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TABLE GRAPE CONFERENCE 2026
Connecting ideas | Cultivating success

Assessing fungicides and biocontrol agents as pruning wound protectants on Richter 99 rootstock material against Grapevine Trunk Disease pathogens

Zubayr Daniels, Matthew Webber, Lizel Mostert, Yolanda Petersen, Francois Halleen and Minette Havenga

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Grapevine Trunk Diseases (GTDs)

Impact of GTDs

- Wood colonizing fungi
- Compromises the vine's vascular tissue
- Vine decline, dieback, reduced shoot growth, and delayed budburst

Most common GTDs associated with young vine decline

- Bot dieback
- Petri disease
- Phomopsis dieback



Photo by F. Halleen

Grapevine Trunk Diseases on Rootstock Mother Vines

Harvest and propagation

- Canes harvested from rootstock mother blocks for propagation of table grape cultivars
- Creates many pruning wounds

Wound infection by Grapevine Trunk Diseases (GTDs)

- Pathogen infects pruning wounds
- Infection moves systemically from heads to canes
- Affects grafting success
- Latent infections and/or premature vine decline

Currently, no registered biological or chemical control treatments are available to protect the heads of the mother vine.



Photos by W. van Jaarsveld

Van Jaarsveld *et al.* (2025) Pest Management Science.

Aim

Evaluate the efficacy of fungal and bacterial biological control agents (BCAs) alone and in combination with fungicides as pruning wound protectants

Objectives

Treatment efficacy assessed on a detached shoot assay:

1. Fungicides
2. *Trichoderma* treatments
3. *Aureobasidium* and *Clonostachys* treatments
4. Bacterial treatments

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Detached Shoot Assay

Shoots pruned

Pruning wound protectant

Pathogen after 24 hours

Re-isolations after 30 days

Pathogen incidence and severity









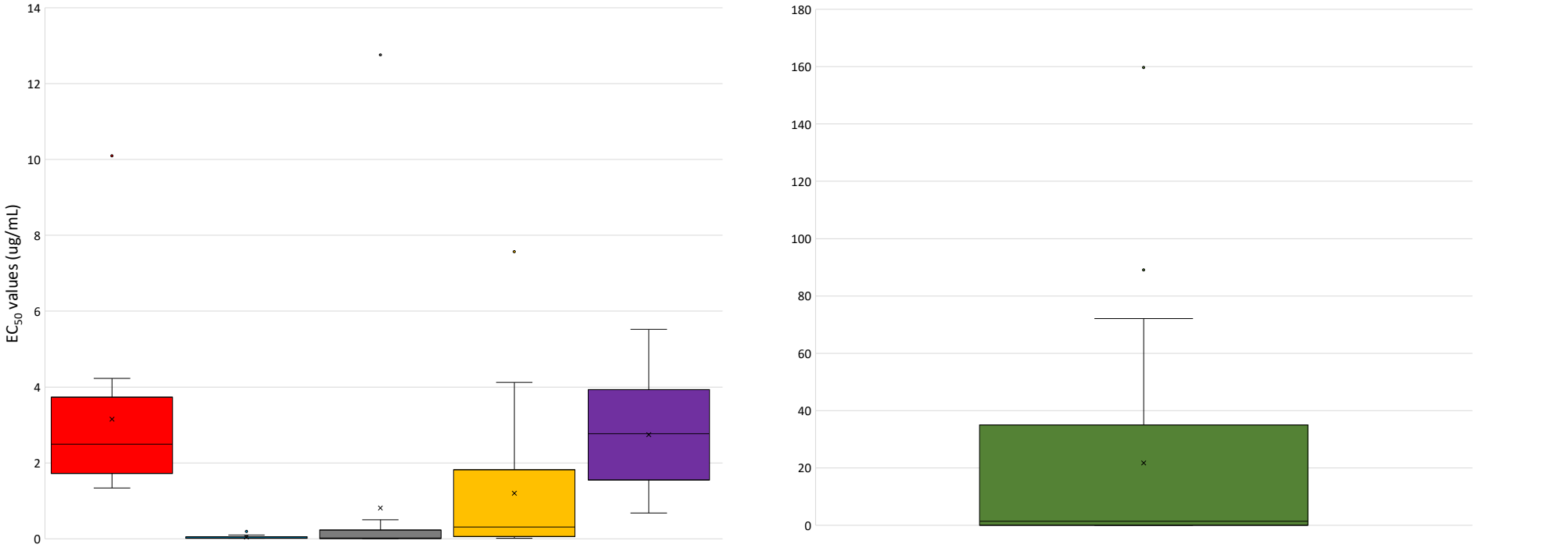


Objective 1: Fungicides

Six fungicides were tested *in vitro*

- Low EC_{50} values for all five fungicides

Include all in detached shoot assay



Objective 1: Fungicides

Evaluated against:

Phomopsis dieback

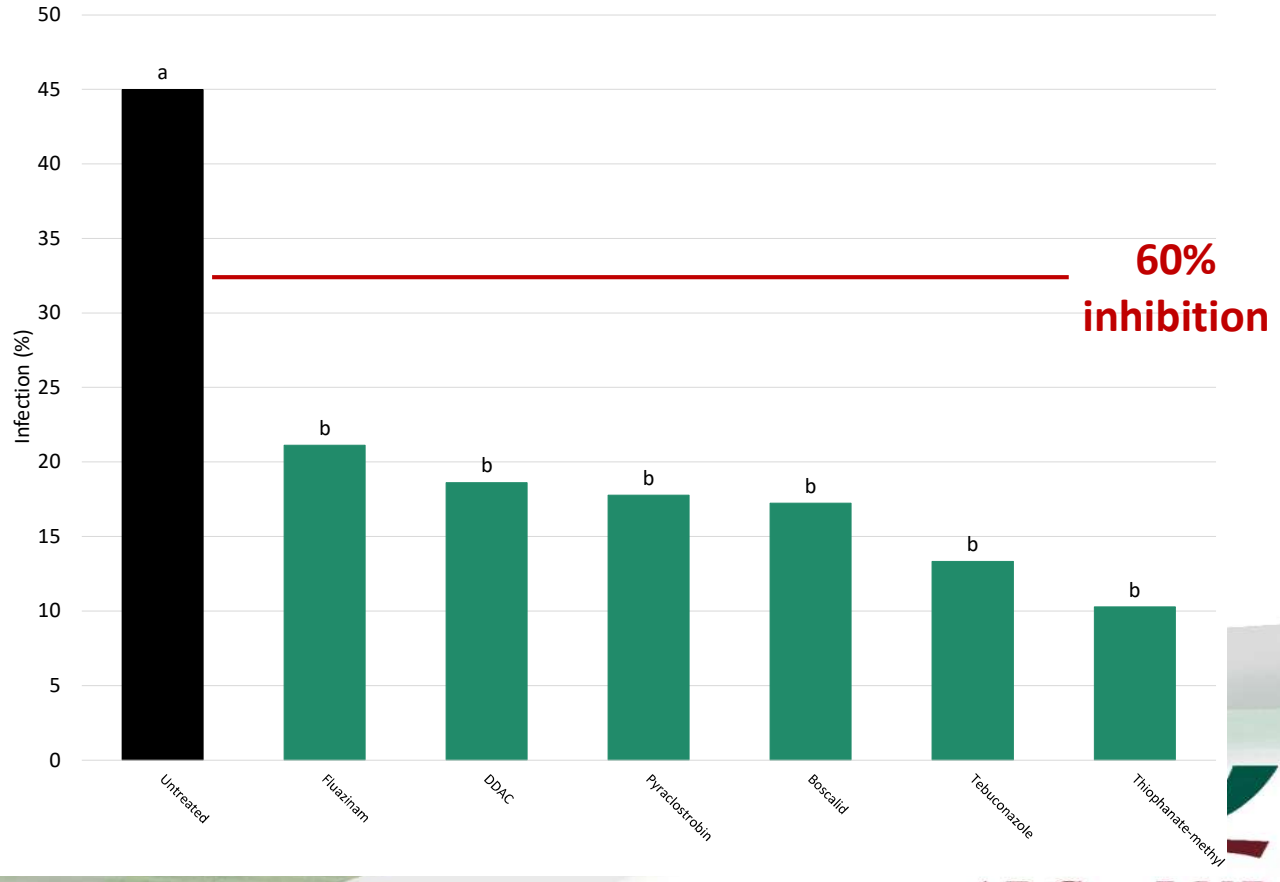
D. ampelina

Petri disease

Pm. minimum and *Pa. chlamydospora*

All fungicides equally reduced the disease incidence

Disease incidence (%) – Petri disease



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Objectives

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Fungal BCAs: *in vitro* screening for selection

