

Effect of Simulated Hail on Sunflower Disease and Health

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Yield loss

- Hail can affect...
 - Population
 - Head size
 - Seed size
 - Oil content
- ...depending on hail event



But also...

- Pathogens infect through wounds and openings
- Hail creates many wounds
- Questions/concerns about hail
- Questions/concerns about fungicide

Experimental Design (ND and Neb)

- 2 x 5 factorial in RCBD with four reps
- Ten treatments

	No Fung.	Aproach	Revytek	Miravis Neo	Priaxor
No Hail	Trt 1	Trt 2	Trt 3	Trt 4	Trt 5
Hail	Trt 6	Trt 7	Trt 8	Trt 9	Trt 10

- Percent leaf damage = 18%; stem damage = 16%
- Hail simulation around R1
- Fungicide applications 1-2 days after



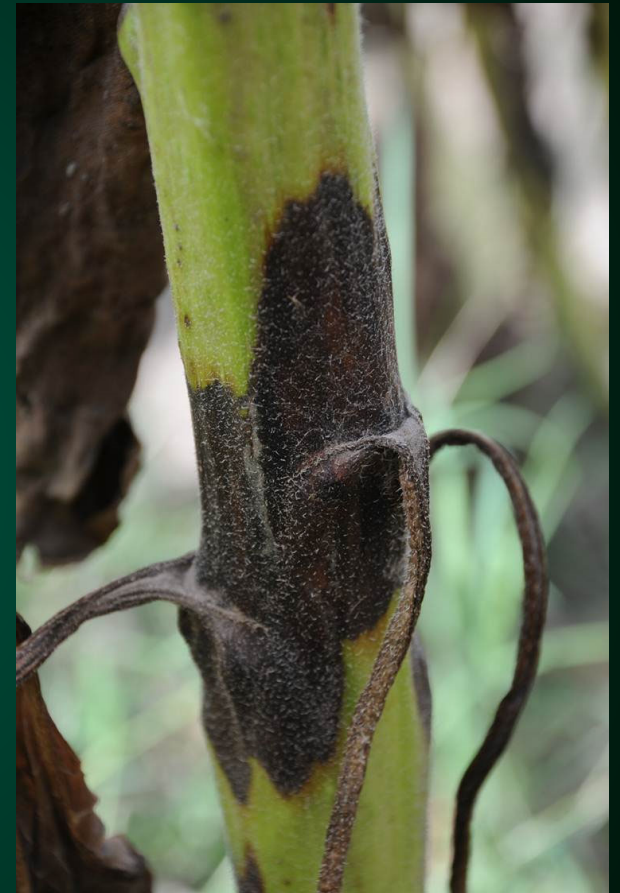




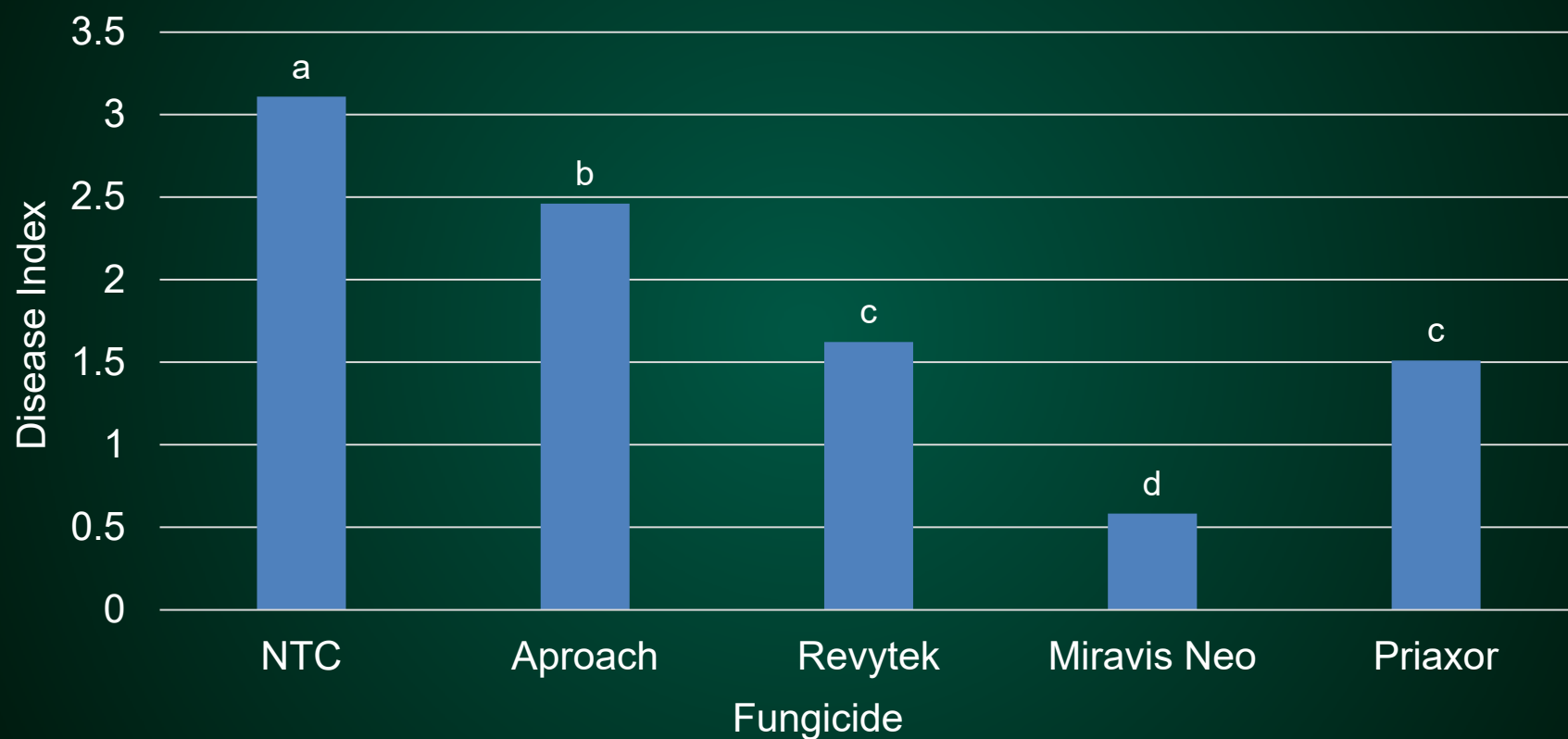




Phoma!

