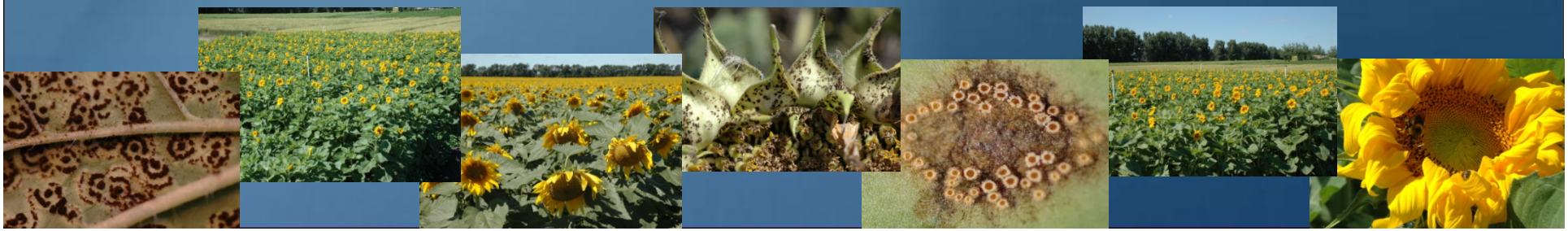
EVALUATION OF FUNGICIDES AND TIMING FOR RUST CONTROL IN INOCULATED TRIALS IN NORTH DAKOTA

Sam Markell	NDSU Extension Plant Pathologist
Blaine Schatz	NDSU Carrington Research Extension Center
Scott Halley	NDSU Langdon Research Extension Center
Joel Schaefer	CHS
Tom Gulya	USDA-ARS Sunflower Unit
Scott Meyer	NDSU Plant Pathology
Febina Mathew	NDSU Plant Pathology

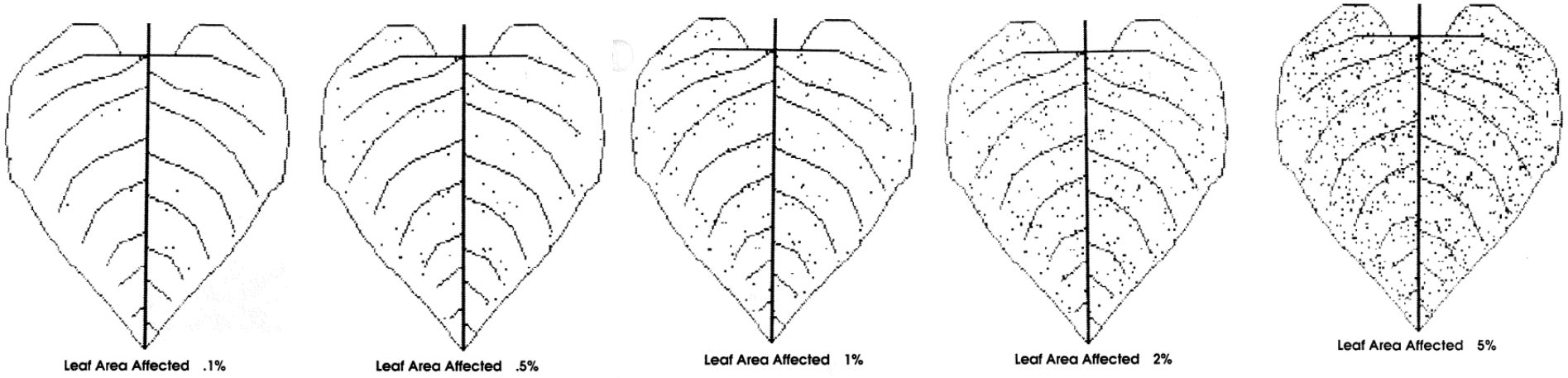


Introduction - Rust

- *Puccinia helianthi*
  - Autoecious and macrocyclic
- Increasing frequency
- Onset is late July or early August in ND
- Conditions favoring rust
  - Free moisture i.e. dew
  - Temps 55-85 favorable
- Disease cycle every 10-14 days
- Severity
  - Time of onset & Environment

Introduction - Fungicides

- Action threshold = 3% pustule coverage on upper four leaves –Shtienberg 1995
- New and/or available chemicals
  - QoI (Headline, Quadris)
  - Triazoles (Folicur)

