrike 3, TwinLink Plus, and BG3 cotton varieties:**

Before bloom: Treat when population reaches or exceeds 8 larvae/100 plants or 6% fruit injury of any kind.

After Bloom: Treat when larvae 1/8-inch long or longer exceed 4 larvae/100 plants or 6% fruit injury of any kind. Regardless of size of larvae, treatment may be warranted if damaged-boll counts exceed 2 percent and significant numbers of larvae are present and continuing to cause damage.

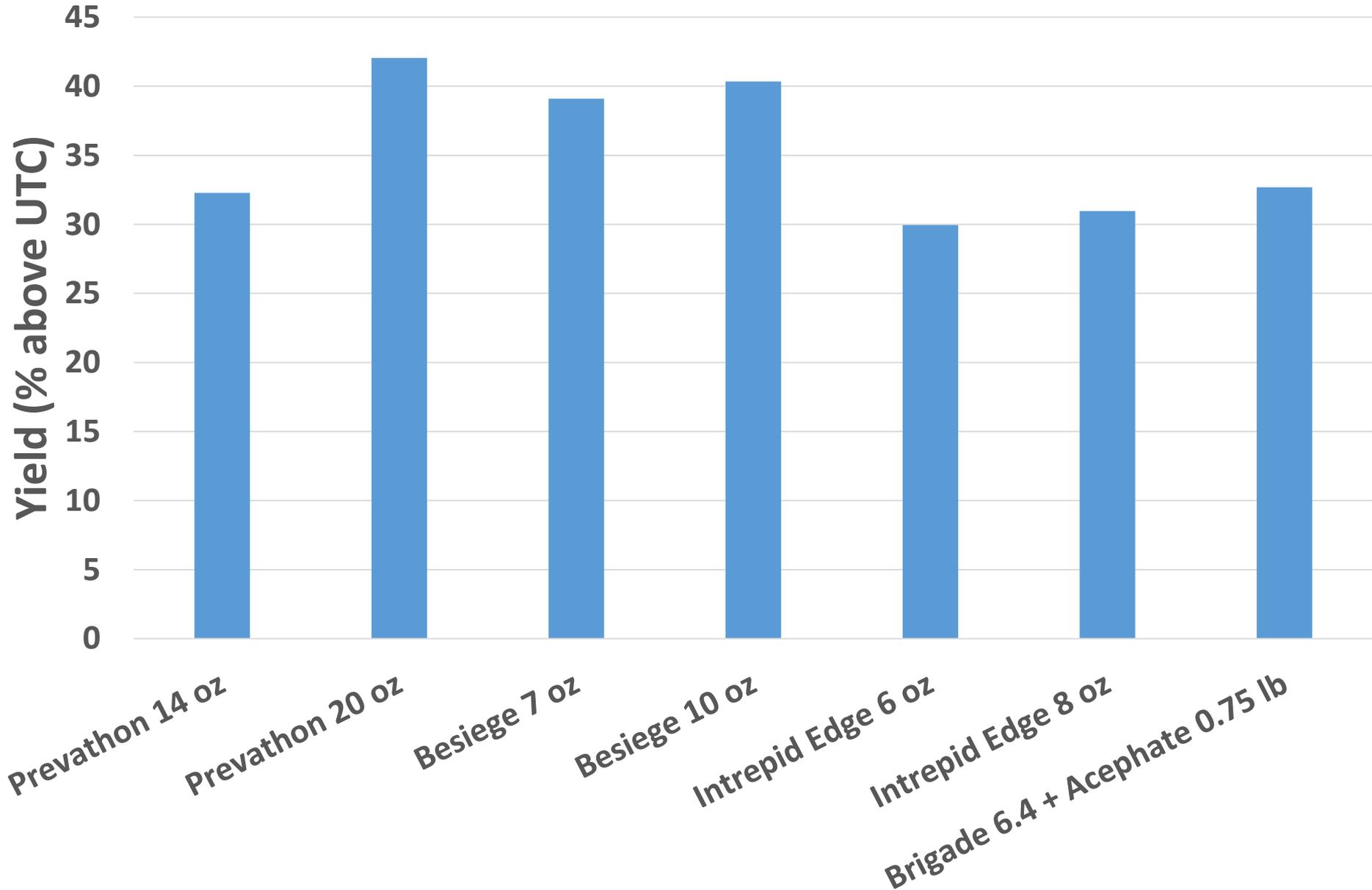
% Control of Bollworm Over Time

