Late Season Cotton Insects
(Management from Early Bloom to Cutout)

Scott Stewart (UT Extension)

- Considering Bt Options
- Control of Common Pests: Bollworm, Plant Bugs and Stink Bugs, Fall Armyworm (not thresholds)
- Dealing with Complexes of Common Pests
- Comprehensive (Multi-pest) Thresholds

Bt Cotton is a Filter

Expected level of pest control for common late-season caterpillars

Control Program	Tobacco budworm	Bollworm	Fall AW	Beet AW	Loopers
Bollgard	Great	Fair	Poor-Fair	Poor	Poor
Bollgard II	Great	Great	Good	Great	Great
WideStrike	Great	Good	Great	Good (?)	Good
Foliar on Non-Bt*	Good	Good	Fair-Good	Good	Good

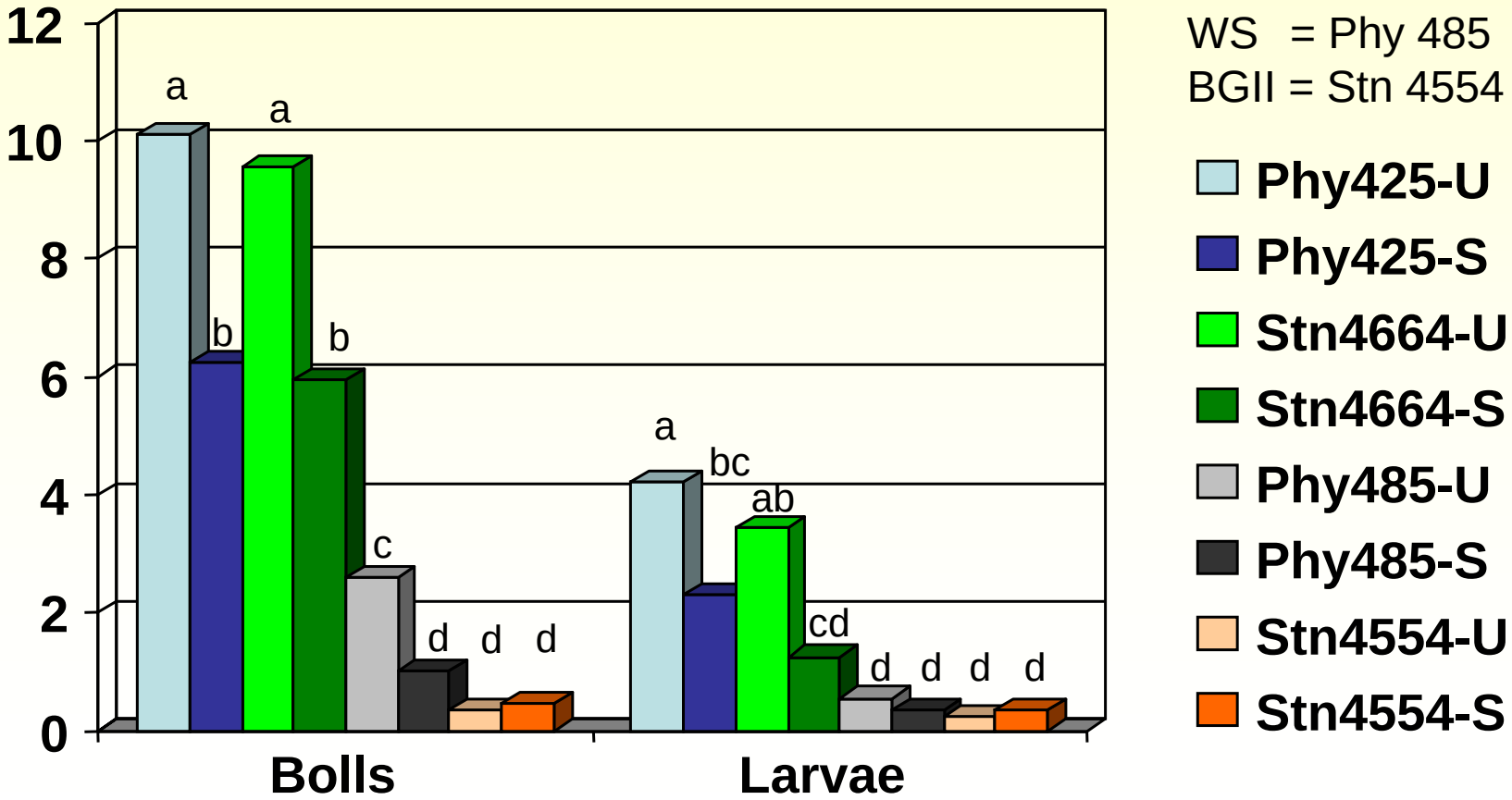
***** Assumes well-timed sprays at recommended treatment thresholds using appropriate insecticide.

