

A wide-angle photograph of a vast field of green sugarbeet plants. The plants are densely packed and stretch towards a distant horizon. The sky is overcast with grey clouds. The overall tone is somewhat muted and professional.

New Sugarbeet Specialist: Introduction and Future Directions

Dr. Eric Branch

MDFC Sugarbeet Production Seminar

February 15th, 2024

About Me

Family farm in Alexandria, MN

- Vegetables and small fruits
High tunnel crops
- High labor, high value crops
- Introduction to Extension



Education

Lifelong passion for agriculture



University of Minnesota – Twin Cities

- B.S. Plant Science
- Formal introduction to plant pathology



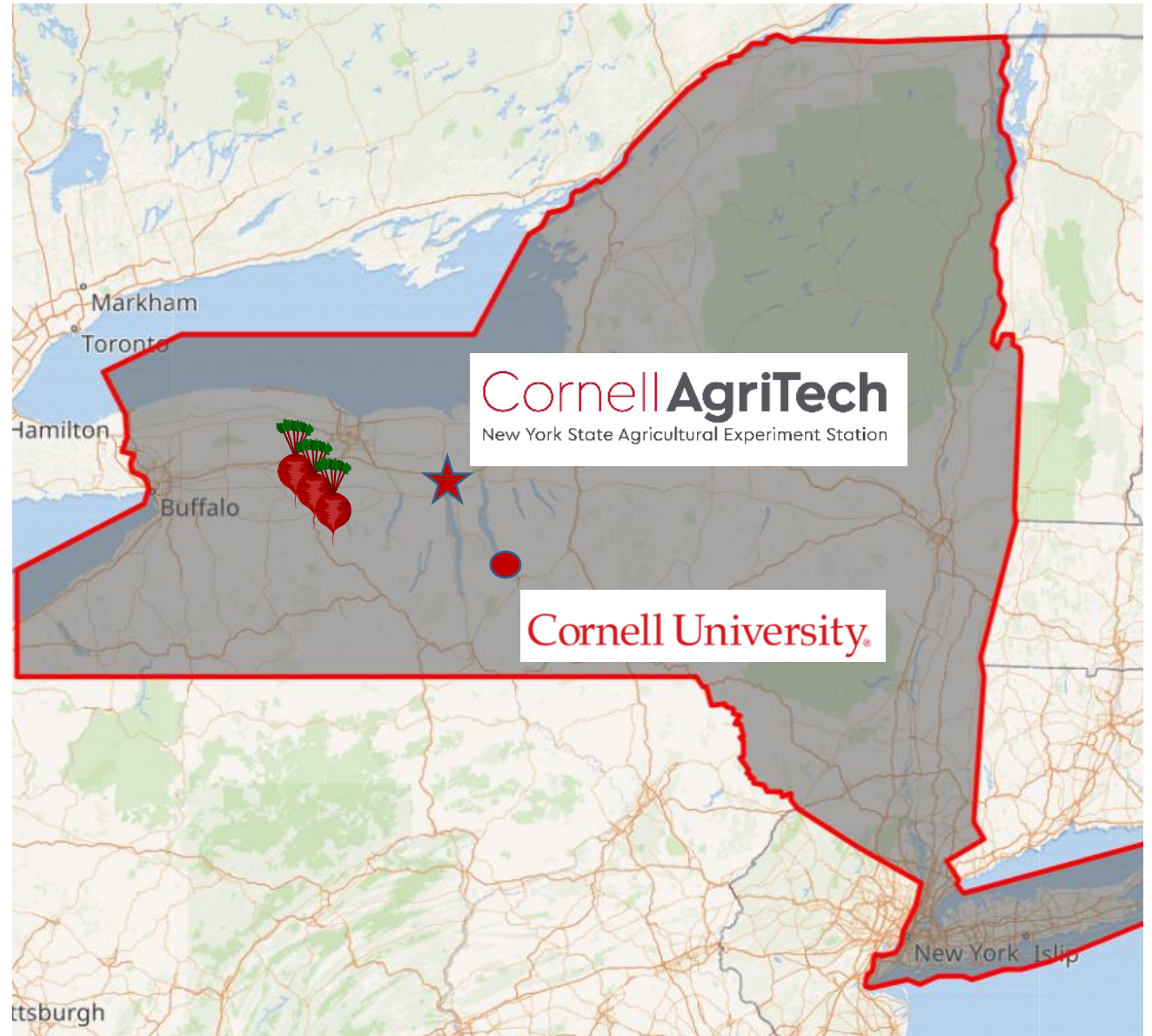
Education

Cornell University

- Plant Pathology Ph.D.

