

Efficacy of Canopy Sprays for *Cytospora* Canker

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Background

Oberlin College, Visual Art and Botany
Teaching
Farming
Plant Pathology



ABOUT ME

Why This Project?

Previous Experiences in Ag
Applications/ Impact
Important Issue Locally

INCREASING OPTIONS FOR CYTOSPORA MANAGEMENT

Starting with Peach

1. Are canopy sprays effective?
2. Are any fungi found in peach orchards potential biocontrols?

STUDIES IN PROGRESS



WHY CANOPY SPRAYS?

With Preventative Fungicides

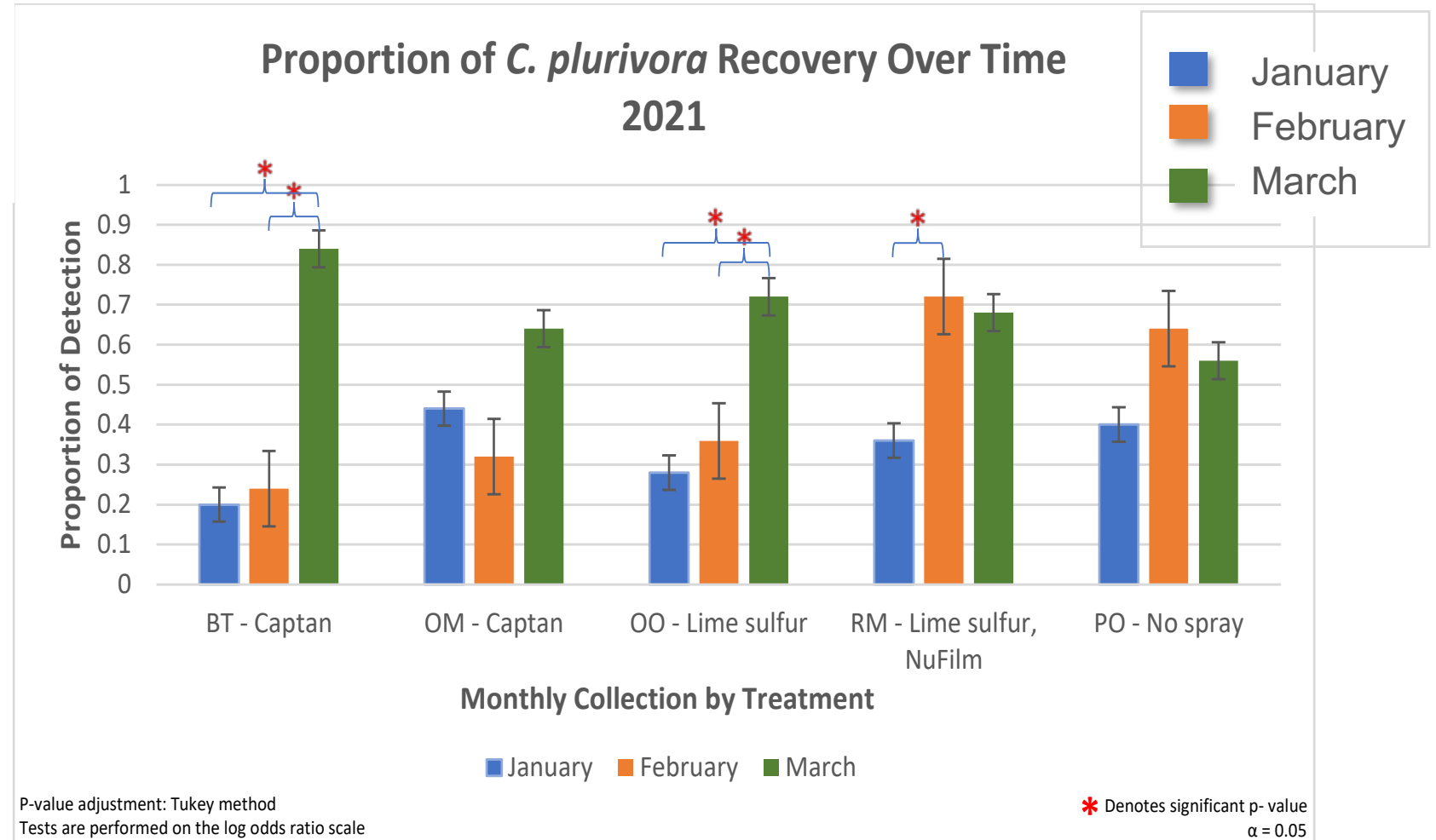
Cost of current application options

Previous evidence of Fungicide and Canopy Spray efficacy

Effective Treatments

Captan, 3 qts/acre

Lime Sulfur, 3%



INCREASING OPTIONS FOR CYTOSPORA MANAGEMENT

1. Are canopy sprays effective?
Coverage Trials
Fungicide Trials
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STUDIES IN PROGRESS