Bollgard II and WideStrike - Bollworms

(Milan, Tennessee; Planted May 19, 2006)

% Damaged Bolls and Larvae/20 Plants (Average from 8/9 - 8/28)

Applications on 3, 9, 17 (Tracer) and 28 August (Karate)

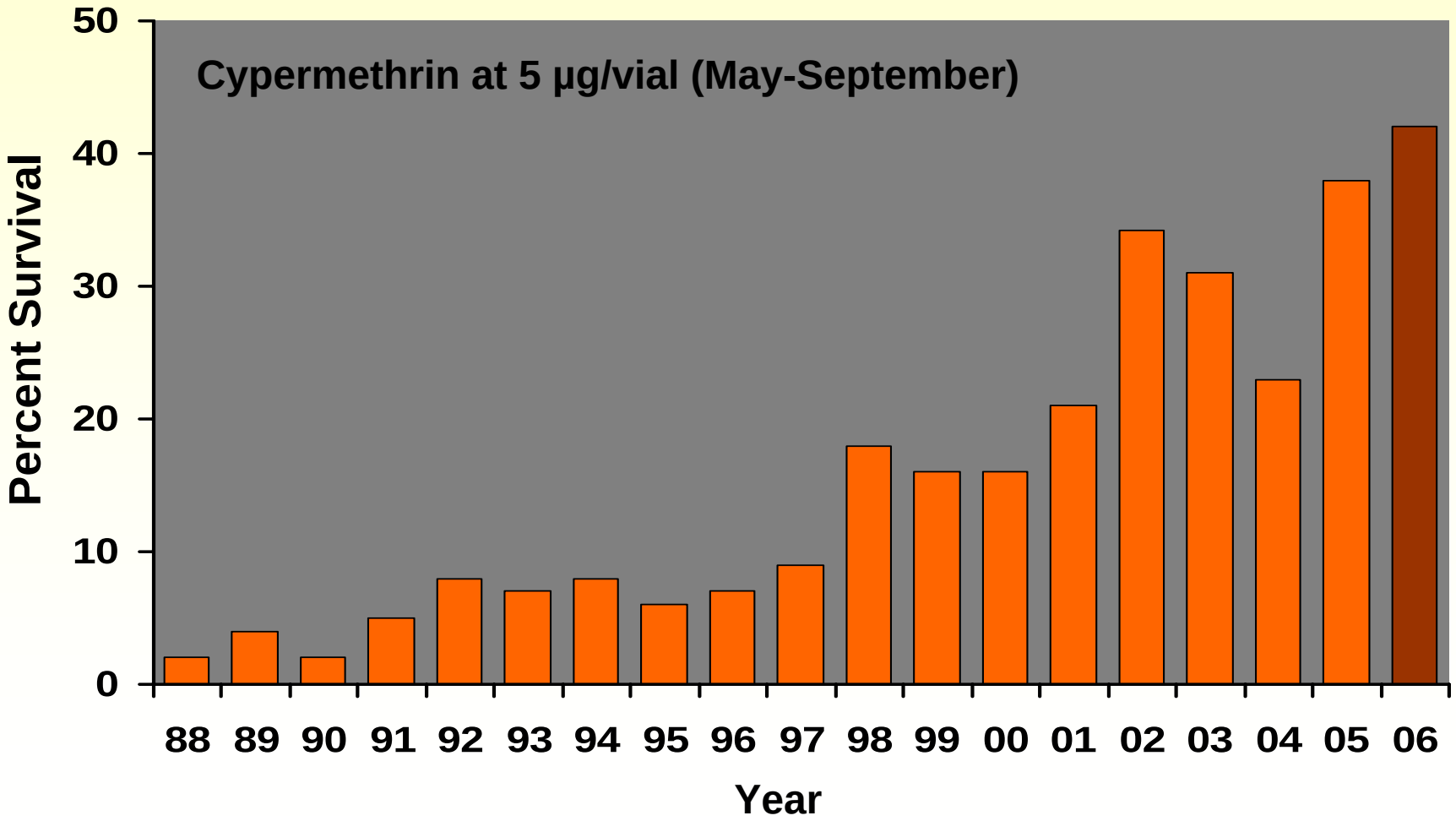


Local Considerations

- **Traditional Pest Pressure**
  - Bollworm/Budworm, Plant Bugs, Stink Bugs, Fall Armyworm
- **Bollworm Resistance**
  - Pyrethroids - variable (but field control failures are possible)
  - Tobacco budworm resistance to pyrethroids is a given
- **Tarnished Plant Bug Resistance**
  - Pyrethroids - variable but common in the Midsouth
  - Acephate - also variable but increasing

Bollworm Resistance Monitoring

(B.R. Leonard, LSU AgCenter, Adult Vial Test)

