

UNUSUAL *Cercospora* leaf spot symptoms and management

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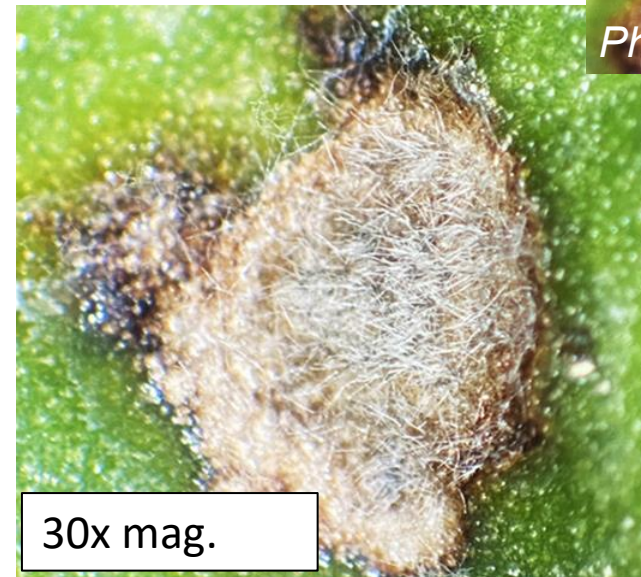
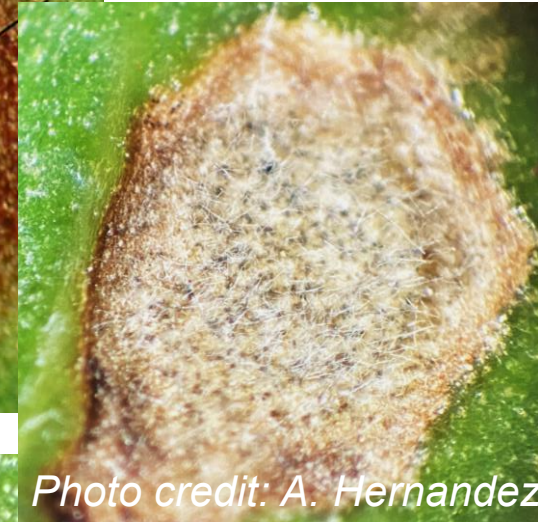
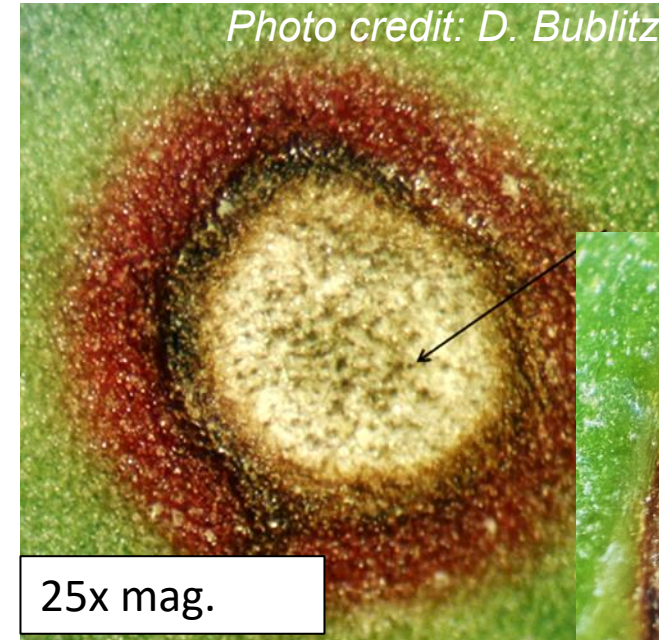
Beet Summit
February 6, 2025



Photo credit: D. Bublitz

Typical CLS lesions

- Circular, unless stopped by vein
- 1/8" to 1/4" diameter
- Tan or gray center with darker red to brown border
- **Black pseudostromata**
- **Silver, needle-like conidia (spores)**



Typical variability of CLS across varieties



1.5 inch

Typical variation in size



1.5 inch



(USDA Nursery 2022)

Typical variation in shape



1.5 inch



(USDA Nursery 2022)