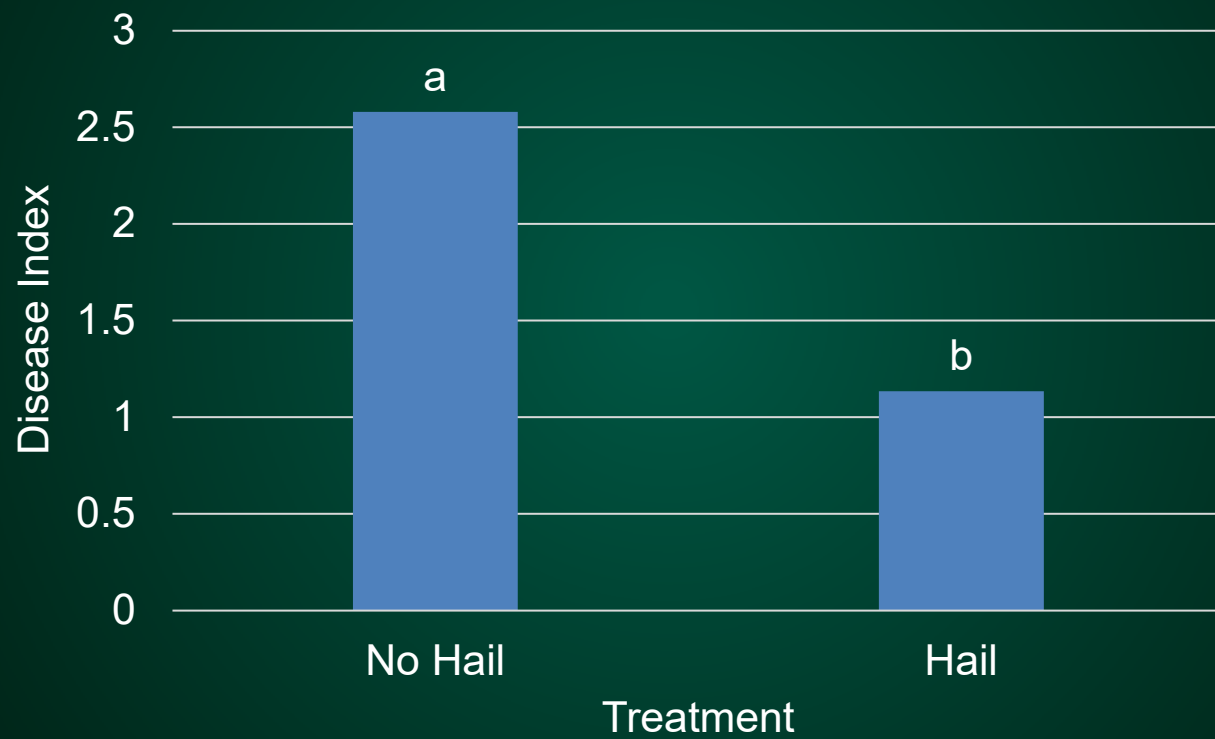


ND Phoma Disease Index



P-value < 0.0001