ORCHARD LOCATIONS

WCRS-Orchard Mesa, Conventional



OM 1 and 2
4-5 years, 8-10 ft
Dense Canopy



OM 3
9 years, 12 ft

WCRS-Rogers Mesa, Organic



RM 1 and 2
6 and 5 years



EQUIPMENT: AIR BLAST SPRAYERS

WCRS-Orchard Mesa
Conventional



400 gal Rears Pul-Blast

WCRS-Rogers Mesa
Organic



50 gal Rears Pak-Blast

EQUIPMENT: NOZZLES

Tee Jet Disc-Core, Full-Cone Nozzle



Nozzle Body



Slotted
Strainer



Core
DC56-
CER



Disc
D8
0.125'



Cap

**Full Cone
Spray Pattern**
Produced by Cores
#31, 33, 35 & 56

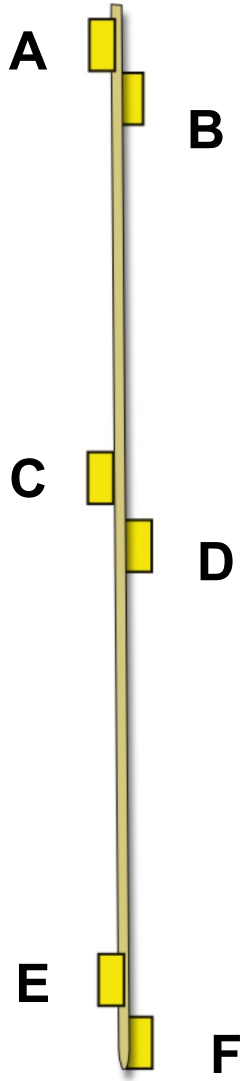
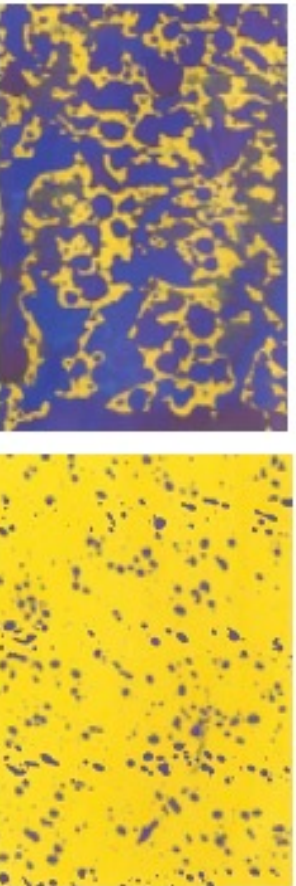