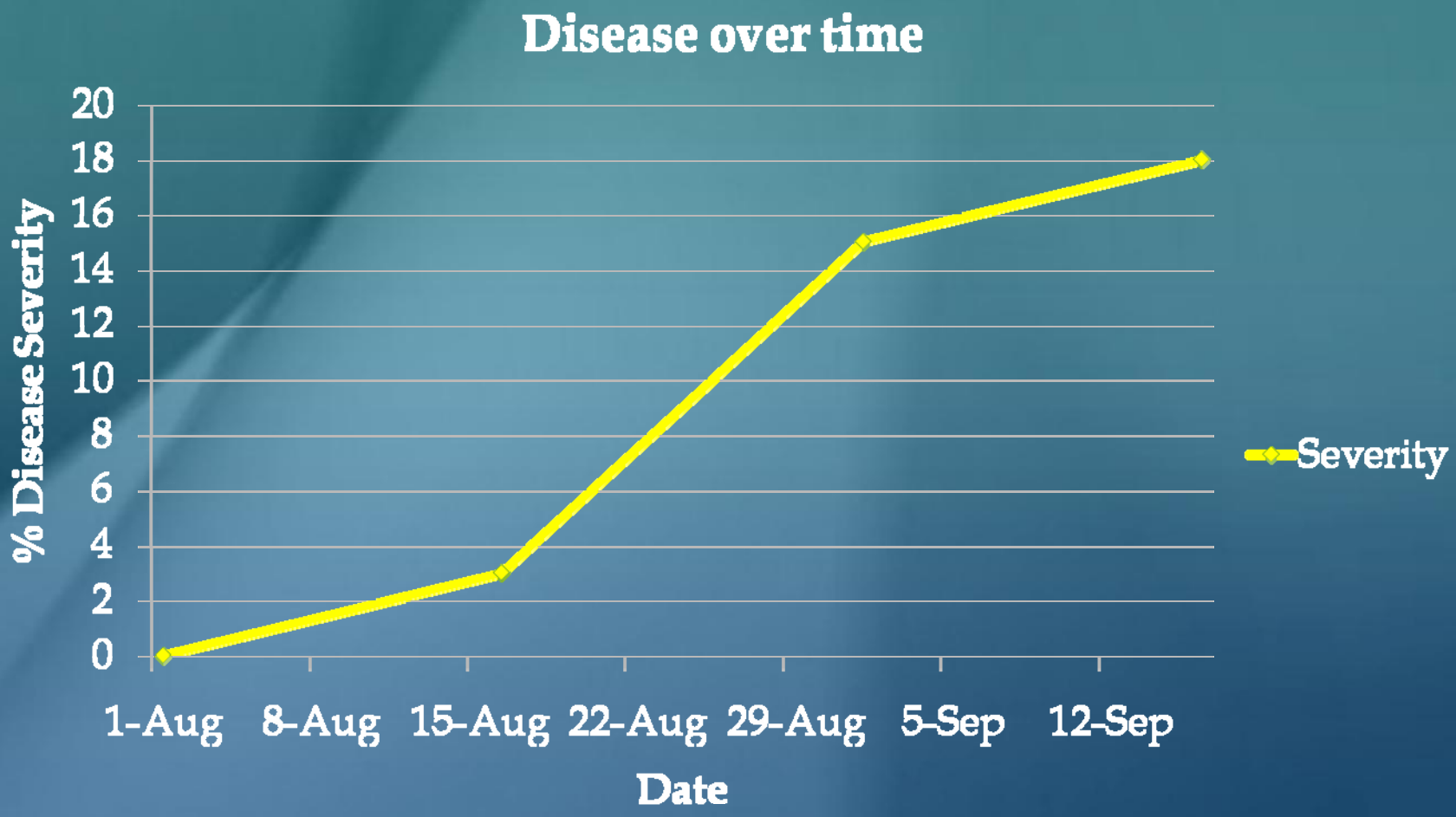


M and M:
Fungicide and Timing Trials

- Evaluate fungicides for effectiveness against rust
  - Fungicide Trials
- Evaluate optimum timing of fungicide application
  - Timing Trials

- Carrington and Langdon REC's
  - Inoculated (Race 336) spreader rows
  - Irrigated
- Casselton - CHS
  - Inoculated treatment plots
- Multiple disease evaluations – Rust severity diagrams
- AUDPC
- Yield

AUDPC = area under disease progress curve



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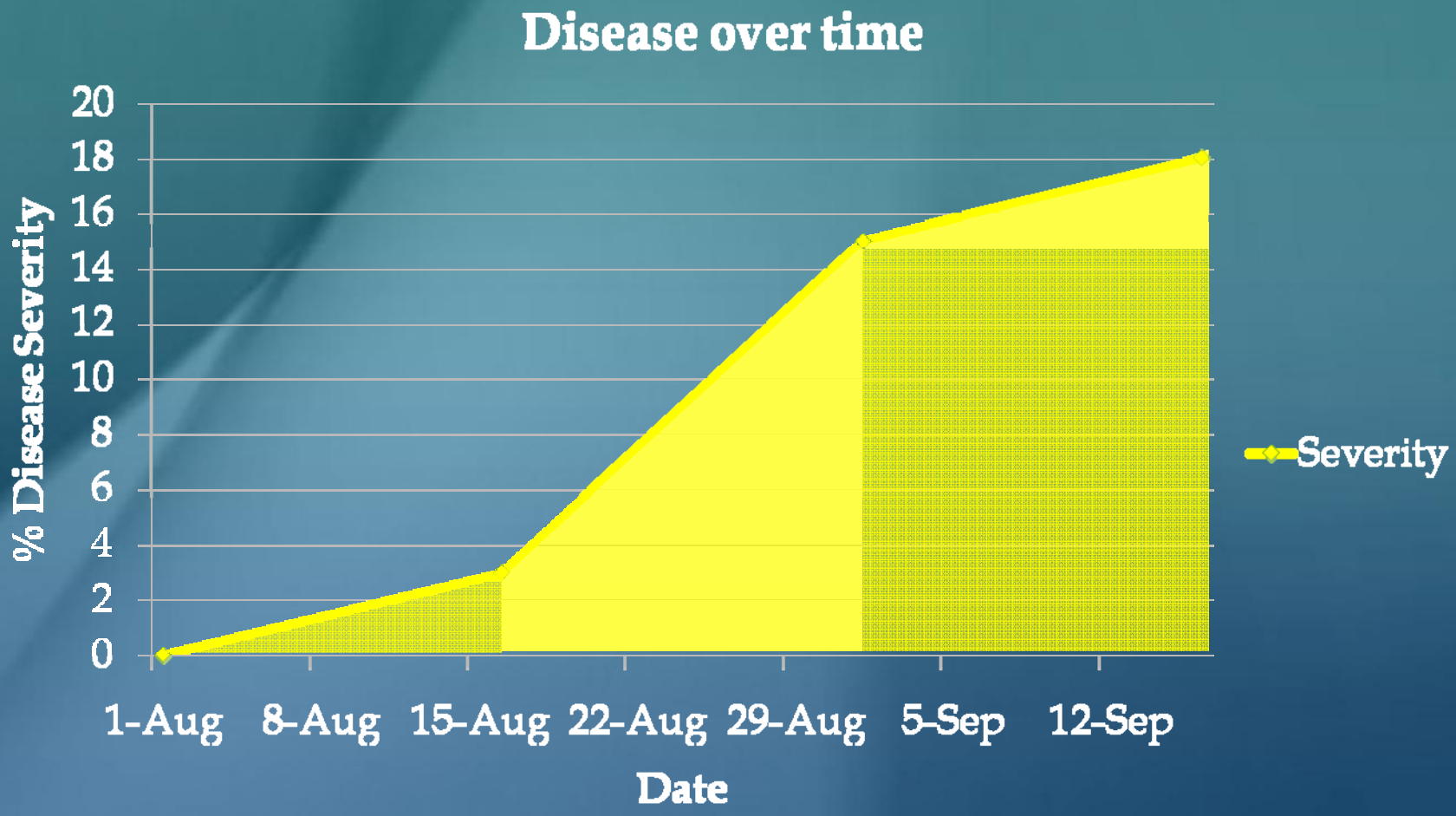