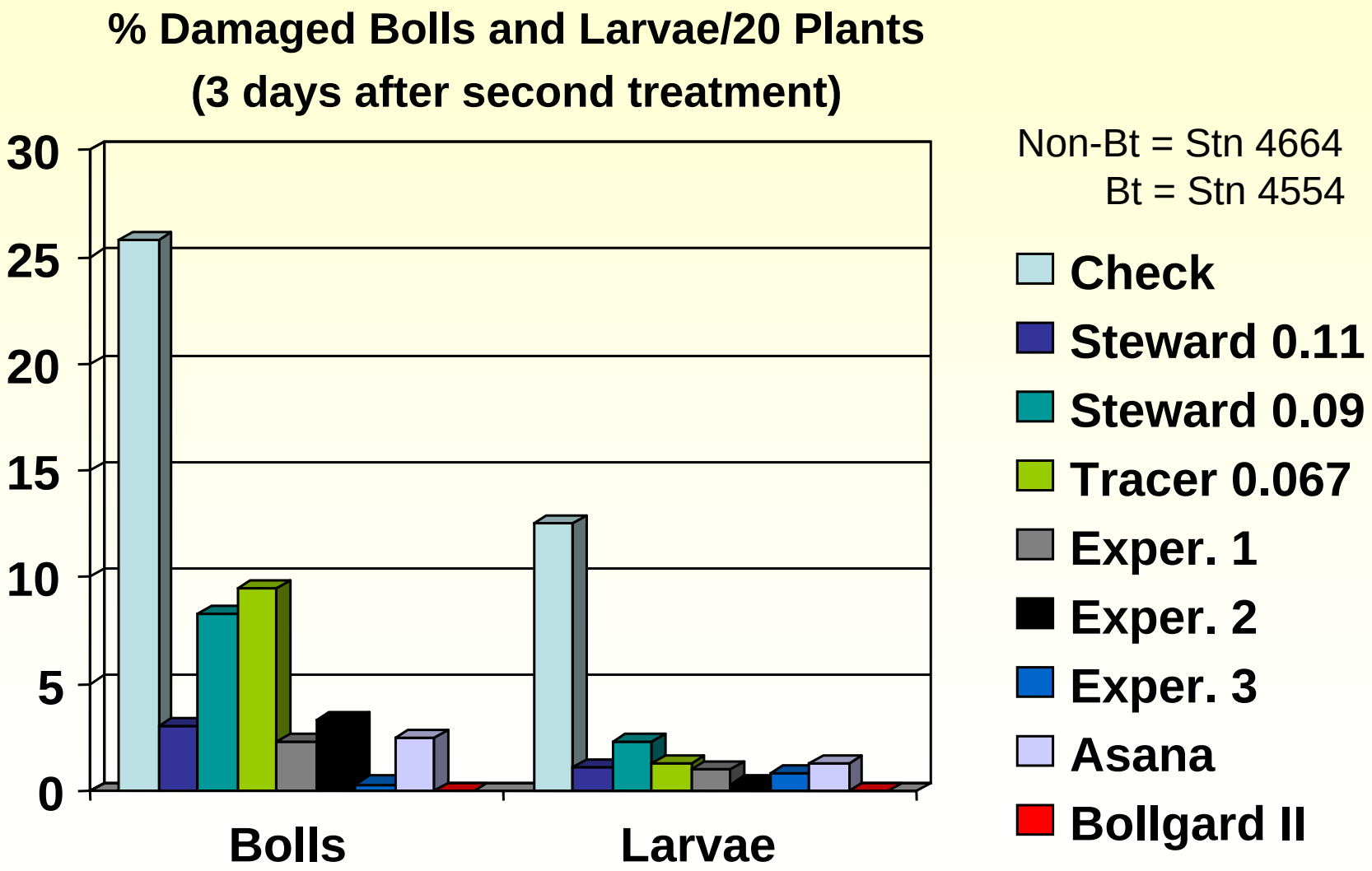


Dealing With A Single Pest

- **Bollworm and Tobacco Budworm**
  - Bollgard = Pyrethroid (mid rate)
  - Bollgard II and WideStrike = Pyrethroid (mid rate)
    - Alternative if bollworm pyrethroid resistance worsens?
  - Non-Bt Cotton = Tracer (2.1-2.8 oz), Steward (11.3 oz), Denim (8-12 oz)
    - Pyrethroid alone only if exclusively bollworm
    - Tank mix with a pyrethroid insecticide often necessary against moderate to high mixed populations