COVERAGE TRIALS

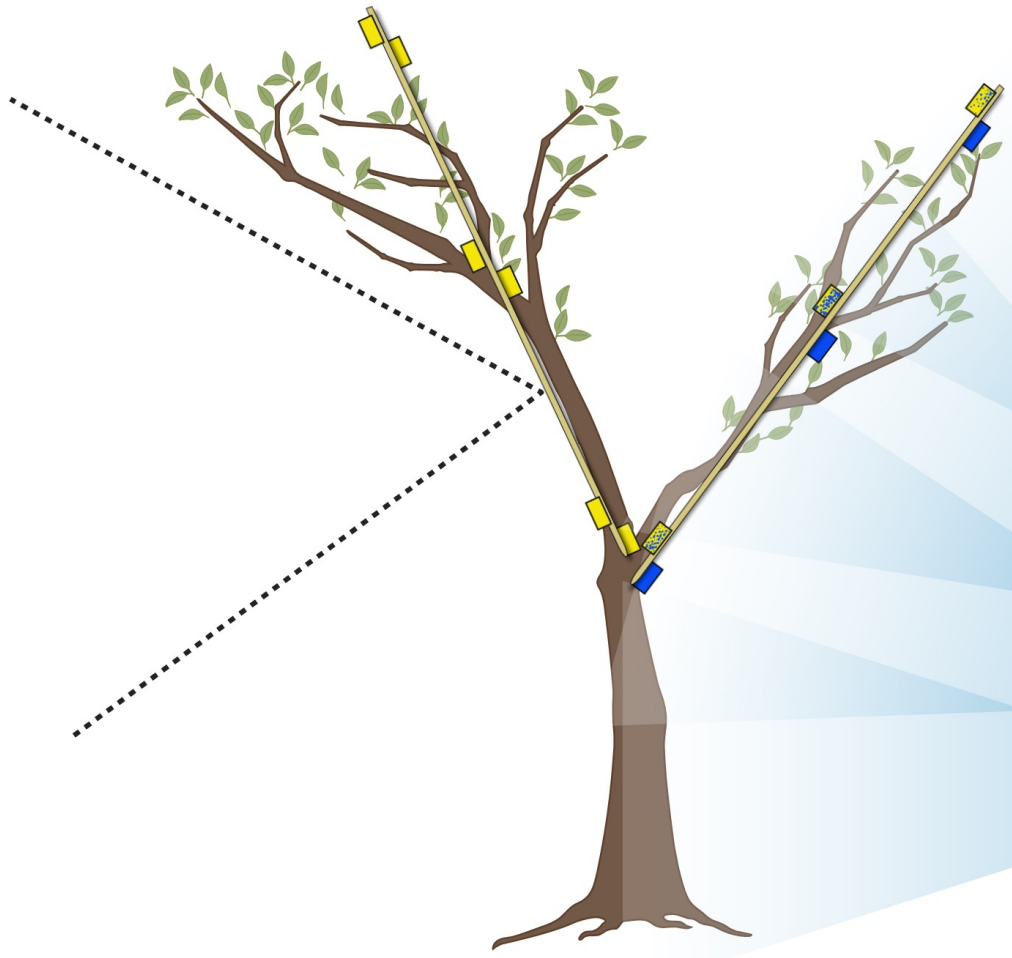


COVERAGES TRIALS

Water Sensitive Paper
(Tee-jet WSP Cards)