Research focus:

Management and biology of
Rhizoctonia solani in table beet



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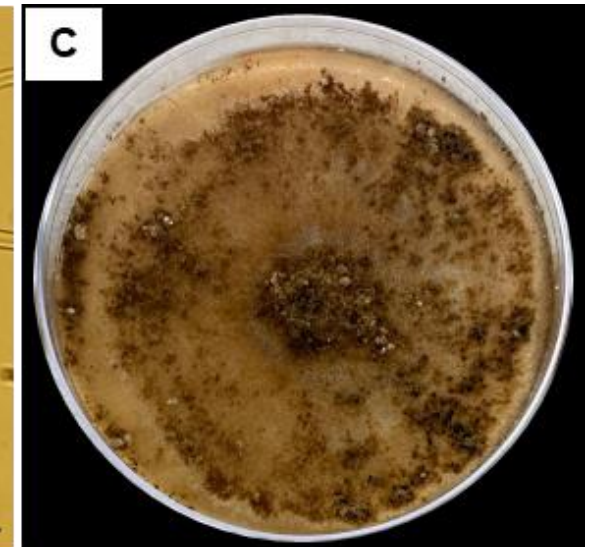
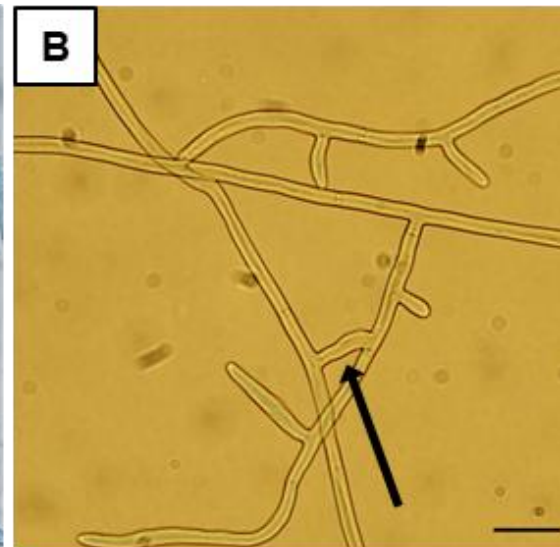
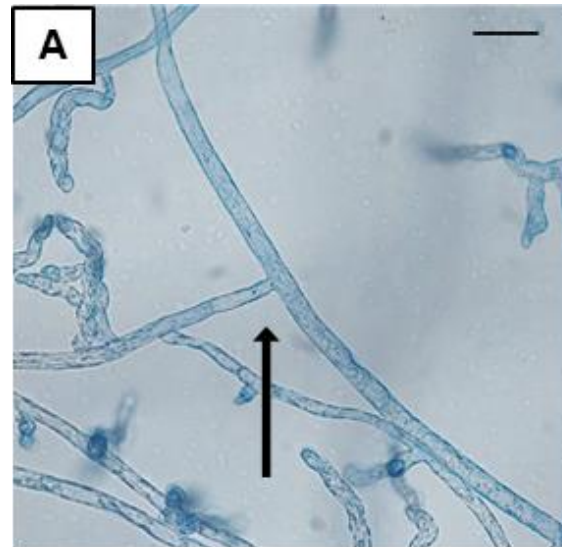


Table Beet Production in New York State

Dense plantings promote ideal root size and uniformity

- Up to 1.2 million seedlings/acre
- Ideal root diameters are between 0.75 and 2.0 inches

Top-pulling harvesters require healthy foliage

- 70-90 days after planting



Research Background:

How can we help meet **immediate** disease management goals?