ND Phoma Disease Index

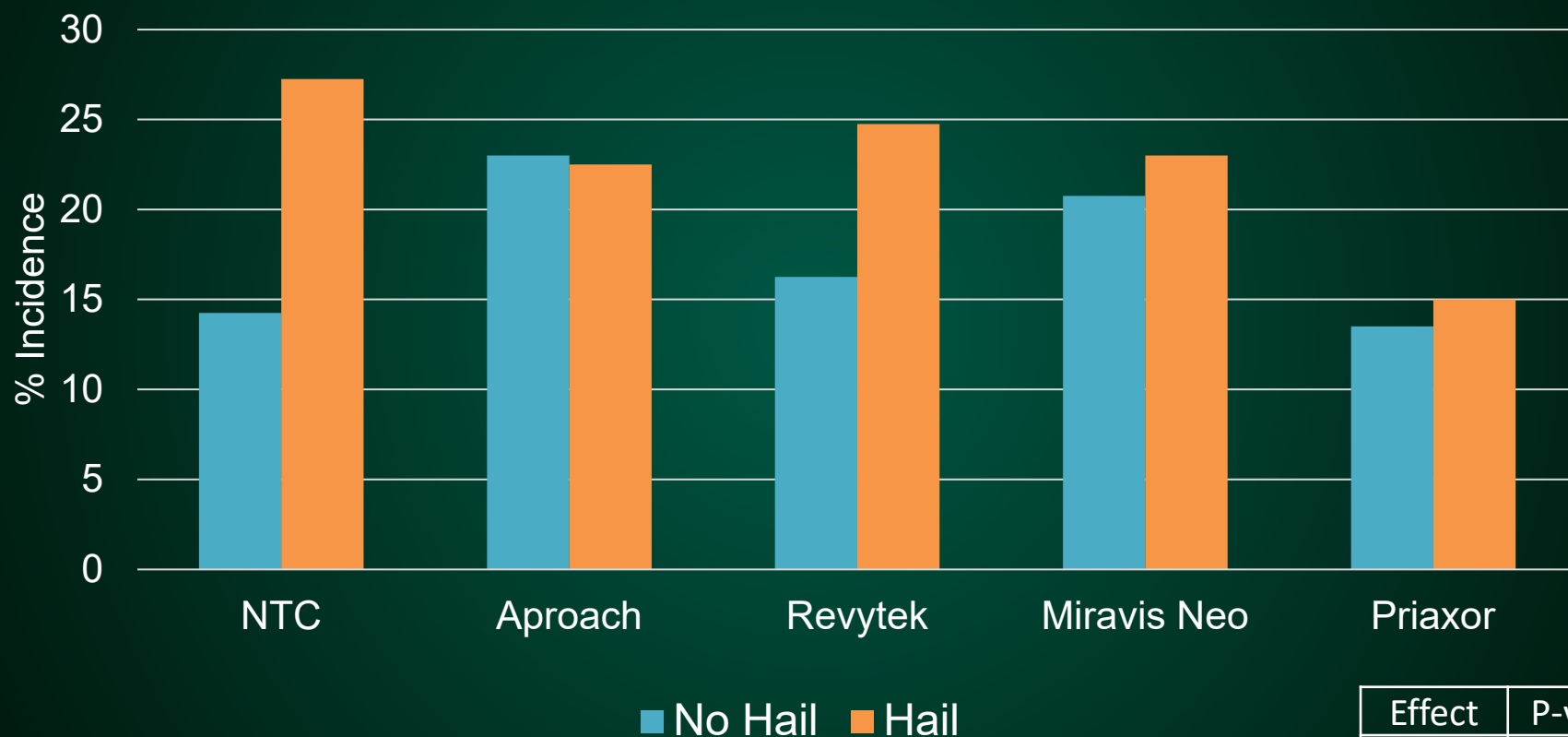


P-value < 0.0001

Bacterial Head Rot!