- **Fall Armyworm**
  - Bt or Non-Bt Cotton: Diamond (4-6 oz), Intrepid (4-8 oz), Tank mixes with pyrethroid, Steward (9.2 - 11.3 oz), etc.
- **Plant Bugs and Stink Bugs**
  - Bidrin (6 oz), Acephate (0.5 lb), Vydate (10-12 oz)
    - Neonicotinoids, Carbine, Diamond, Pyrethroids (sometimes)

Foliar Insecticides vs. Bollgard II - Bollworms

(Jackson, Tennessee; Planted May 19, 2006)



Trials in Blooming Cotton - Tennessee

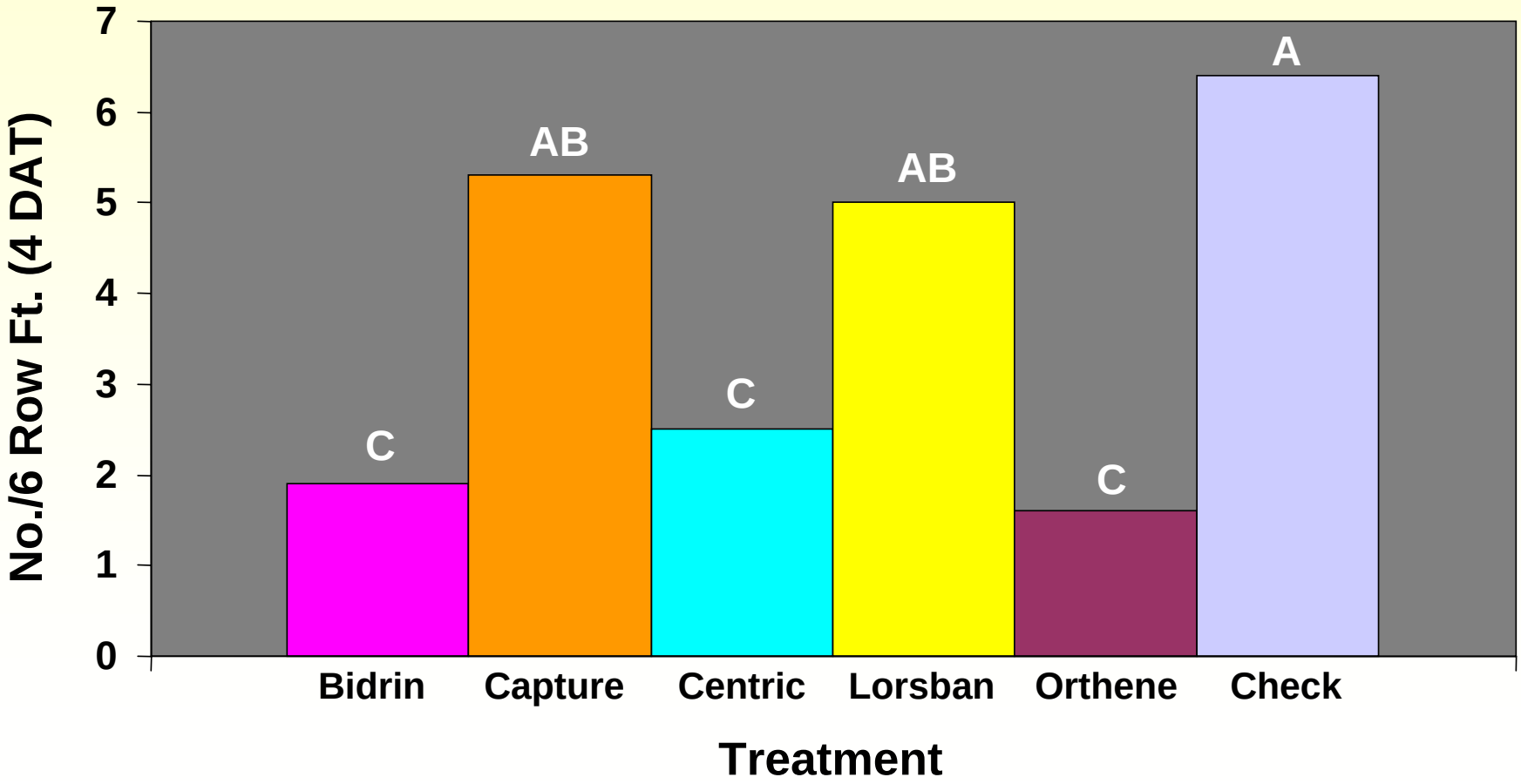
(TPB and CPB, 2004-2005)