Optimize use of conventional and biological pesticides

What is our **long-term** strategy for disease management?

Support healthy and diverse microbial communities

Research Background: Fungicides

Limited fungicides labeled for table beet

- No SDHI seed treatments

Azoxystrobin is the backbone of Rhizoctonia disease management

- In-furrow and/or post-emergent application?

Increasing demand for organic options for growers and processors



Research Background: Microbiomes

Greater diversity is associated with improved plant health against biotic and abiotic stressors

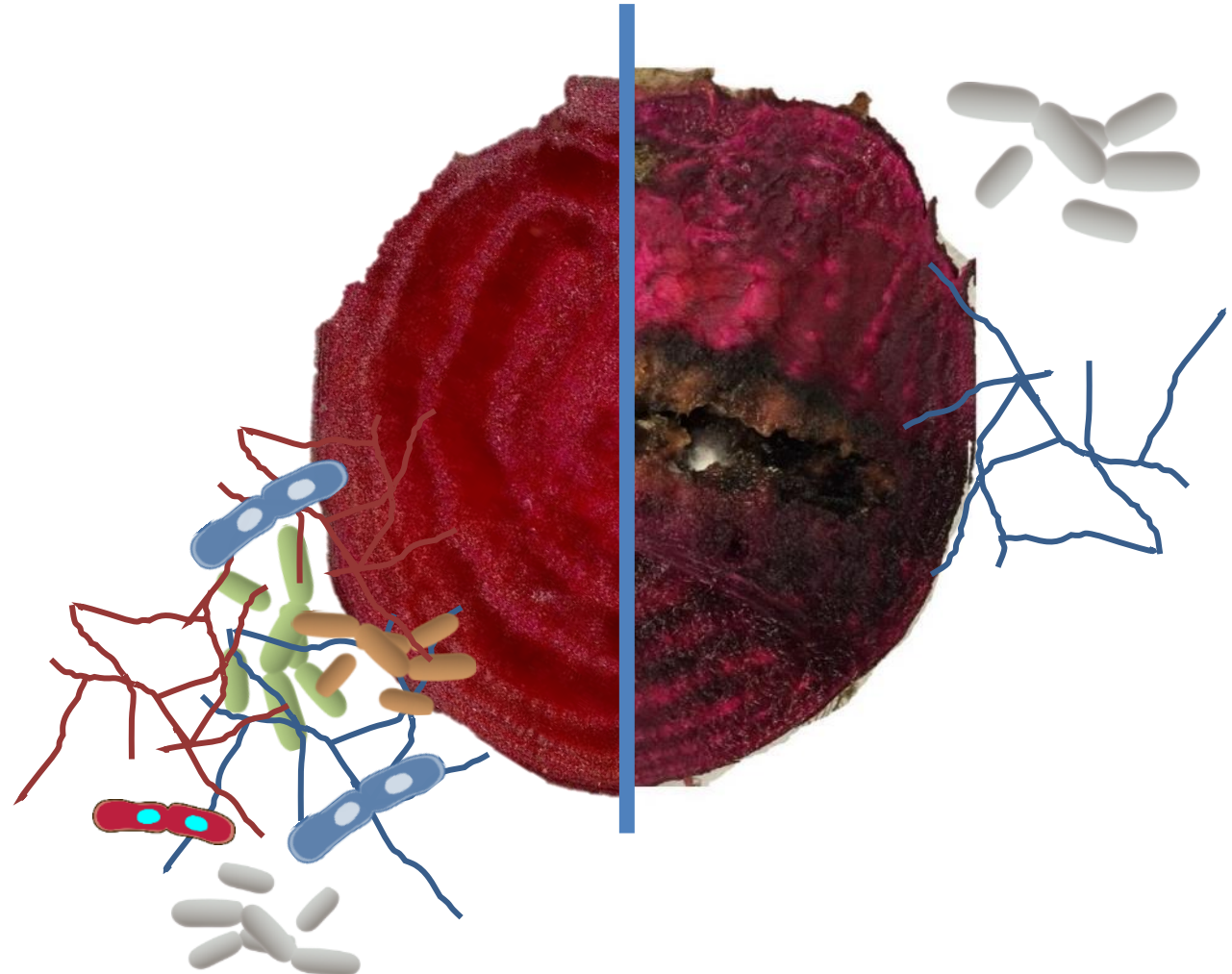
- Protecting “hub taxa” can help maintain microbiome function
- In sugarbeet, reduced microbial diversity has been associated with increased root disease

Agler et al. 2016. PLOS Biol. 8, e1002352

Chuberre et al. 2018. Front. Plant Sci. 9:1692.