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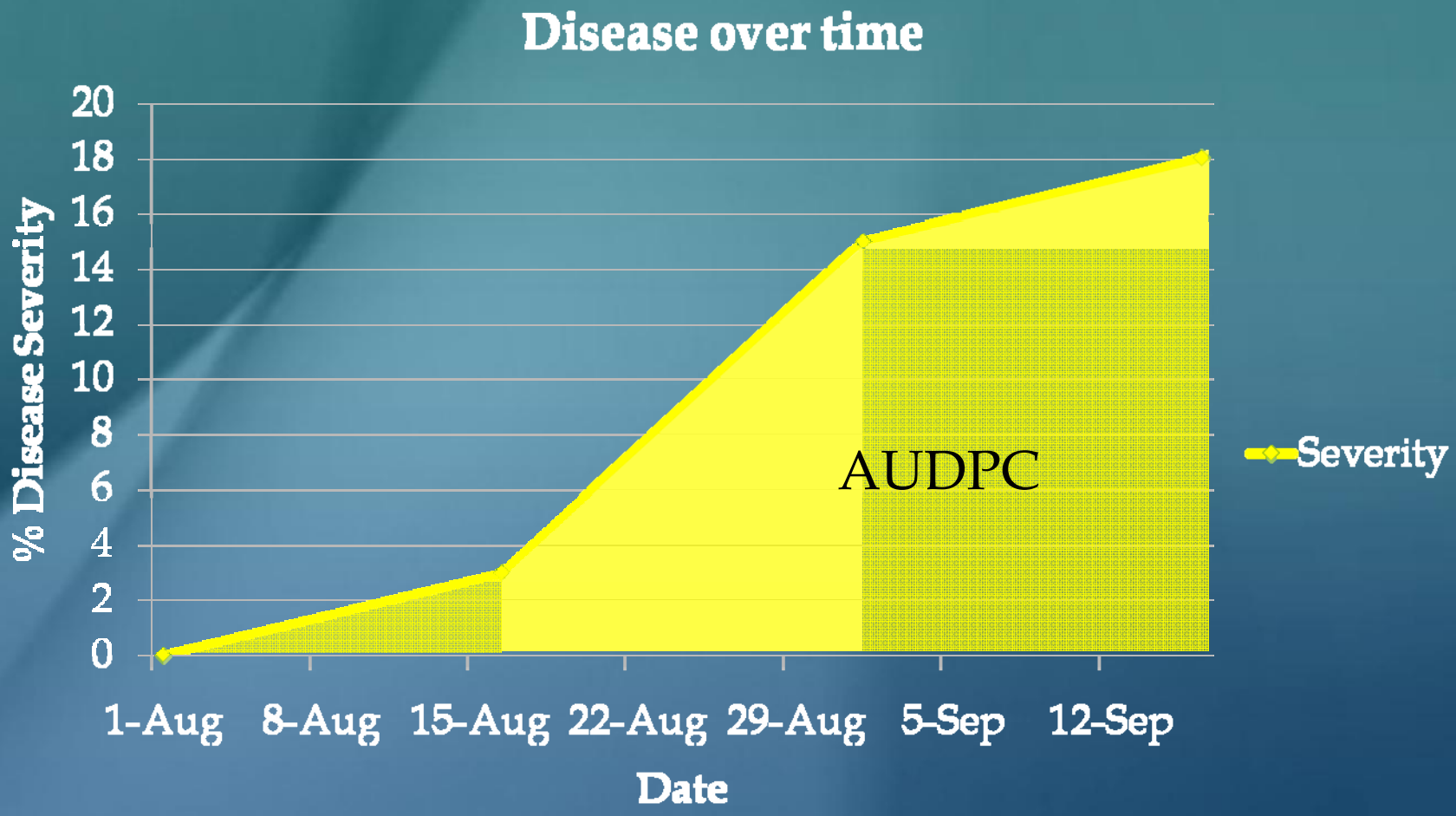


Fungicide Trials

- Core fungicides
  - Headline 9 fl oz
  - Quadris 9 fl oz
  - Proline 5.7 fl oz
  - Prosaro 6.5 fl oz
  - Prosaro 8.2 fl oz
  - Tebuzol 4 fl oz
- Applications at R5.2-R5.9
- 9-20 gpa, hand sprayer

- Others included
  - 2 Experimental
  - Quash 8 fl oz
    - Carrington only
  - Headline 6 fl oz