Insecticide*	Cumulative check counts			% Control of TPB	% Control of CPB
	TPB	CPB	(N)		
Acephate	26.5	31.4	(5)	70.5	77.0
Bidrin	27.4	39.3	(7)	81.4	93.2
Vydate	12.6	25.3	(3)	61.8	86.1
Pyrethroids	49.2	56.7	(9)	58.7	83.0
Centric	37.1	35.2	(7)	54.4	61.6
Diamond	25.8	21.7	(4)	57.0	59.0

* Single application only; Rating unit was 2 or 3 drop cloth samples per treatment per trial; N = number of trials in comparison; 4-6 DAT

Tarnished Plant Bug Insecticide Trial

(Jeff Gore, UDSA ARS, Stoneville, 2006)



Dealing with a Pest Complex
(Bollworm/Budworm, Fall Armyworm and/or Bugs)

- **Bt Cotton (primarily Bollgard)**
  - Pyrethroid + Diamond (4 oz) + Acephate (0.33 lb)
  - Pyrethroid + Acephate (0.5 lb) - mostly bugs
  - Pyrethroid + Bidrin (3-5 oz) - mostly bugs
  - Pyrethroid + Diamond (4 oz) - mostly armyworms
  - Pyrethroid + Intrepid (4 oz) - mostly armyworms
  - Pyrethroid only - primarily bollworms, or bollworms with green stink bugs or clouded plant bugs
    - Choices are highly dependent on levels of individual pest populations, local resistance levels, and crop maturity
    - Concerning dependence on pyrethroids and acephate
- **Non-Bt Cotton**
  - I Give Up: Pyrethroid + Acephate/Diamond + Tracer or …