Kustatscher et al. 2019. Phytobiomes J. 3:22-30.

Mauchline et al. 2017. Curr. Opin. Microbiol. 37:23-28.



Sugarbeet Extension goals

Sugarbeet Extension goals

My motivation: the land-grant mission of NDSU and UMN

- Research, Extension, and education

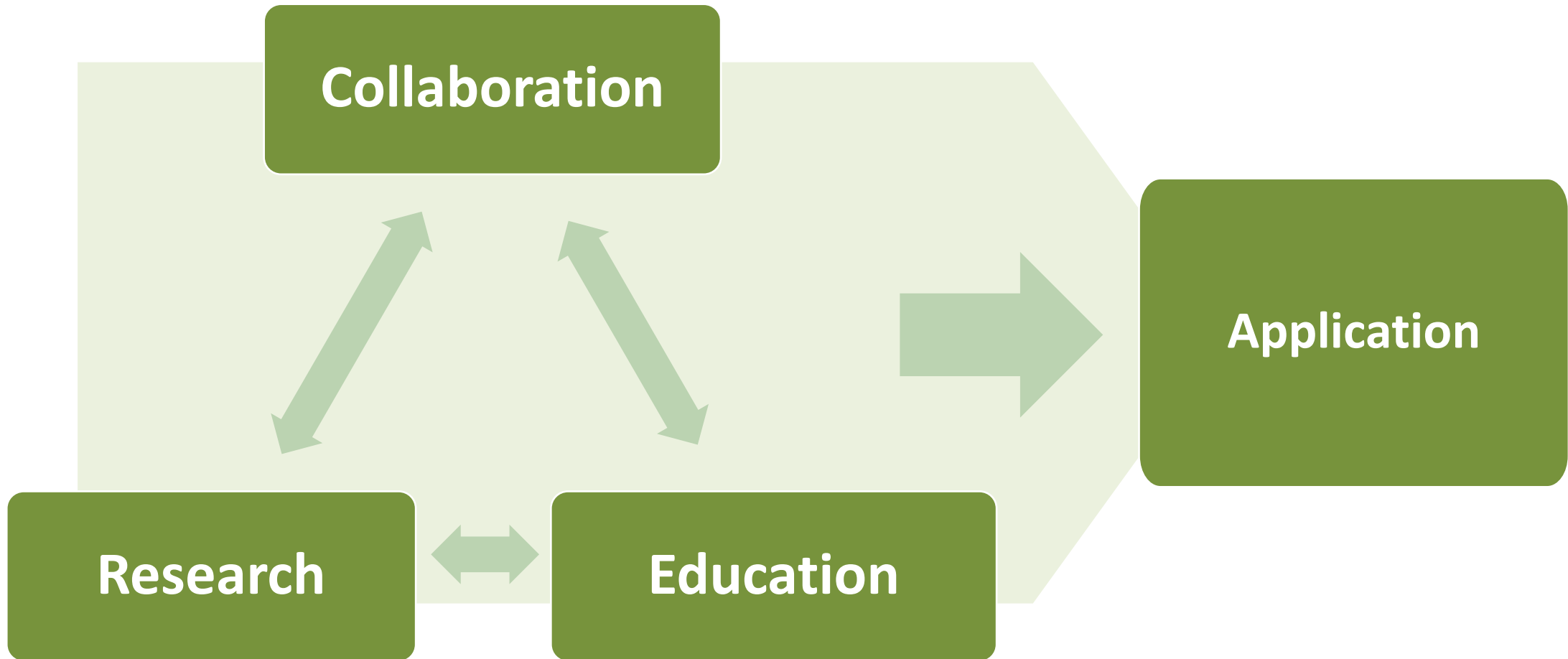
My goals:

- Long-term agricultural productivity
- Economic development and resilience
- Community vitality

Service to the agricultural community of North Dakota and Minnesota



Sugarbeet Extension goals



Sugarbeet Extension goals

1. Immediate disease management goals

Fungicide efficacy

Optimizing existing products and CR+

2. Long-term strategy for disease management

Managing fungicide resistance

Soil health

Microbiomes

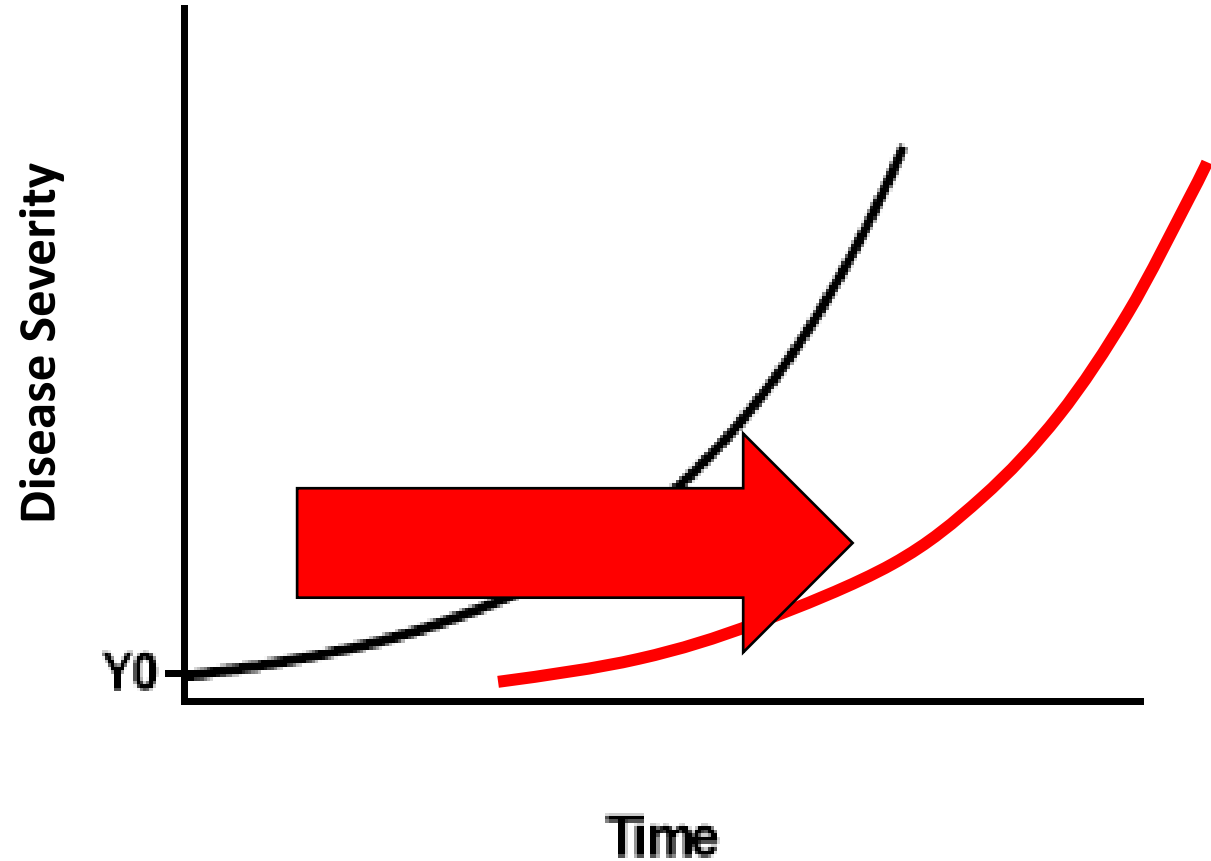
2024 Season...

Continued field trials assessing product efficacy

- Foliar and root diseases

Collaborations with USDA Sugarbeet Unit

- Fungicide resistance management
- Application timing and mode of action rotation



Contact information

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