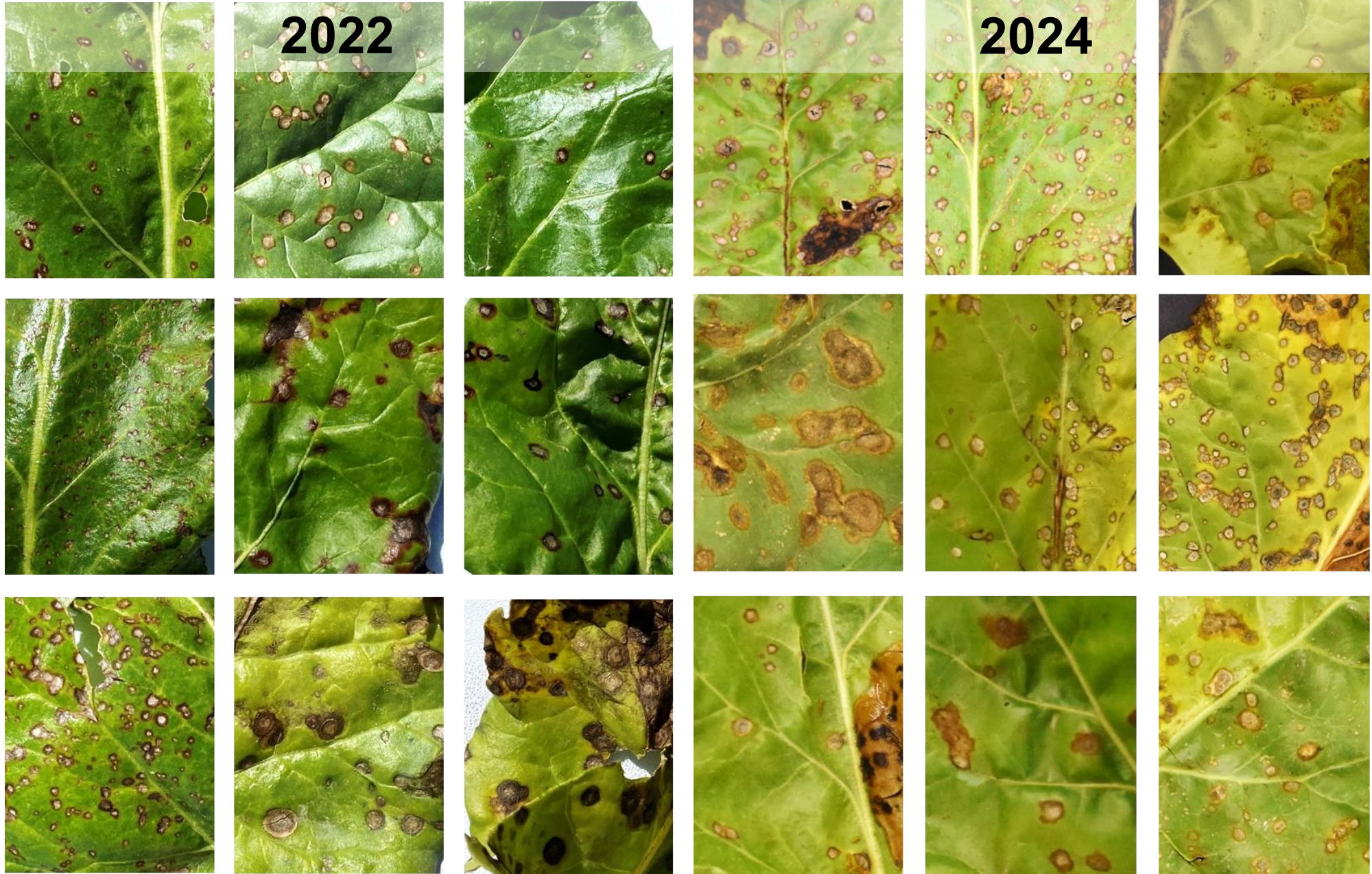
Typical variation in border color



1.5 inch

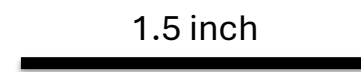
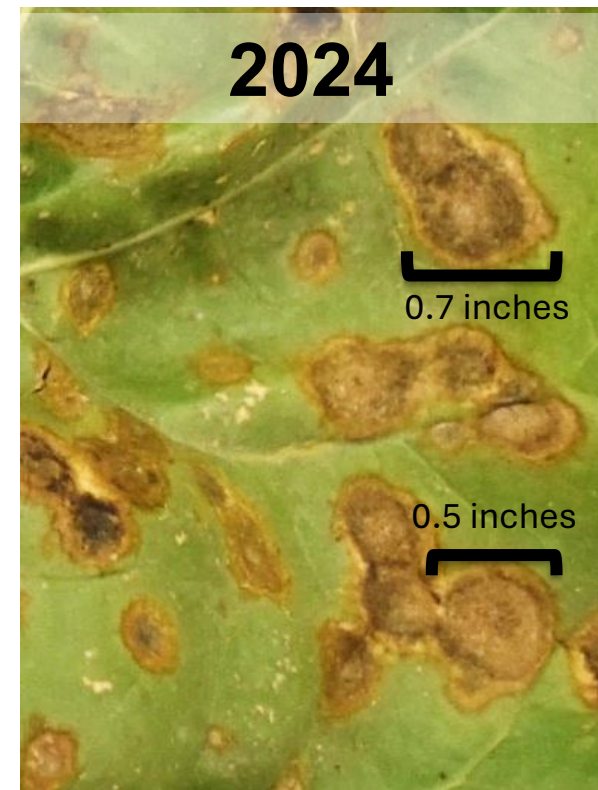


Atypical CLS across samples in 2024



(USDA Nursery
2022, MSU PSBP
samples 2024)

Comparison in size



(USDA Nursery 2022, MSU PSBP samples 2024)