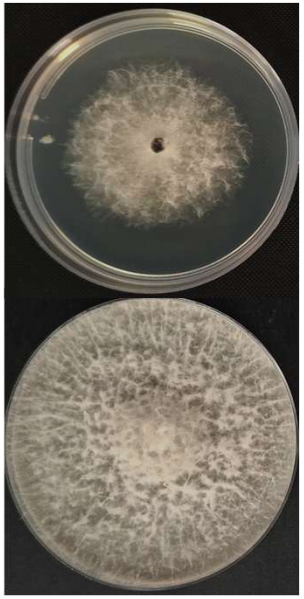
121 isolates

Metabolite production



Control

Volatile production



Control

Fungicide compatibility



Fluazinam (5 µg/mL)



Control

Detached shoot assay

16 isolates

6 combination

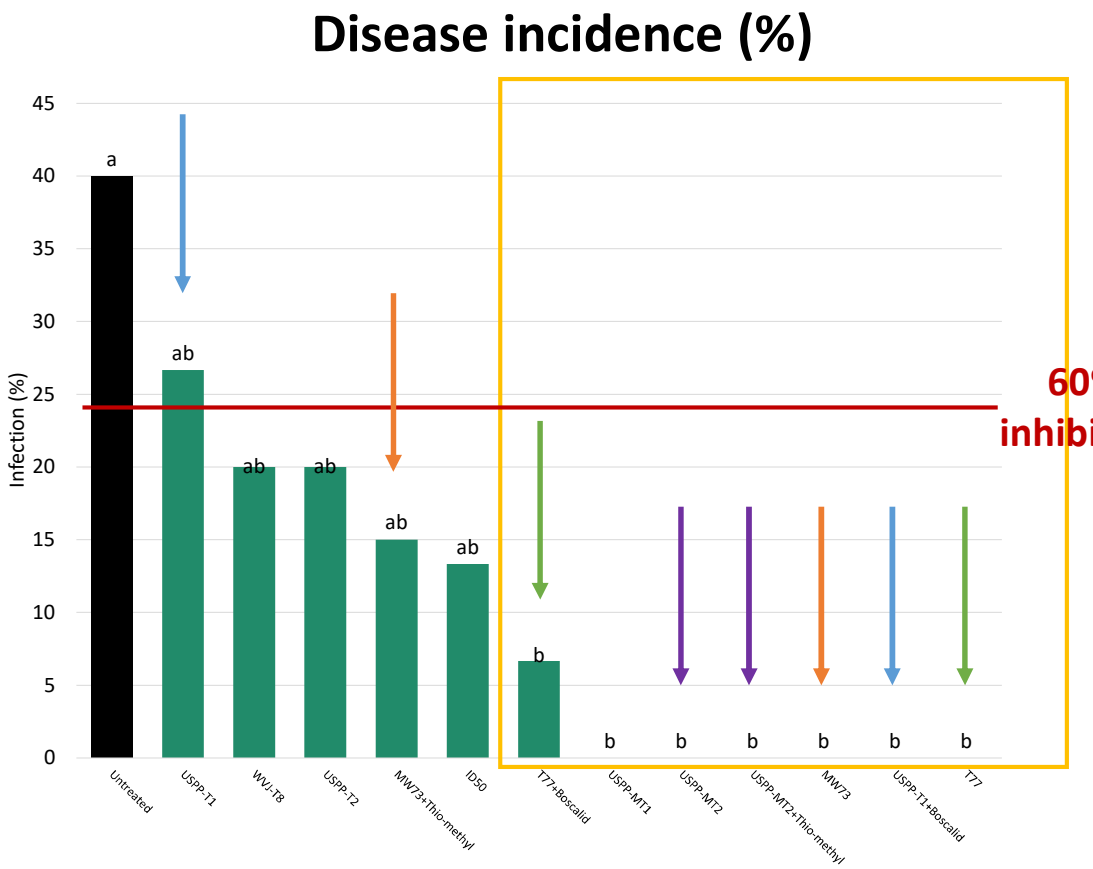


Objective 2: *Trichoderma* treatments

Evaluated against three pathogens:
Bot dieback
N. parvum
Petri disease
Pm. minimum and *Pa. chlamydospora*

7 treatments were effective

Combination treatments **did not improve** pathogen control



Objective 3: *Aureobasidium* and *Clonostachys* treatments

Evaluated against:

Phomopsis dieback

D. ampelina

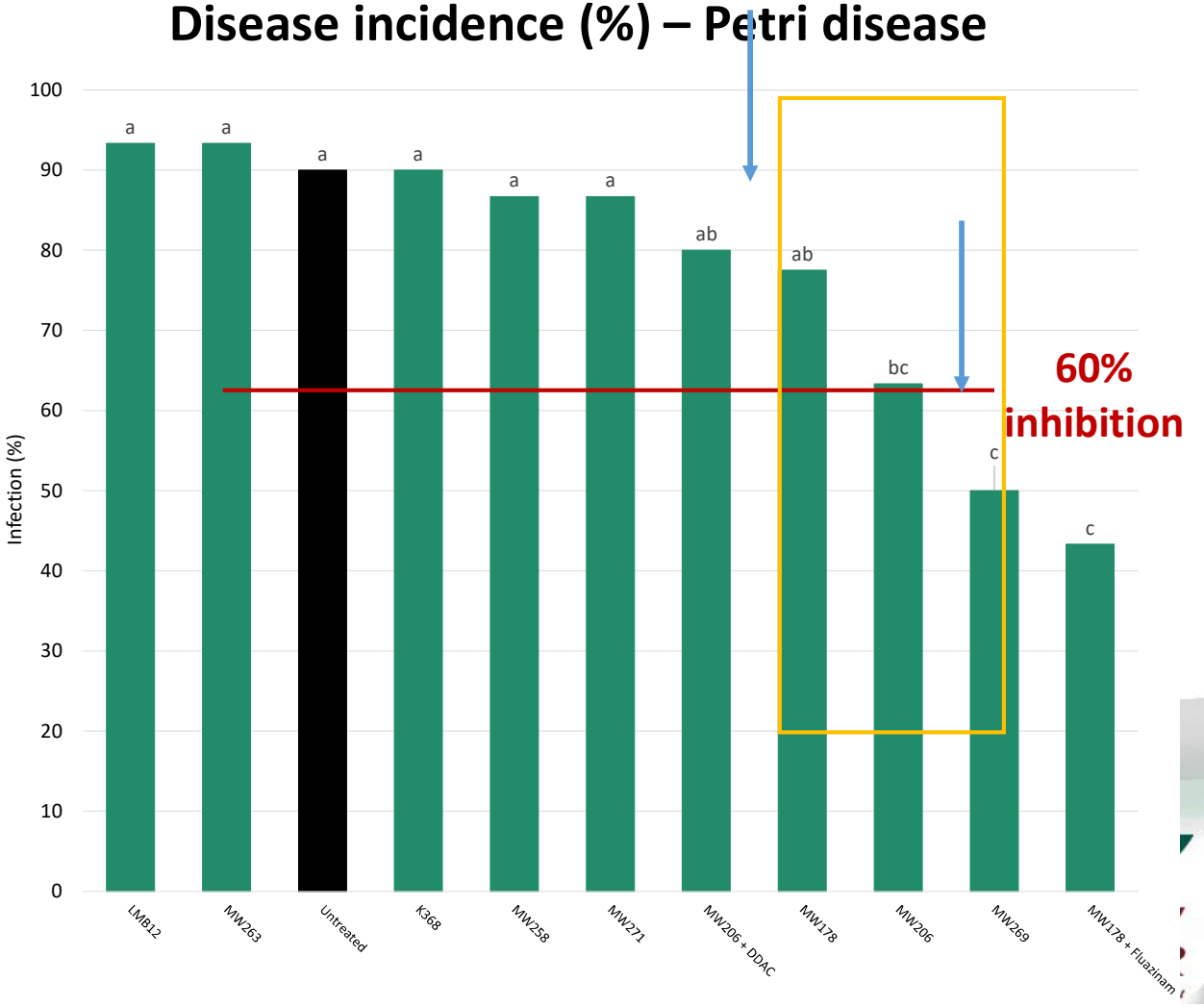
Petri disease

Pm. minimum and *Pa. chlamydospora*

3 treatments were effective

- Only 2 < 60% inhibition
- MW178 + fluazinam more effective than standalone treatment





Objectives

Treatment efficacy assessed on a detached shoot assay:

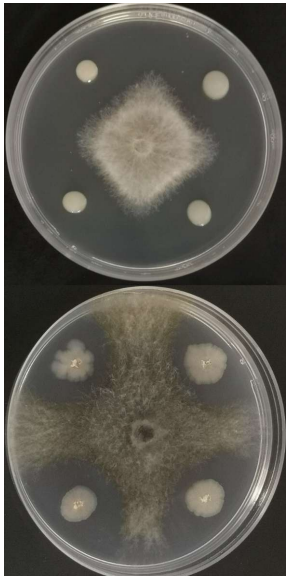
1. Fungicides
2. *Trichoderma* treatments
3. *Aureobasidium* and *Clonostachys* treatments
4. Bacterial treatments

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Bacterial BCAs: *in vitro* screening for selection