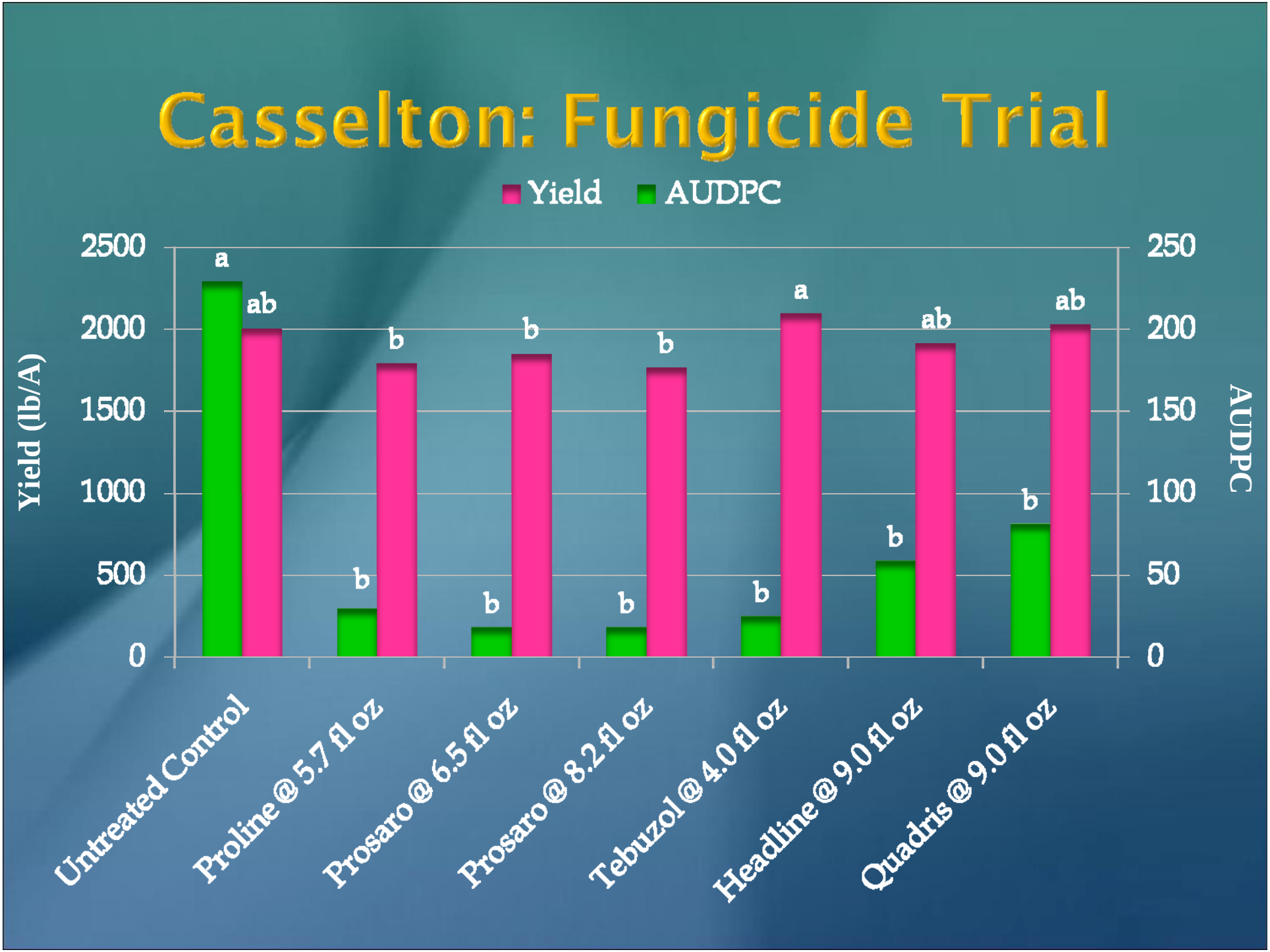
Timing Trials

- Two Fungicides
  - Headline 9 fl oz
  - Tebuzol 4 fl oz
- Five Treatments
  - Untreated
  - R3.5-R4 — Inflorescence begins to open
  - Approx R5.2-R5.5 — 20-50% flowering completed
  - R6.0 + — Ray petals wilt
  - All three timings