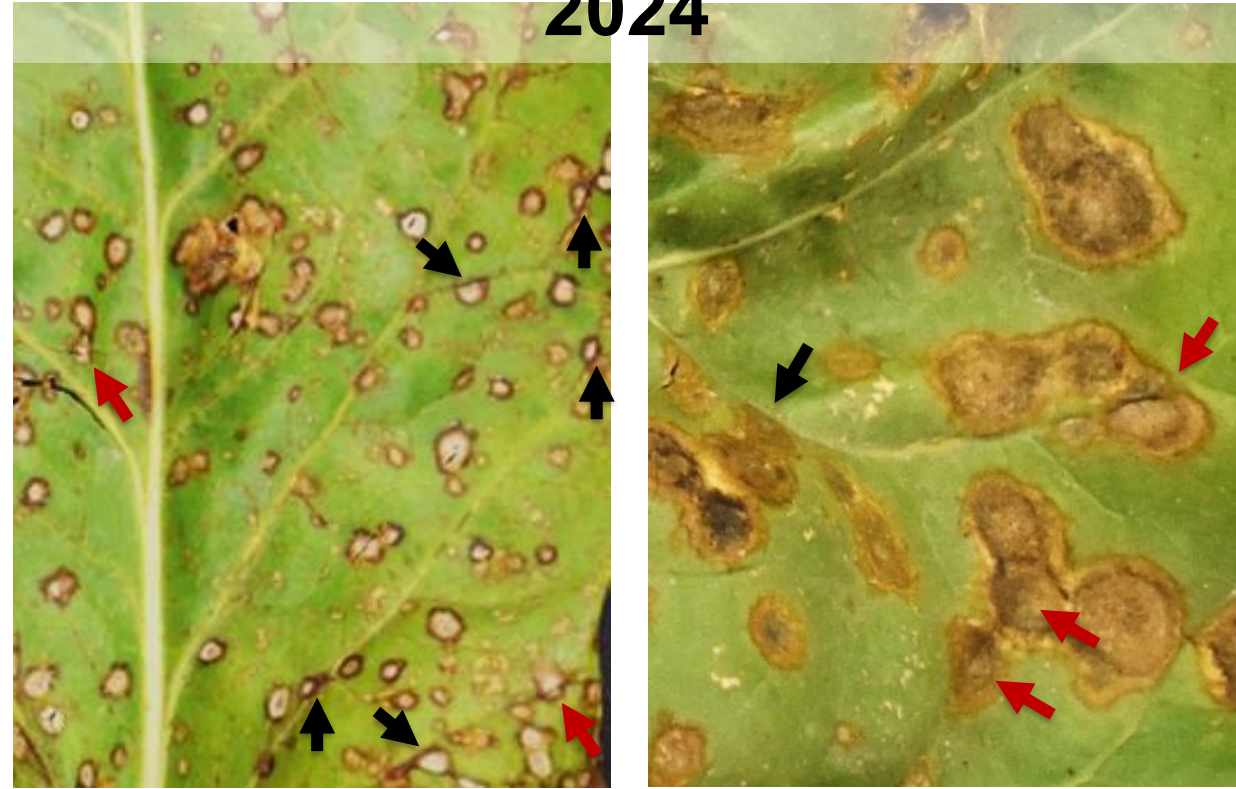
Interactions with leaf veins

- ➔ Typical stopping at vein
- ➔ Possible vein crossing

2022



2024

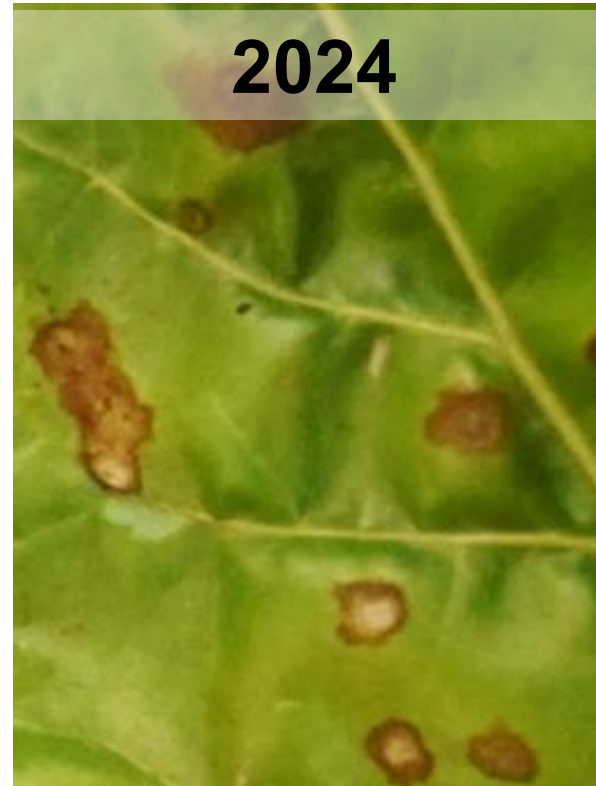



1.5 inch



(USDA Nursery 2022, MSU PSBP samples 2024)