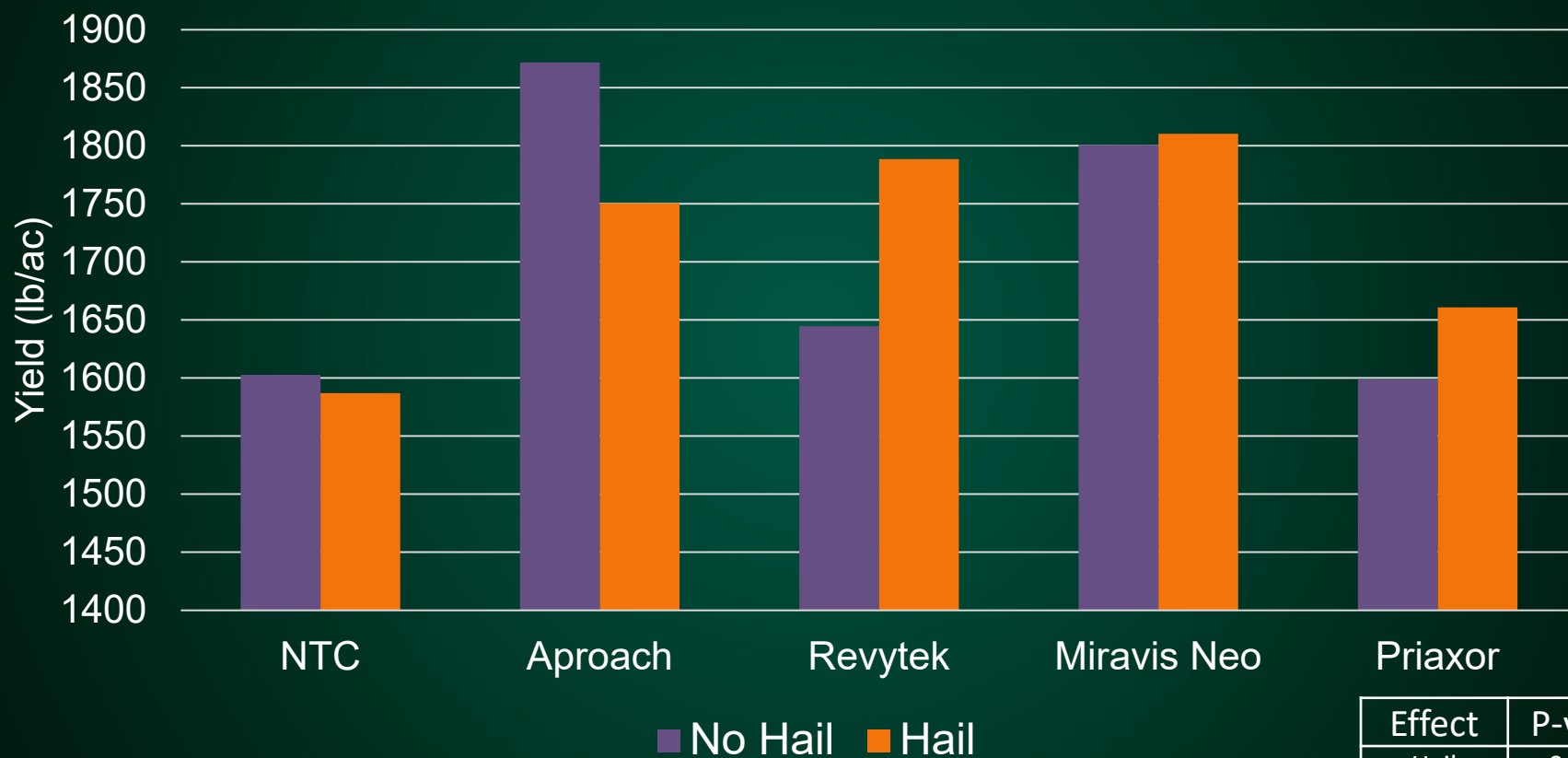


ND Incidence of Bacterial Head Rot