Bamboo Stakes



March 2023

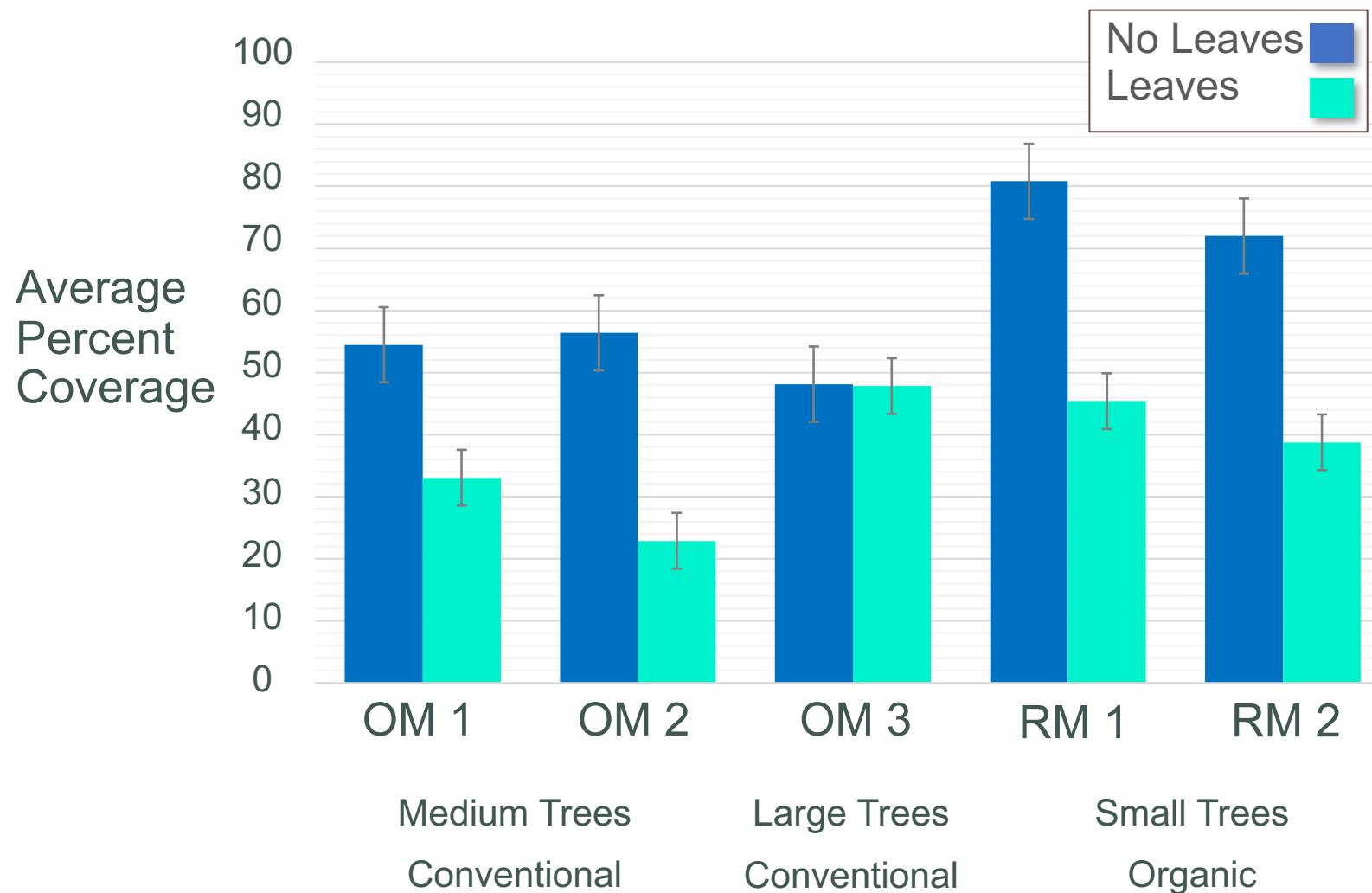


July 2023



SPRAY SEASON AFFECTS COVERAGE

Coverage was Higher when Trees were Sprayed in Spring



March 2023

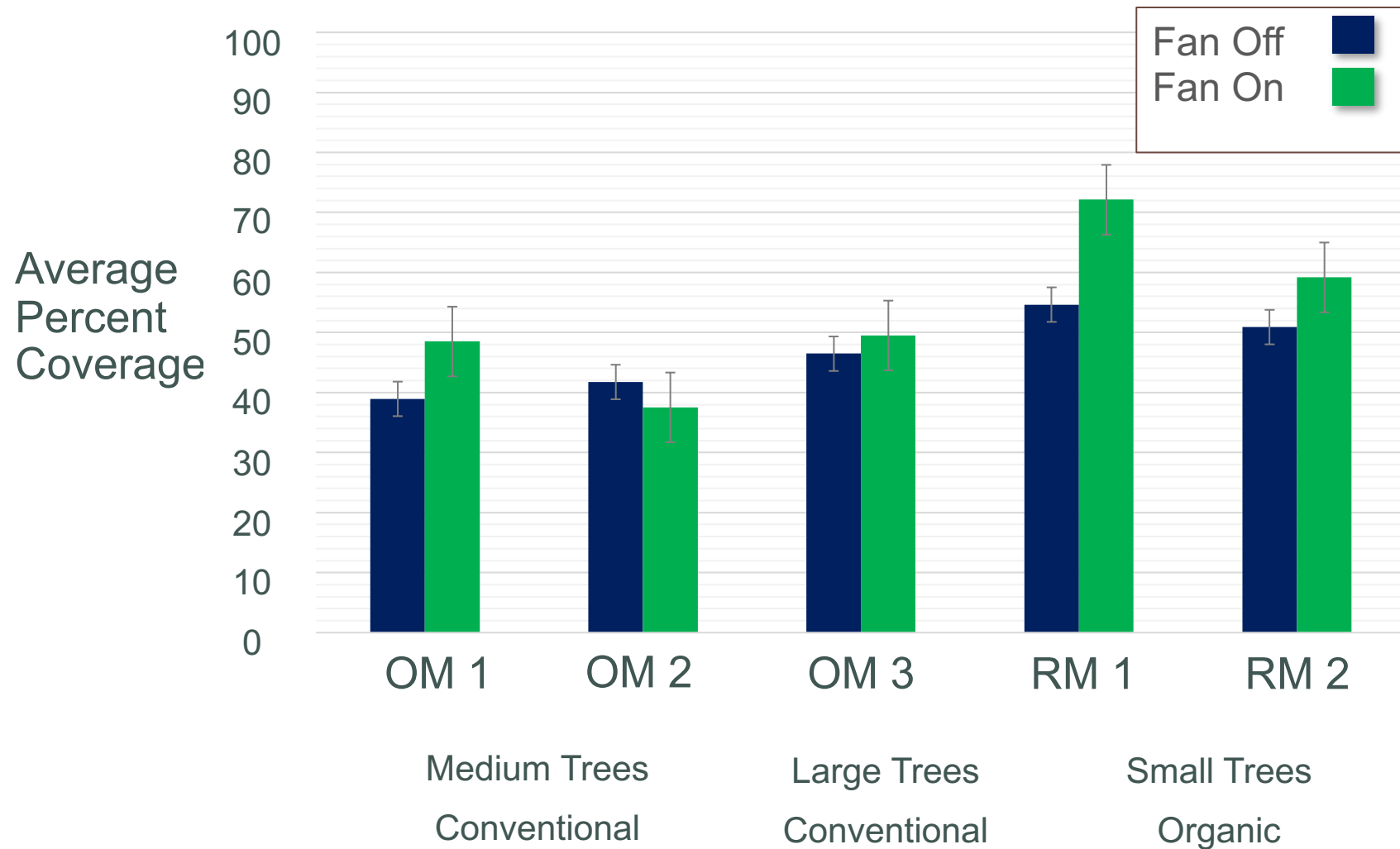


July 2023



FANS AFFECT COVERAGE

Airblast Sprayer Fan Use Increases Coverage



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STUDIES IN PROGRESS

FUNGICIDES

Captan

Conventional

Low Risk of Resistance
FRAC group M04

Applied at 3 qts/acre

(Biggs et al., 1994)
(Miller et al., 2019)
(Miller et al., 2021)