“Bleeding” or “blurred” borders



1.5 inch


(USDA Nursery 2022, MSU PSBP samples 2024)

“Cracking” lesions

2022



2024

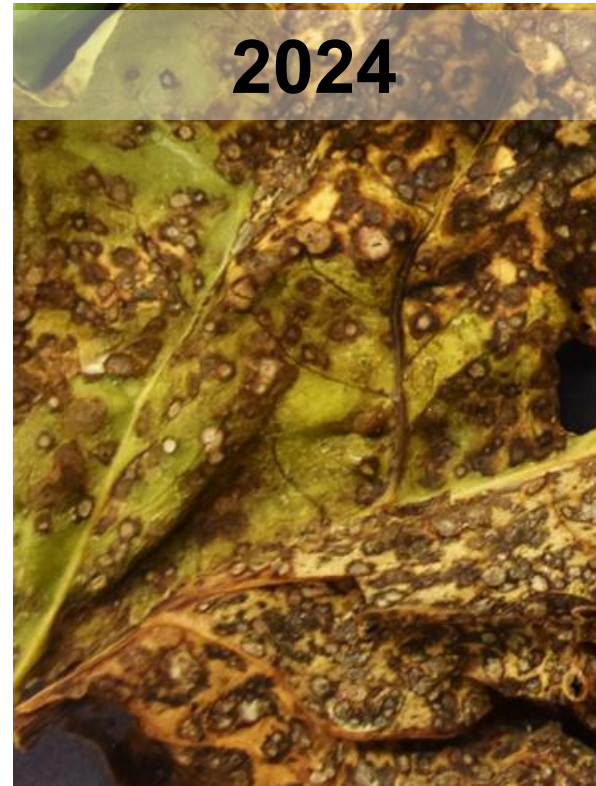


1.5 inch



(USDA Nursery 2022, MSU PSBP samples 2024)

Other notes – coalescing lesions



(USDA Nursery 2022, MSU PSBP samples 2024)

Other notes – Alternaria and chlorosis

2022



2024



(USDA Nursery 2022, MSU PSBP samples 2024)

Other Diseases

Alternaria leaf spot



Anthraco



Stemphylium leaf spot



CLS Management

- Varieties with CR+ resistance available*
- Diverse chemical programs
- Residue management
- Crop rotation (3-yr)
- Distance from previous beet fields (>100 ft)