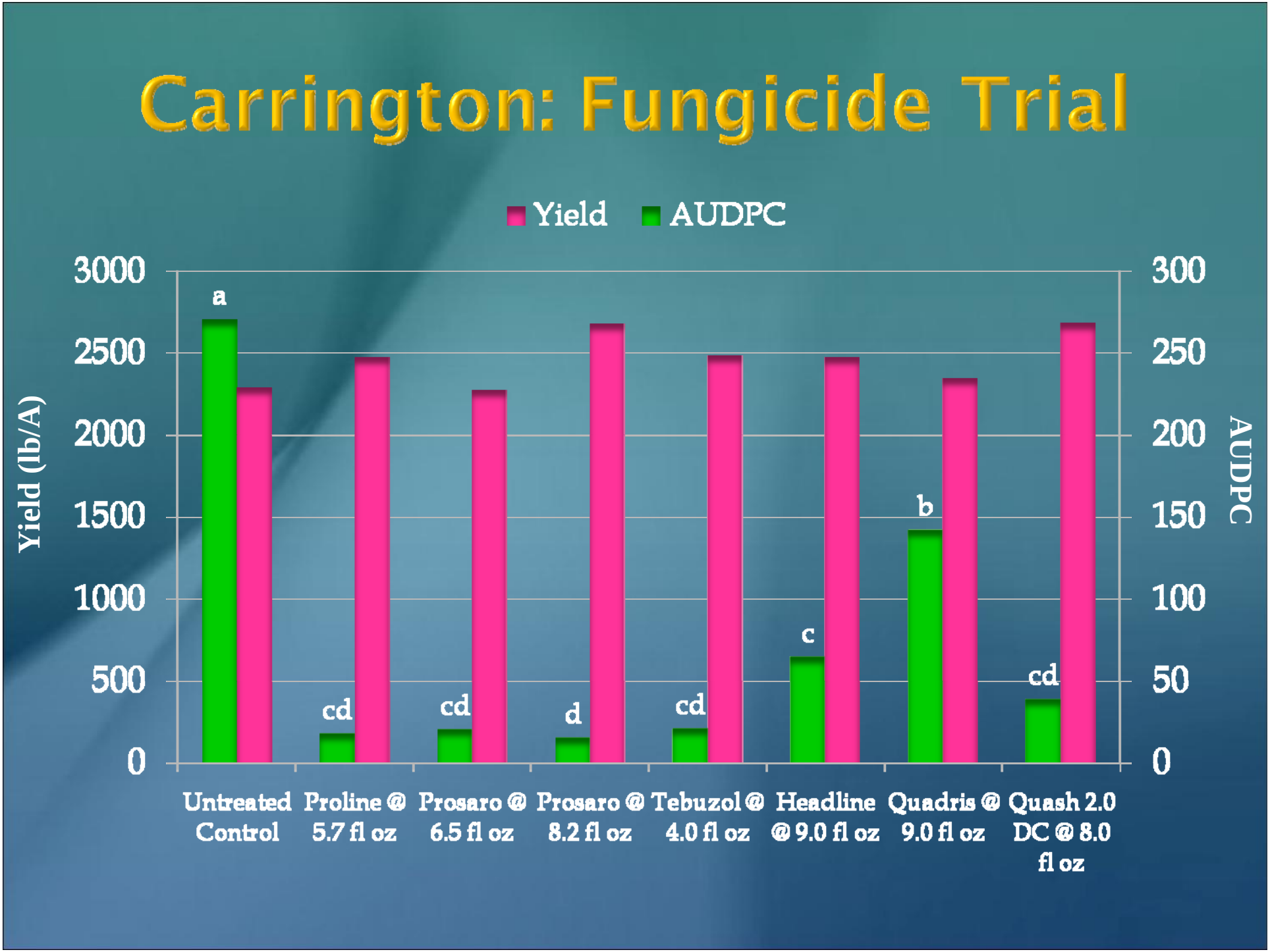
Results

- Little epidemic at Landgon
  - No data presented

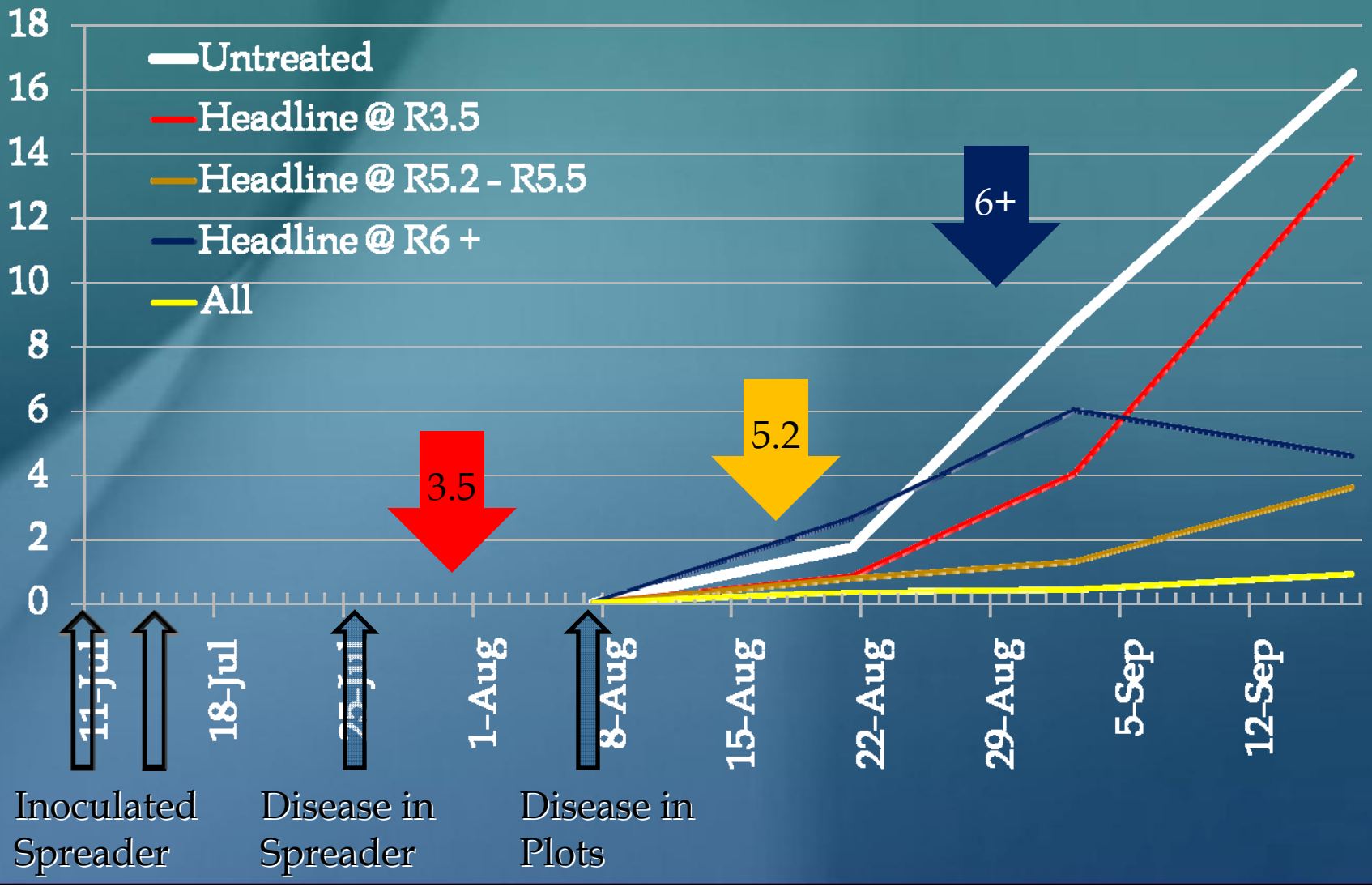
Casselton: Fungicide Trial



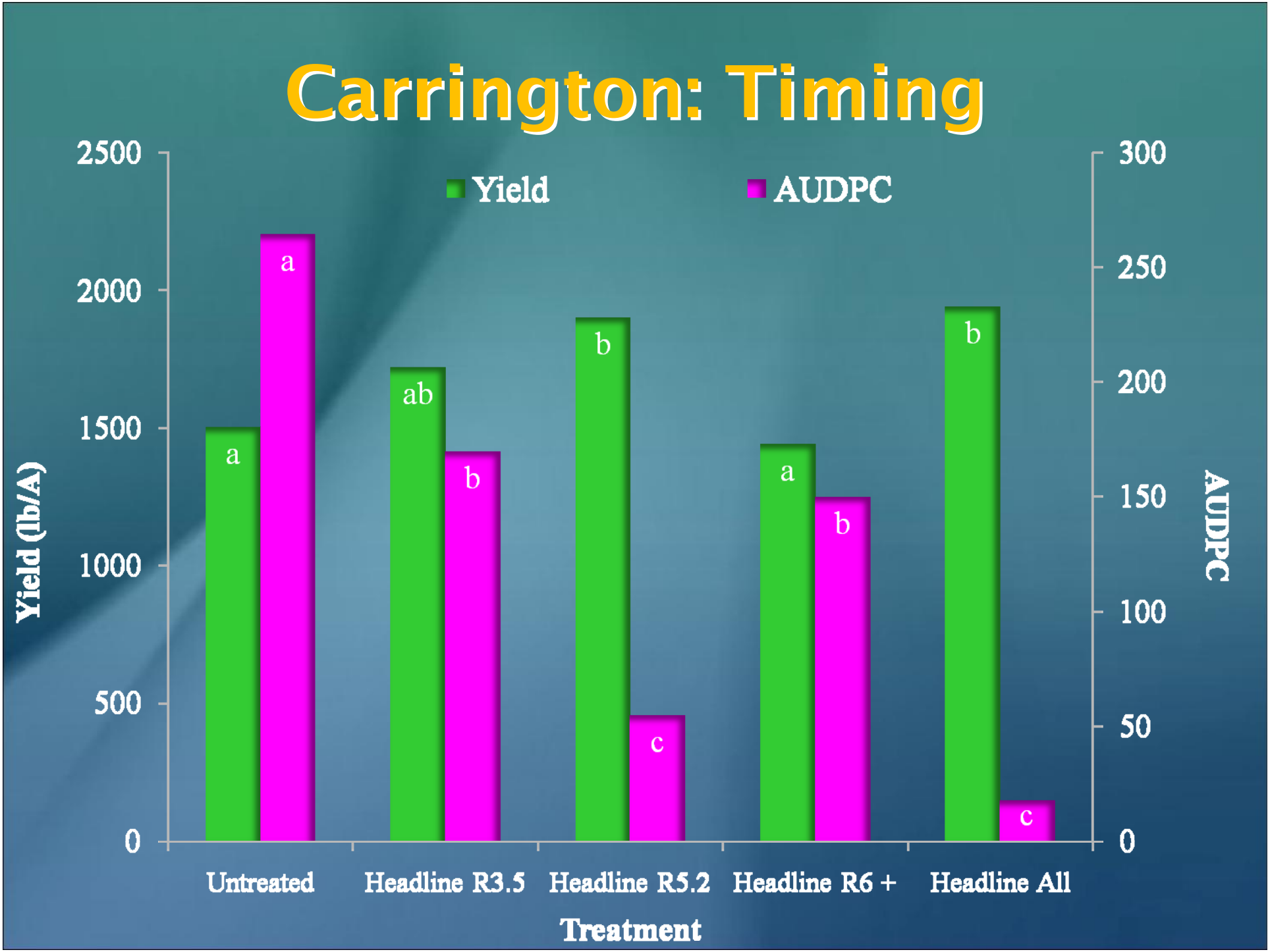
Carrington: Fungicide Trial



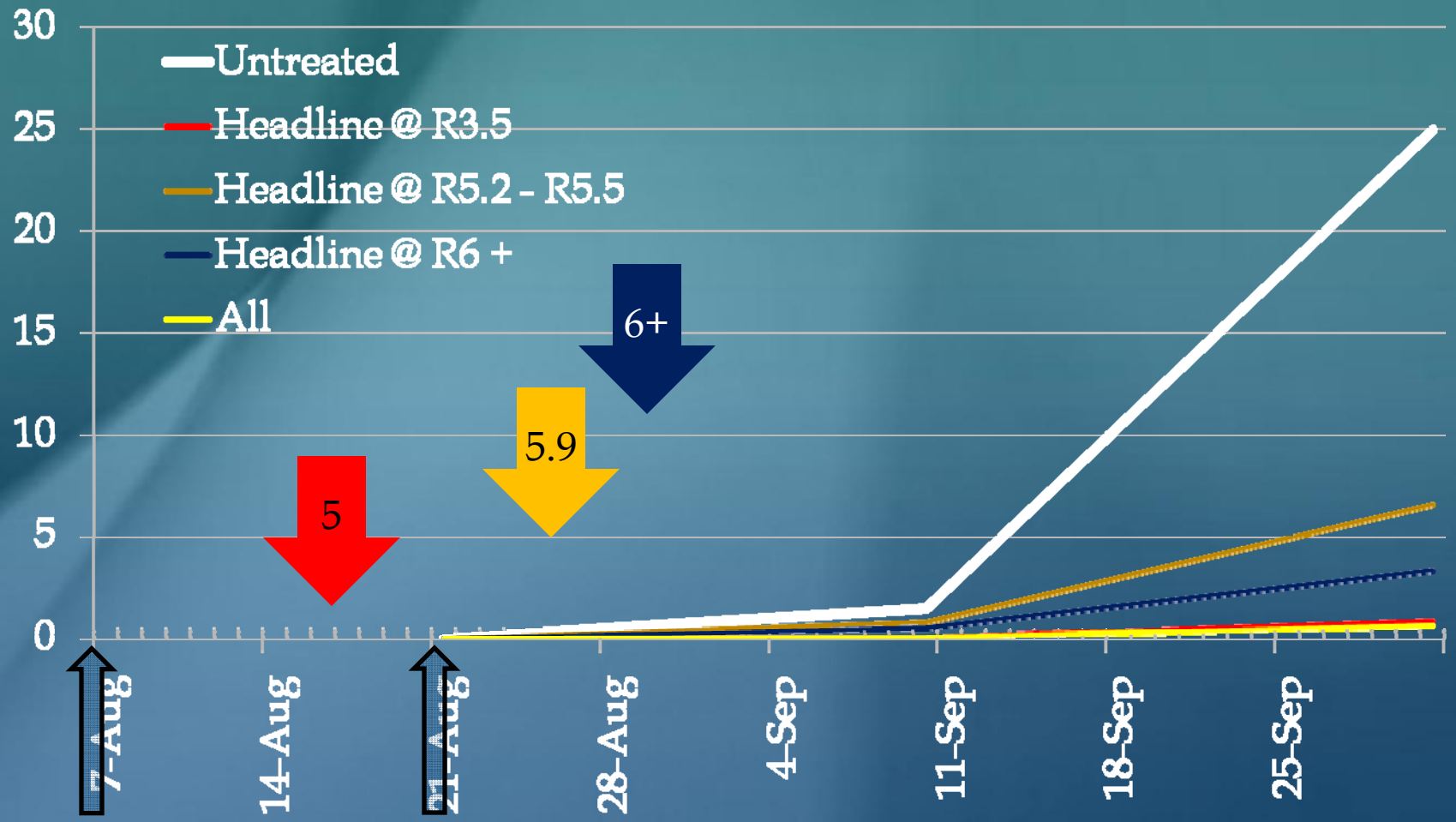