4 Trials

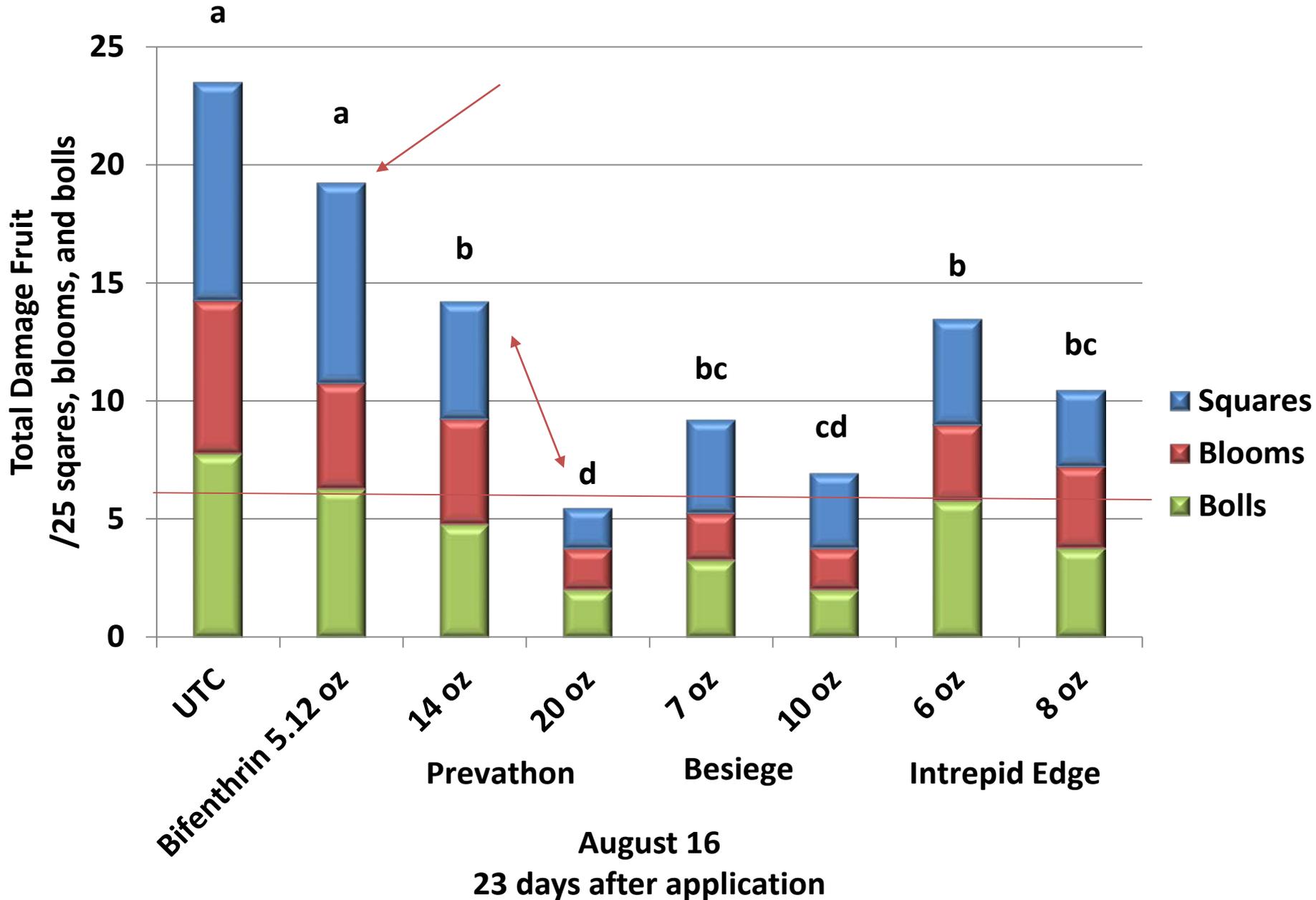


Effect of Insecticide Choice on Yield

7 Locations AR, LA, MS, TN

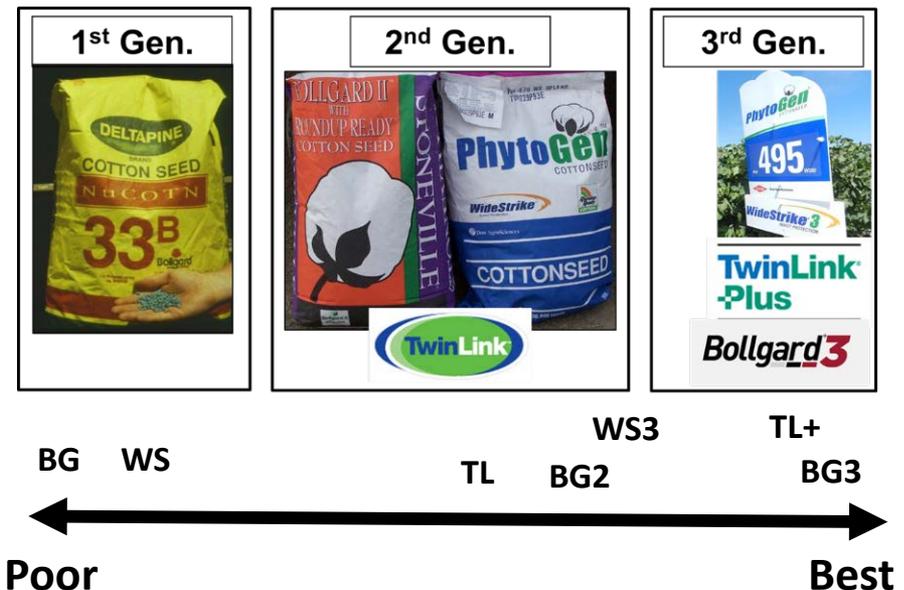


Control of Cotton Bollworm with Selected Insecticides in Conventional Cotton



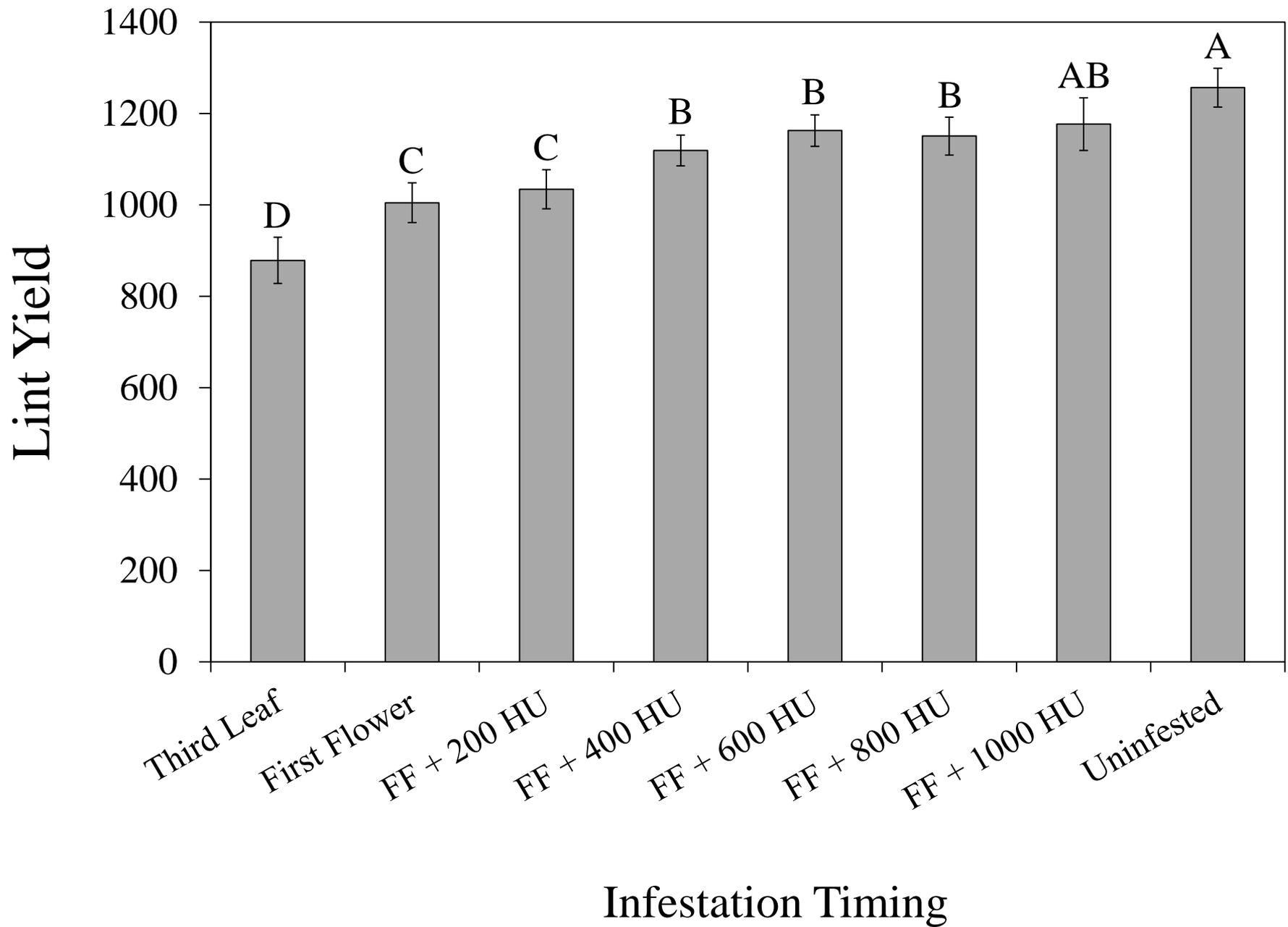
Bollworm control strategies

- Choose your cotton variety based on yield potential
 - Yields being equivalent then let the technology weigh in
- Manage the variety based on technology
- Threshold of 6% damaged squares and/or bolls does appear to work
 - Gives Bt a chance to work
 - BUT.. Insecticide application better be timely and efficacious
 - Needs to target smaller larvae
 - Once worms work down into the canopy even Prevathon may not kill enough to prevent economic loss
- Spray based on eggs
 - Excellent timing for best efficacy
 - May not be necessary BUT not using 20-25% egg lay in high population is risky to say the least
- Spray moth flight?
 - No data on effectiveness
 - Flare other pests
 - Pyrethroid resistant moths
 - Acephate, short residual