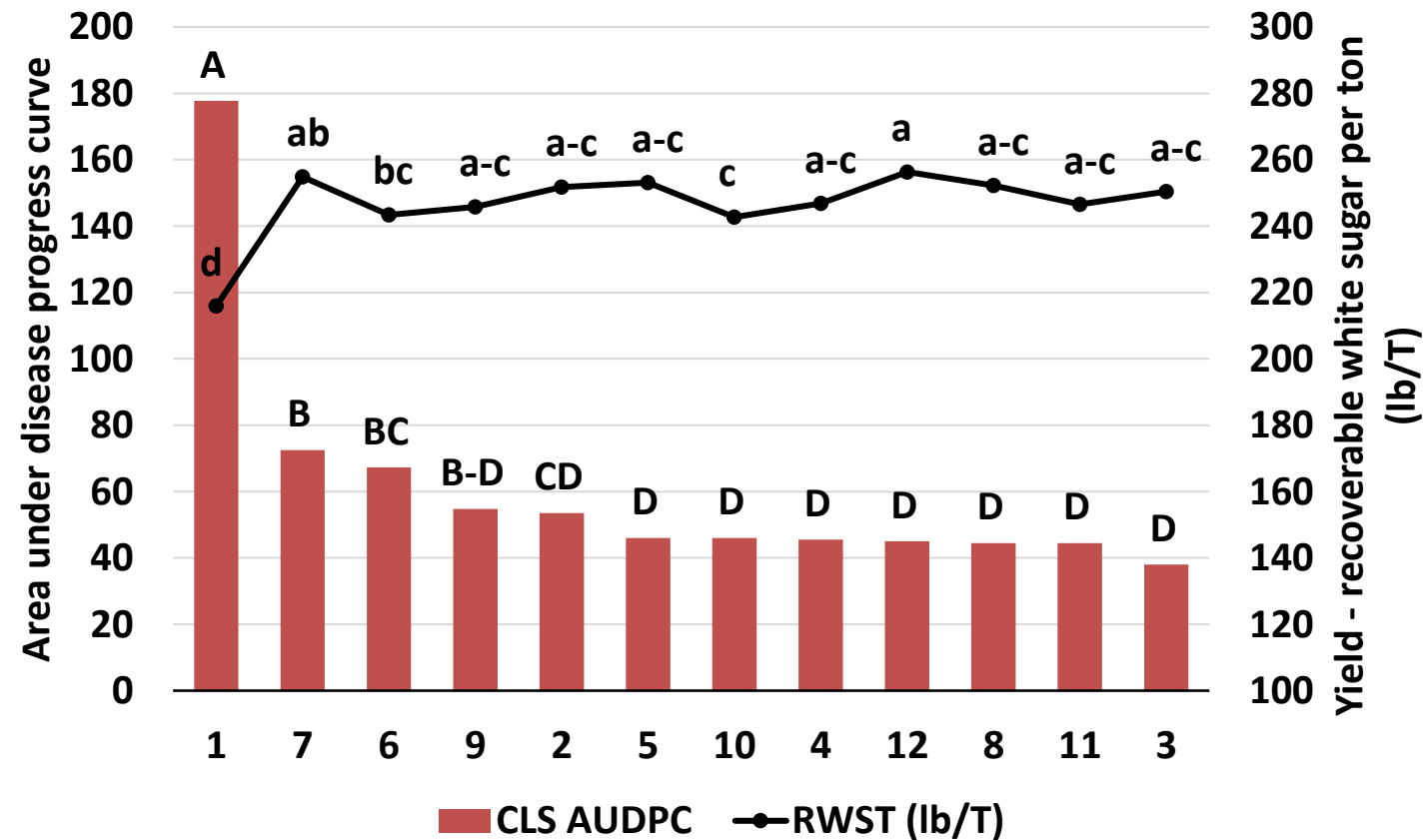
Fungicides

Contact

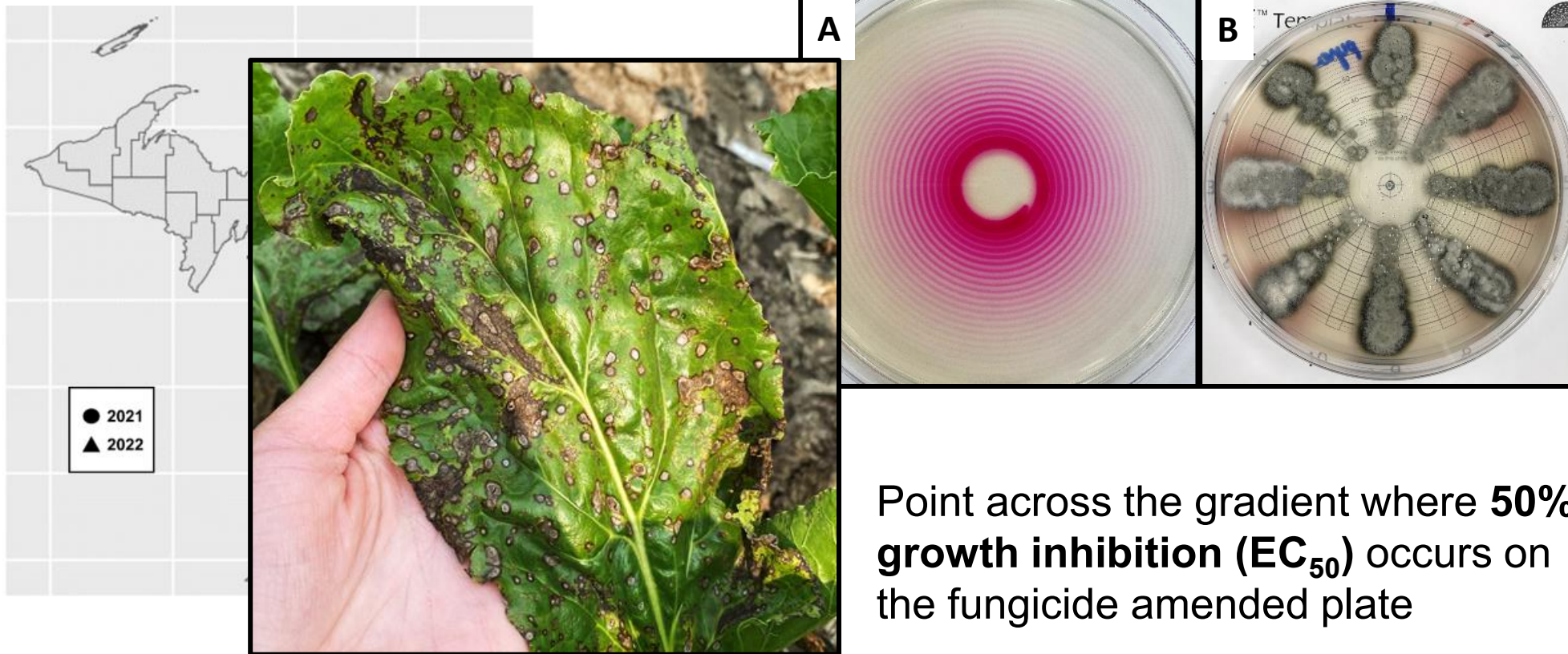
- Coppers
 - Badge
 - Champ
 - Kocide 3000
- EBDCs
 - Koverall
 - Manzate
 - Penncozeb
- Tins
 - Agri Tin
 - Super Tin

Systemic

- Triazoles
 - Eminent
 - Inspire XT
 - Proline
 - Provysol
 - Topguard
- Benzimidazoles
 - Topsin
- Mixtures
 - Minerva Duo
 - Priaxor
 - Propulse