Comprehensive (Multi-pest) Thresholds

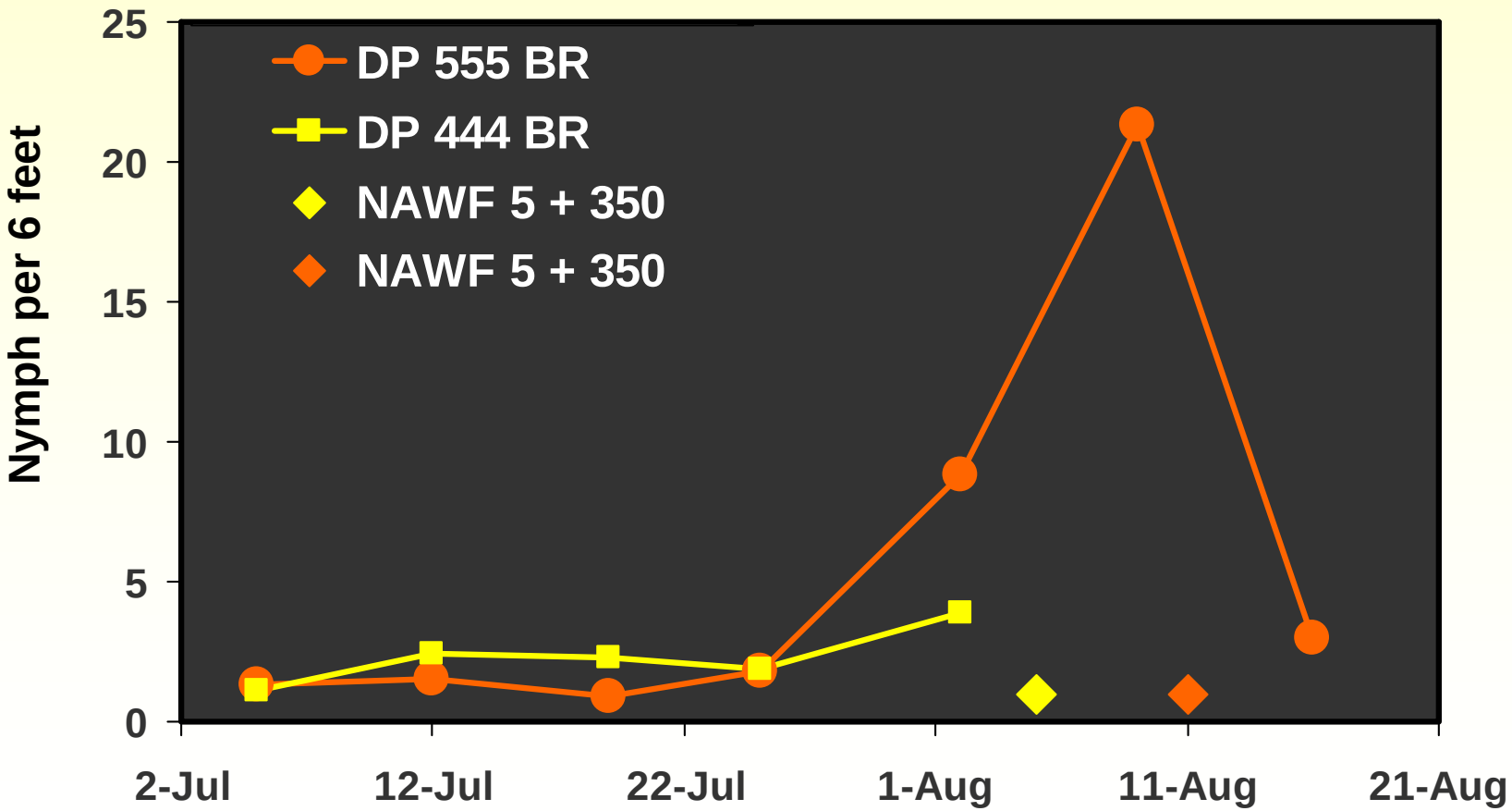
- **Some of my suggestions**
  - **1 stink bug = 3 tarnished plant bugs**
  - **1 clouded plant bug = 1.5 tarnished plant bugs**
  - **1 fall armyworm = 0.33 bollworms**
- **Most the time, when this is an issue, one pest is already at or above the recommended treatment threshold (or it soon will be)**
- **Use professional judgment**
  - **Are you using this has an excuse to treat when pest populations are not really near threshold?**
    - **Being at a ¼ threshold for 4 weeks doesn't count**
  - **If not, don't sweat a percentage point or two**
  - **Don't hold you breath for much better guidelines**

Terminating Insect Control

- **Cutout (NAWF5) + 350-400 DD60s**
  - Approximately 16-21 days
  - Applies fairly well to most fruit feeding pests
  - Premises:
    - Bolls can tolerate, or are less susceptible, to the pests as they age
    - Maturing fields are less attractive to insect pests
- **Does this rule apply to atypical fields?**
  - Late maturing fields are a potential sink for insects
  - Weather rules for very late fields

Plant Bugs vs. Crop Maturity

(Jeff Gore, USDA ARS, Stoneville, 2006)



Concluding Remarks

- **Late season, specifically weeks 2-6 of flowering, is the critical time for insect management**
  - **Direct damage; Little time for recovery; Vested in the crop**
- **Earliness still pays if it does not reduce yield potential (e.g., DPL 444 vs. DPL 555)**
  - **New Bt traits will reduce insect management risks associated with late-maturing varieties**
- **Local/situational knowledge is critical**
  - **Likely resistance levels (including previous insecticide), presence of tobacco budworm, crop maturity, etc.**
- **Resistance management is still important**
- **No mention of spider mites, beet armyworms, loopers, whiteflies, etc.**