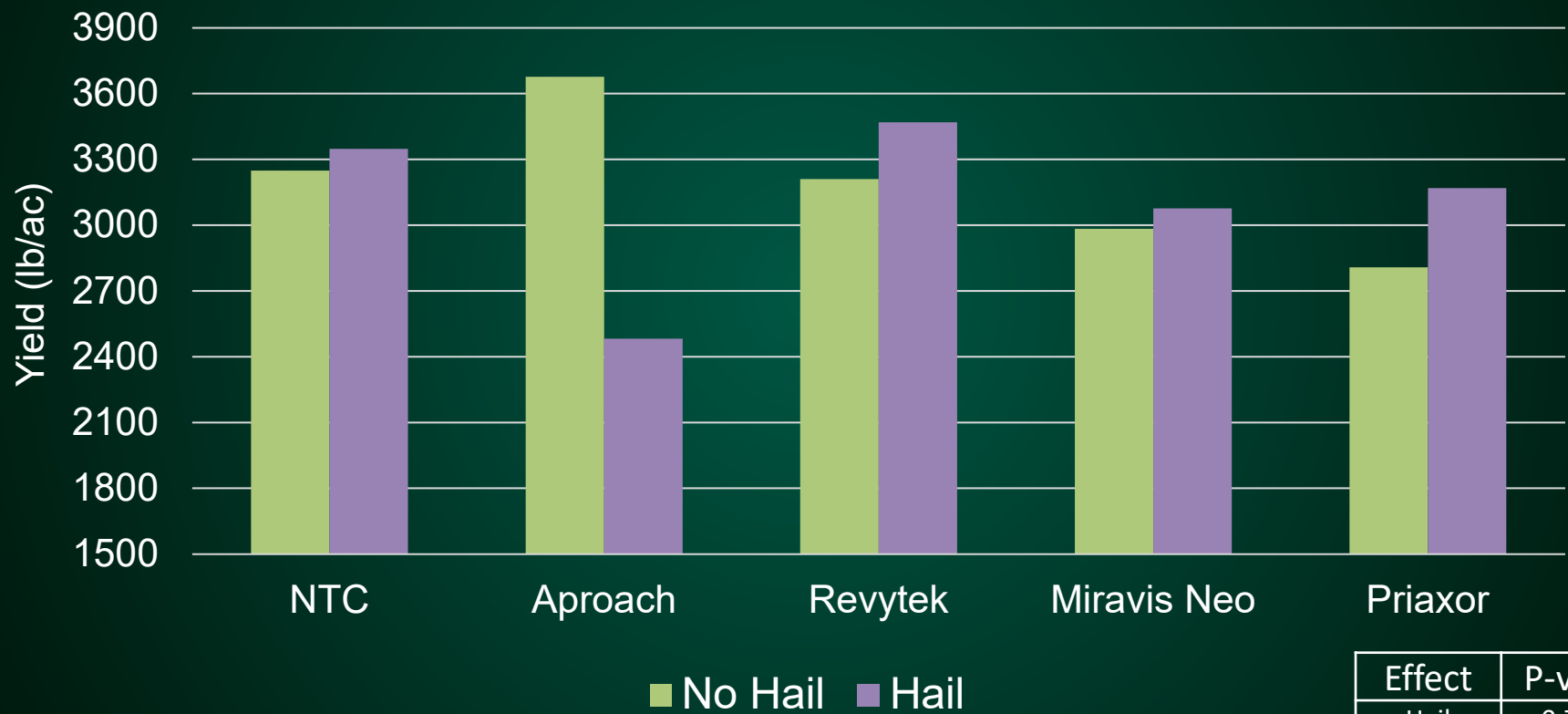
Effect	P-value
Hail	0.1169
Fungicide	0.4440