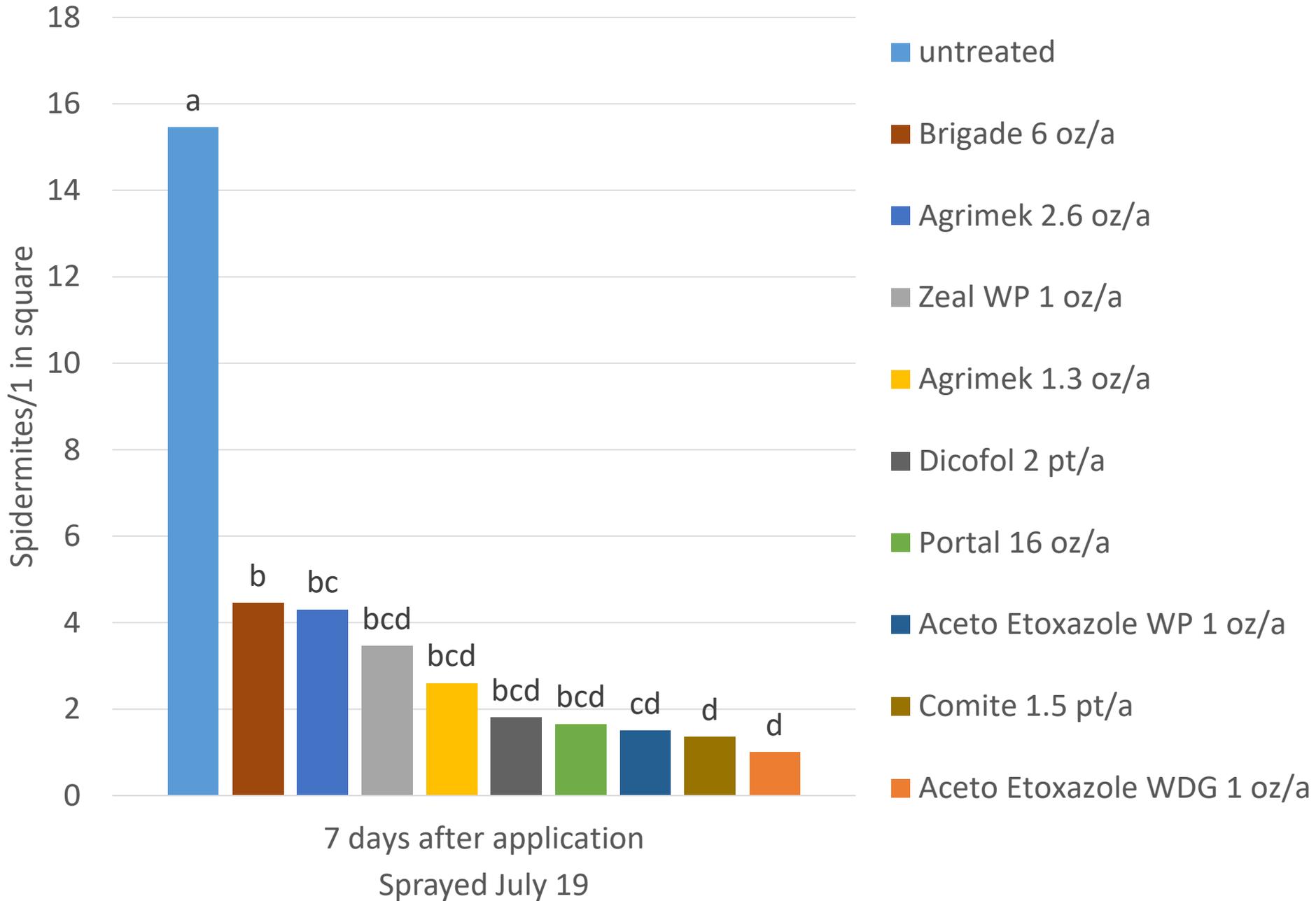


The Budget Buster!!





Spider mite Efficacy 2019



Spider Mites (all I got to say)

- Abamectin is cheap
- But if they bounce back quick you need to change miticides
- All of the recommended miticides are good, many are off patent and there should be some deals out there. Shop around.

Entomology Crew - 2019

Hardest Working Crew in Arkansas



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