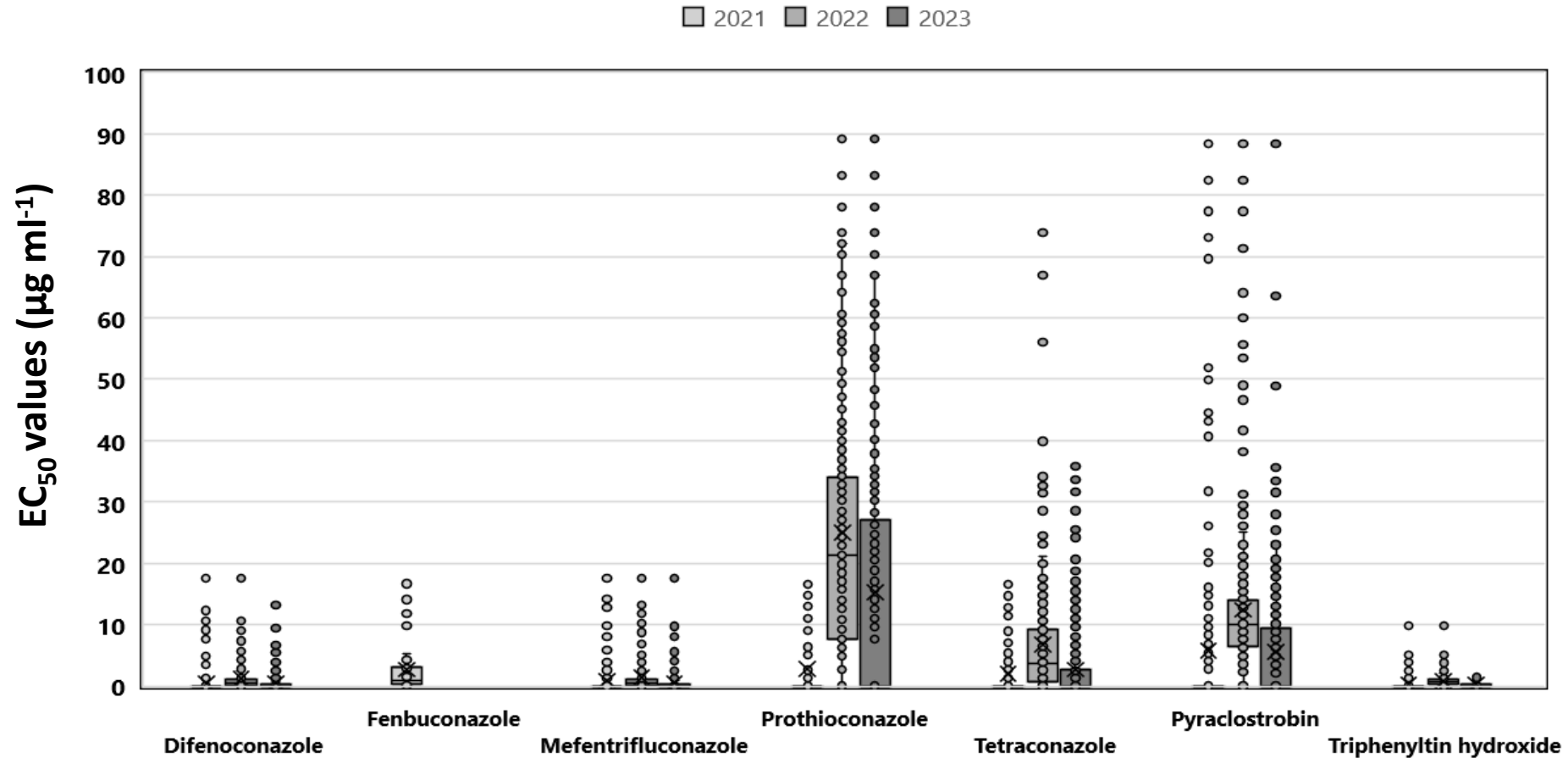


Fungicide Resistance Monitoring

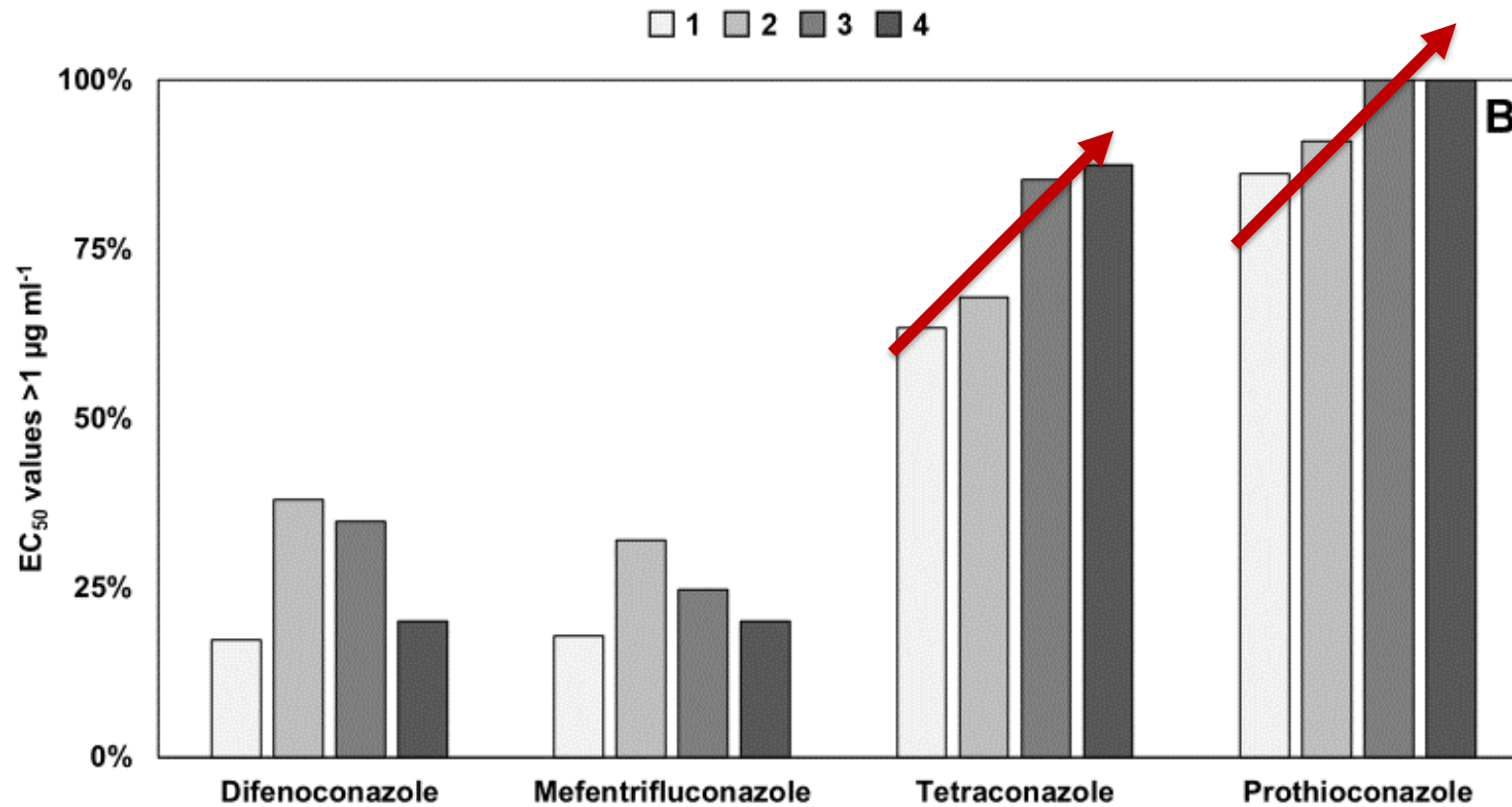


Point across the gradient where **50% growth inhibition (EC₅₀)** occurs on the fungicide amended plate

Fungicide Resistance Screening



Resistance May Increase with # Applications

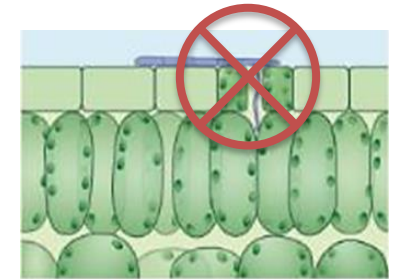


Resistance Management:

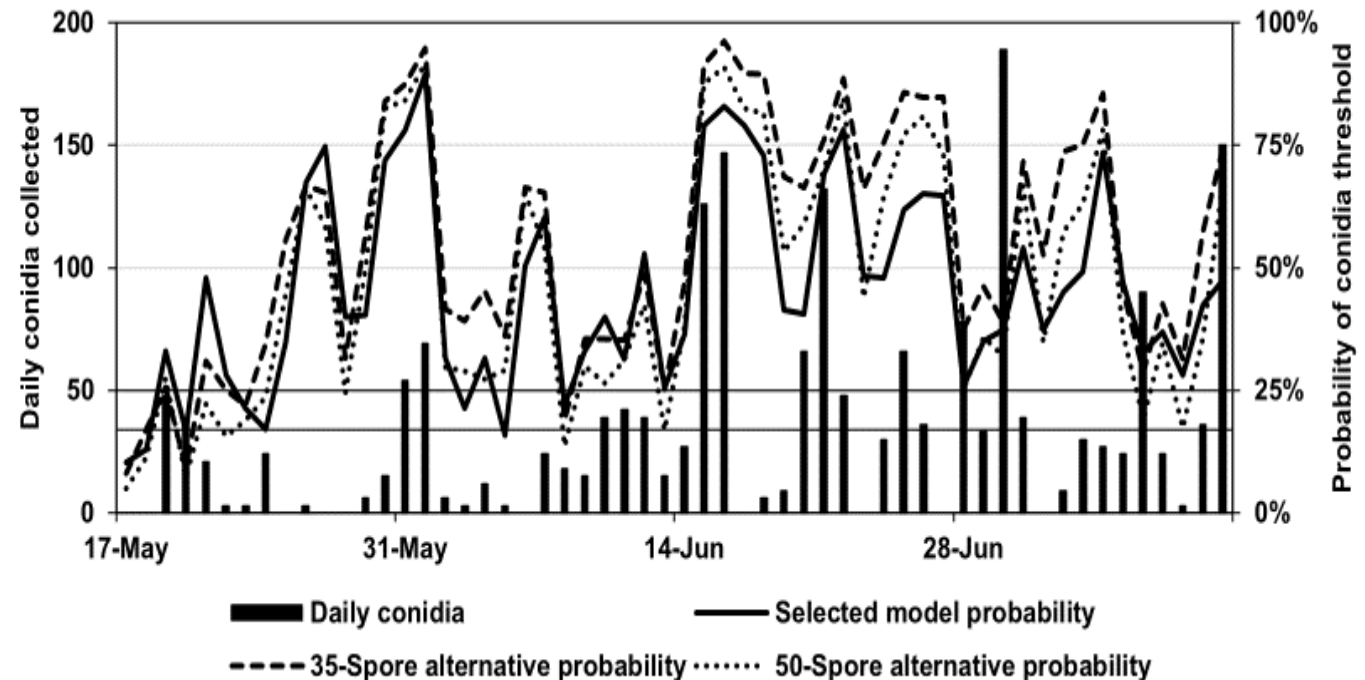
- Always tank mix systemics with an EBDC or Copper
- Use full rates
- Rotate chemistries

CLS Management: Fungicide Timing

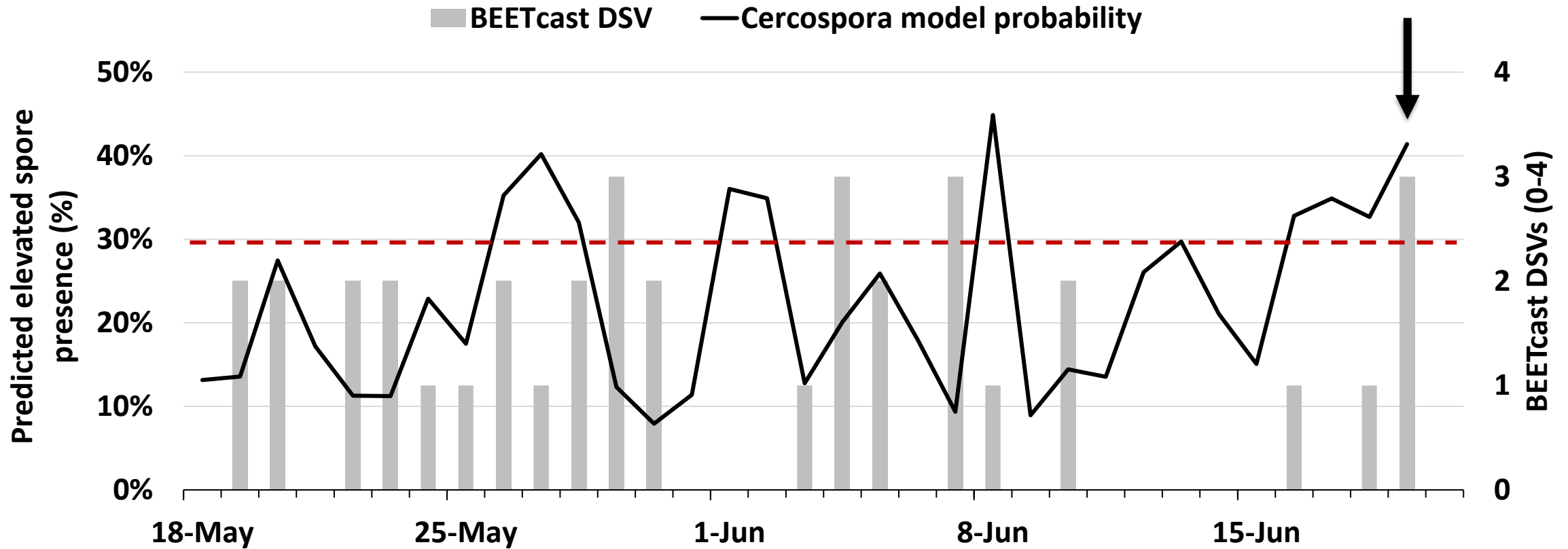
- Fungicides prevent infection from occurring
 - **Better to be early than late**
- First application
 - Typically mid- to late-June
- Later applications
 - 10 to 14 days, or when BEETcast threshold is reached



Conidia germinate and penetrate leaves through stomata



Richville/Frankenmuth Risk Predictions



Cercospora model predictions calculated from MSU Enviroweather data.

Acknowledgements

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Questions?

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