ND Yield



Effect	P-value
Hail	0.8248
Fungicide	0.2065

Nebraska Yield



Effect	P-value
Hail	0.7376
Fungicide	0.8045

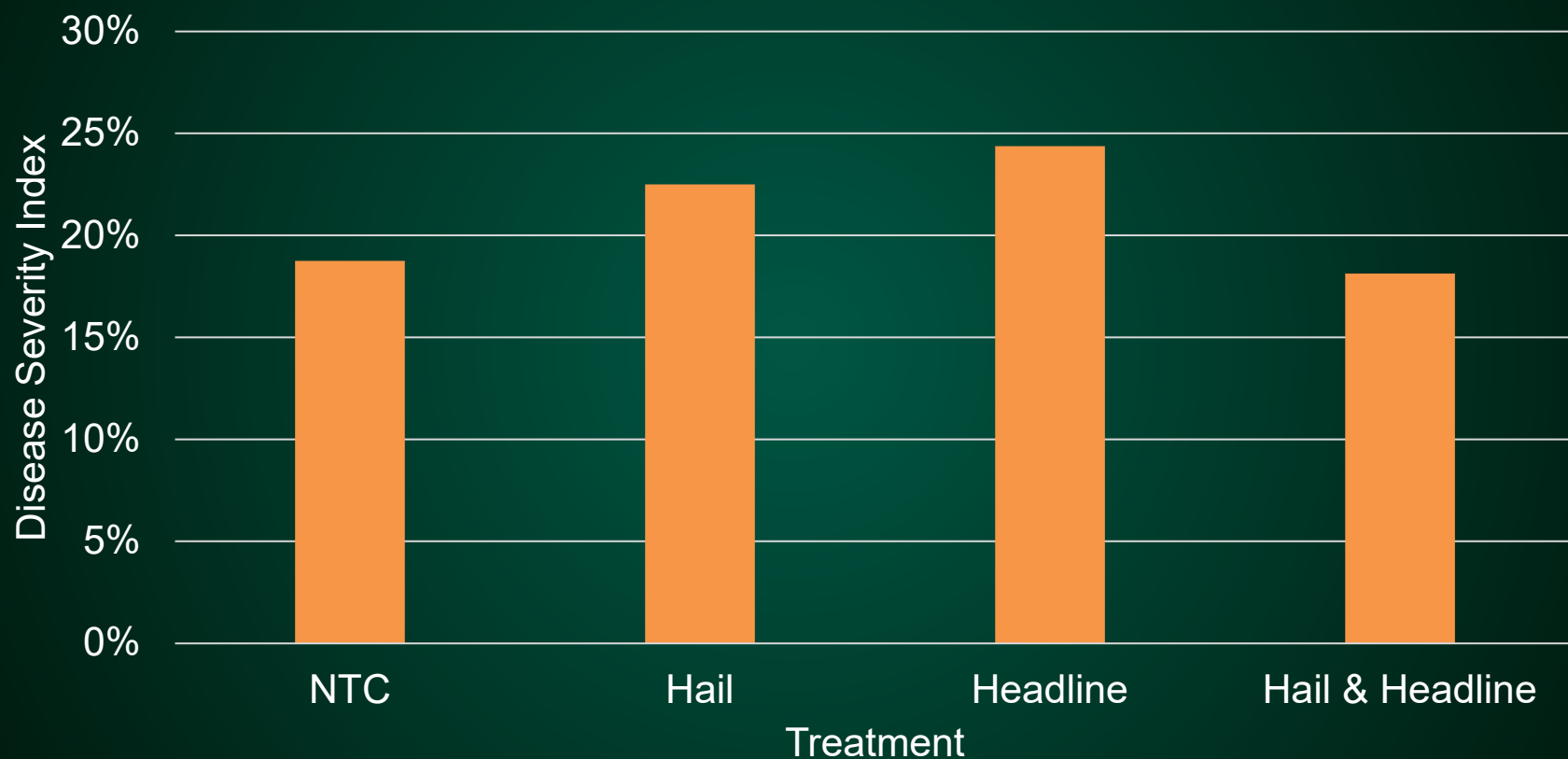
Experimental Design (SoDak)

- RCBD with four reps
- Four treatments
 1. No Headline, No Hail (-,-)
 2. No Headline, With Hail (-,+)
 3. With Headline, No Hail (+,-)
 4. With Headline, With Hail (+,+)
- Simulated hail application made at R1 growth stage
- Headline (pyraclostrobin) application made 1-2 days after hail (6fl oz/ac in 20 gal/ac)

Phomopsis!