96 isolates

Growth inhibition

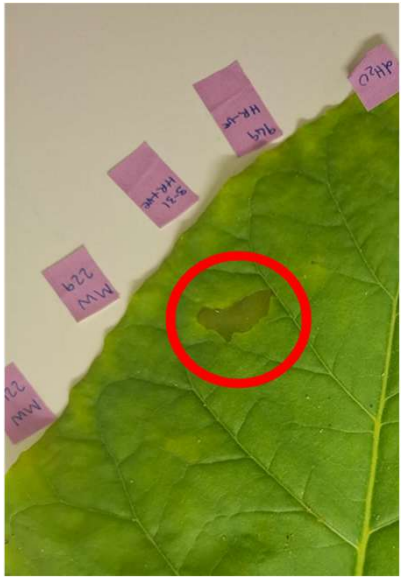


Dual culture assay

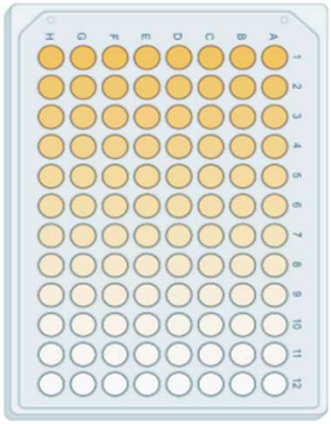


Control

Hypersensitive response



Fungicide compatibility



Detached shoot assay

8 isolates

2 combinations



Objective 4: Bacteria Trial

Evaluated against:

Phomopsis dieback

D. ampelina

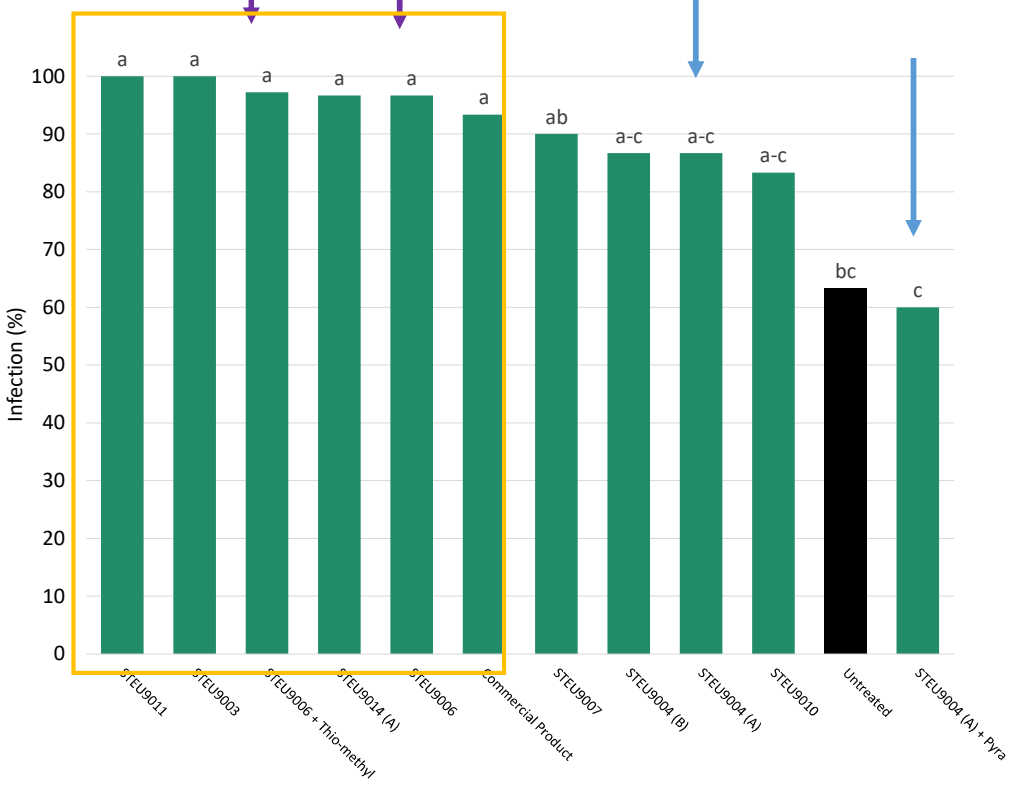
Petri disease

Pm. minimum and *Pa. chlamydospora*

No treatments were effective

- 6 treatments induced pathogen incidence
- Combination treatments did not improve pathogen control

Disease incidence (%) – Petri disease



Take Home Message

Showed promise as pruning wound protectants:

- **Six fungicides treatments**
- **Five fungal treatments**
- **Bacterial** treatments were **ineffective**
- Most **BCA-fungicide combination** treatments **did not improve** pathogen control

The **most effective treatments** are being evaluated on rootstock mother vines **in the field**





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