Lime Sulfur

OMRI Approved

Low Risk of Resistance
FRAC group M02

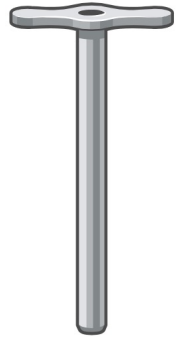
Applied at 3%

(Miller et al., 2019)
Miller et al., (2021)



FUNGICIDE SPRAY TRIALS

Wound

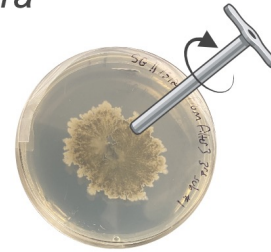


Spray



Inoculate

C. plurivora
plugs



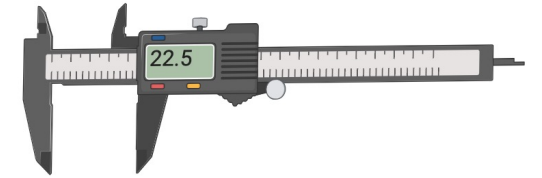
Placed on
wounds



Parafilmed



Measure



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STUDIES IN PROGRESS

POTENTIAL BIOCONTROLS

Trichoderma May Be Effective

Fungal Isolates from Peach Orchards

Laboratory Trials:

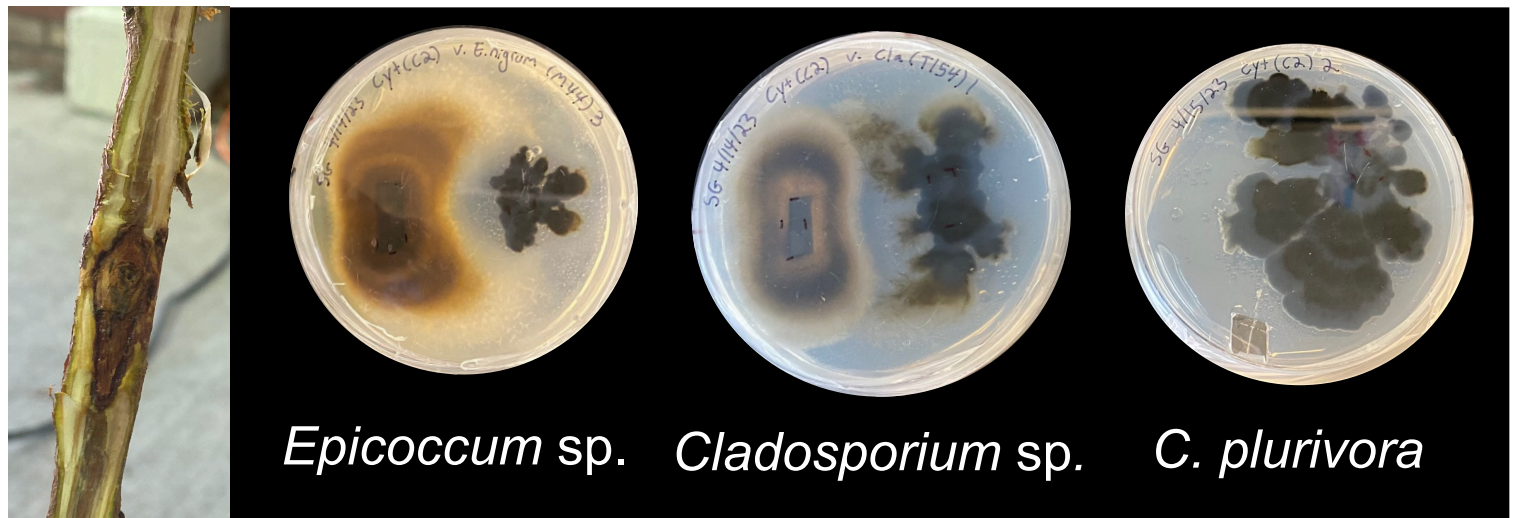
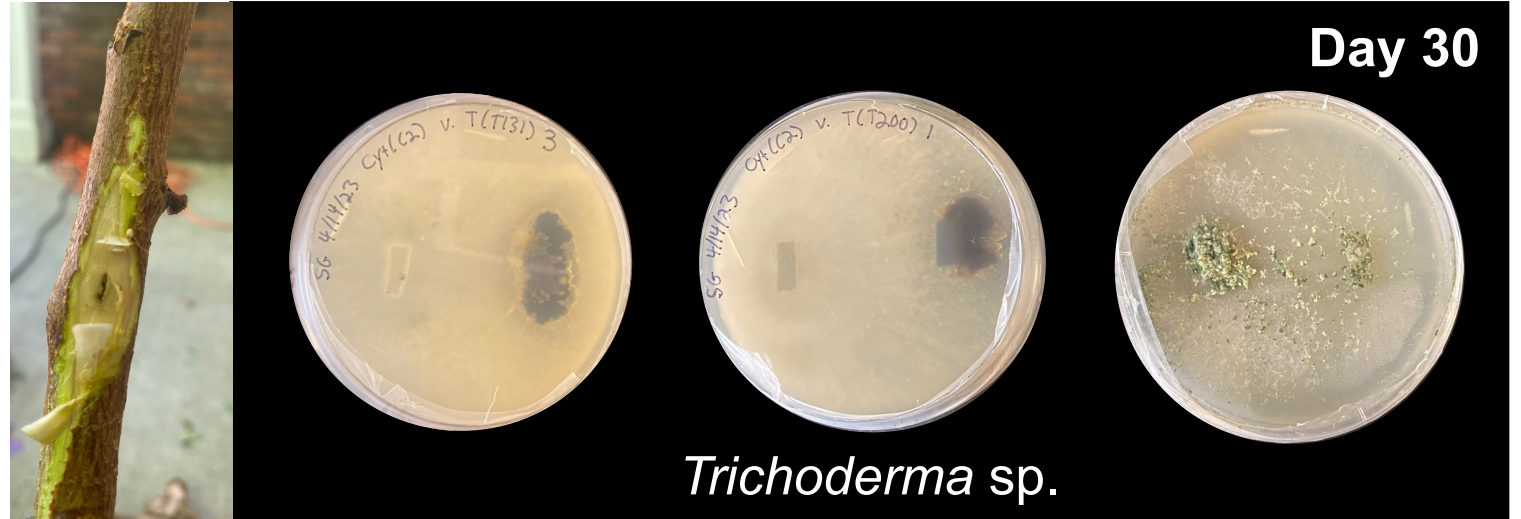
Competitive assays on petri plates

C. plurivora vs.

- *Epicoccum* sp. (3 isolates)
- *Cladosporium* sp. (3 isolates)
- *Trichoderma* sp. (2 isolates)

Field Trials:

C. plurivora vs. *Trichoderma* sp. spore solution



INCREASING OPTIONS FOR CYTOSPORA MANAGEMENT

Efficacy for:

Applications for Cherry, Apple, and
other tree fruit

Other *Cytospora* spp.

Coryneum and Powdery Mildew



FUTURE RESEARCH



USDA Specialty Crop Block
Grant Program

WCRS-Orchard Mesa Staff

Emily Dowdy, Claudie Bertin, Jeff Pieper,
Dr. David Sterle

WCRS-Rogers Mesa Staff

Dr. Brad Tonnessen and Bryan Braddy

Bruce Talbott



THANK YOU!

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