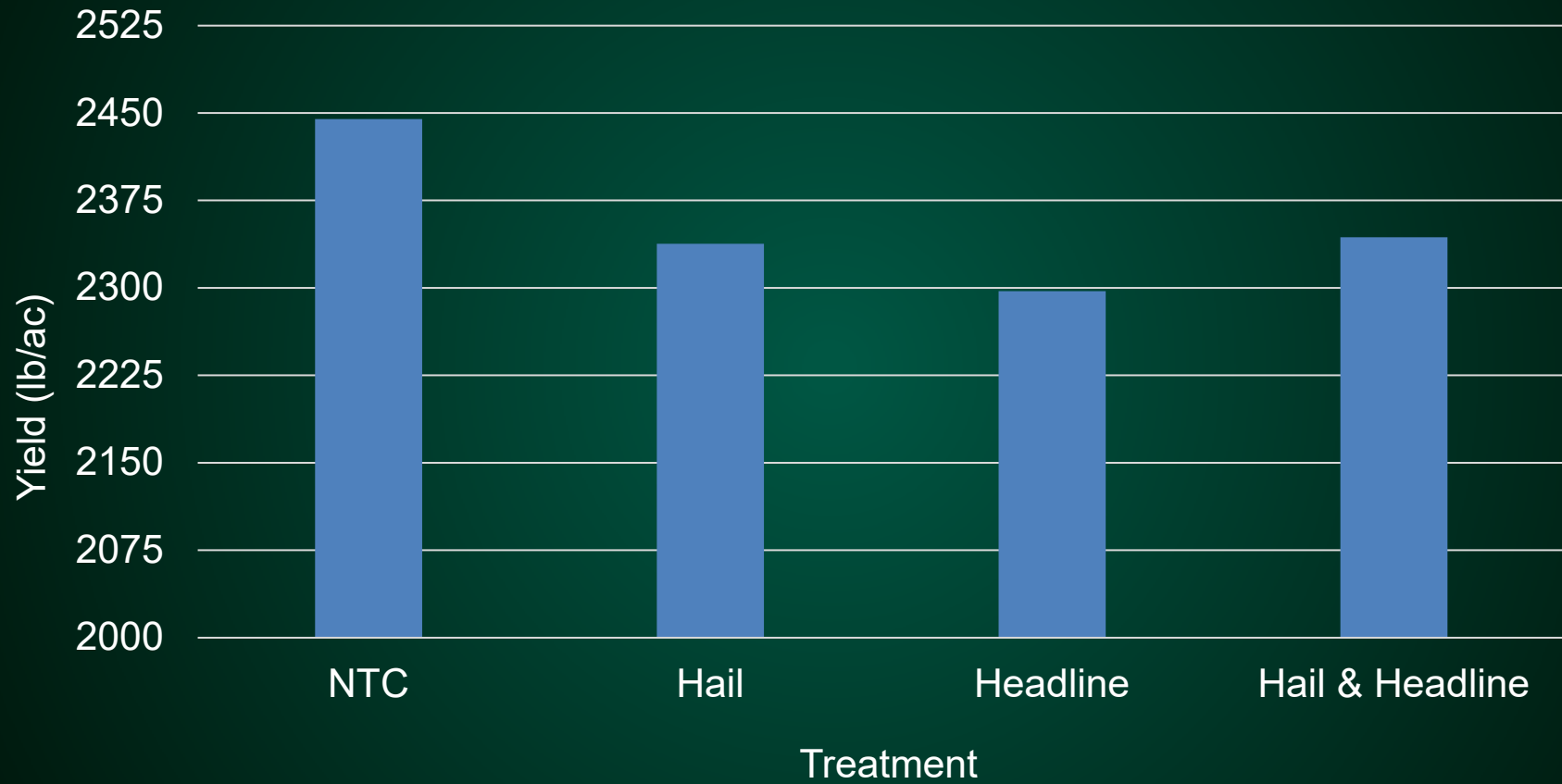


SD Phomopsis Disease Severity Index



P-value = 0.994

SD Yield



P-value = 0.715

Conclusion

- Disease differences from hail
 - Phoma (Less after hail)
- Disease differences from fungicide
 - Phoma
- No yield effects ($\alpha=0.05$)

Thank You

- UNL – Panhandle Res. & Ext. Center
- NDSU - Extension
- SDSU
- BASF
- NSA