Timing: Carrington



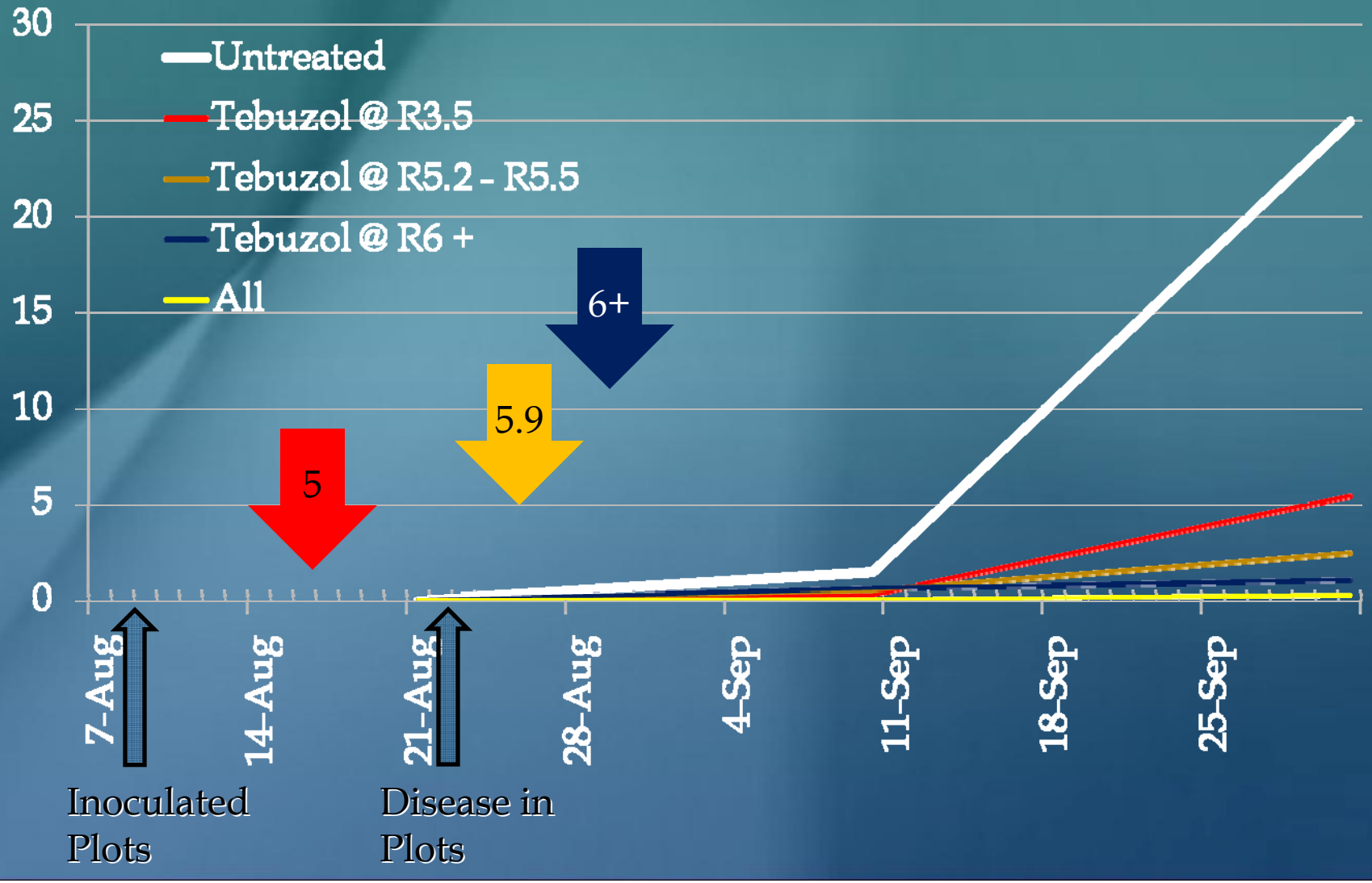
Carrington: Timing



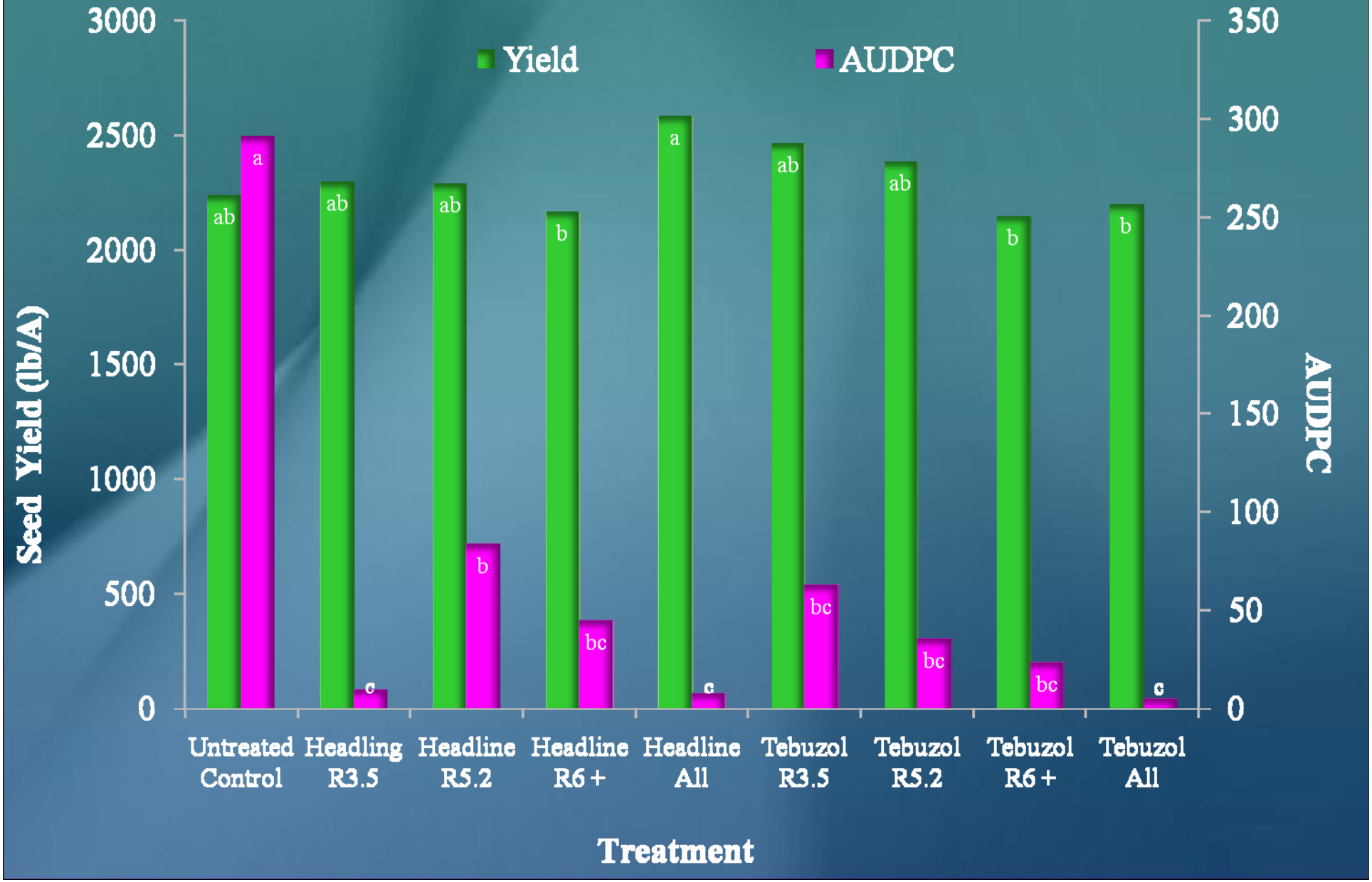
Timing (Headline): Casselton



Timing (Tebuzol): Casselton



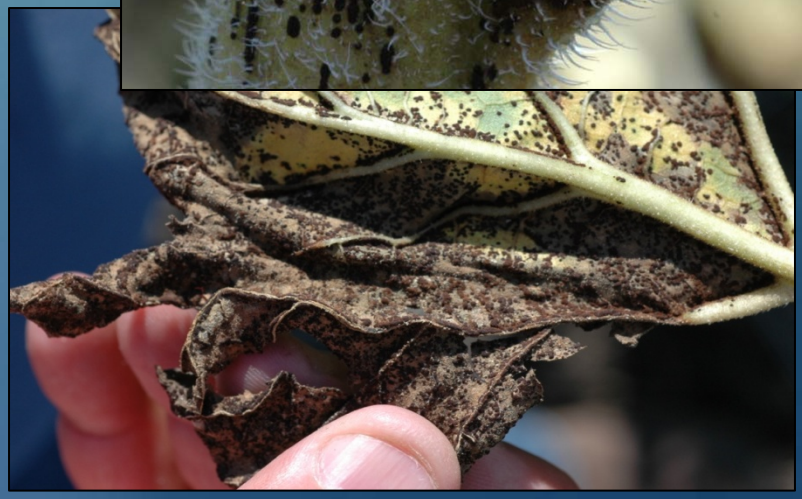
Casselton: Timing Trial



Summary

- Fungicide Trials
  - All chemicals reduced disease
  - Best treatments were Tebuzol, Proline, Prosaro, Quash
    - Headline and Quadris equal to above at Casselton
- Timing Trials
  - One application reduces disease as much as three apps
  - Headline most effective in early stages of epidemic:
    - 0-2% severity on upper four leaves
  - Tebuzol most effective after disease onset
- Effective fungicides available for epidemics

Thank You



Acknowledgements

- National Sunflower Association
- NDSU REC's and CHS
- K. Rashid, D. Jardine, H. Schwartz, C. Trostle, B. Harveson