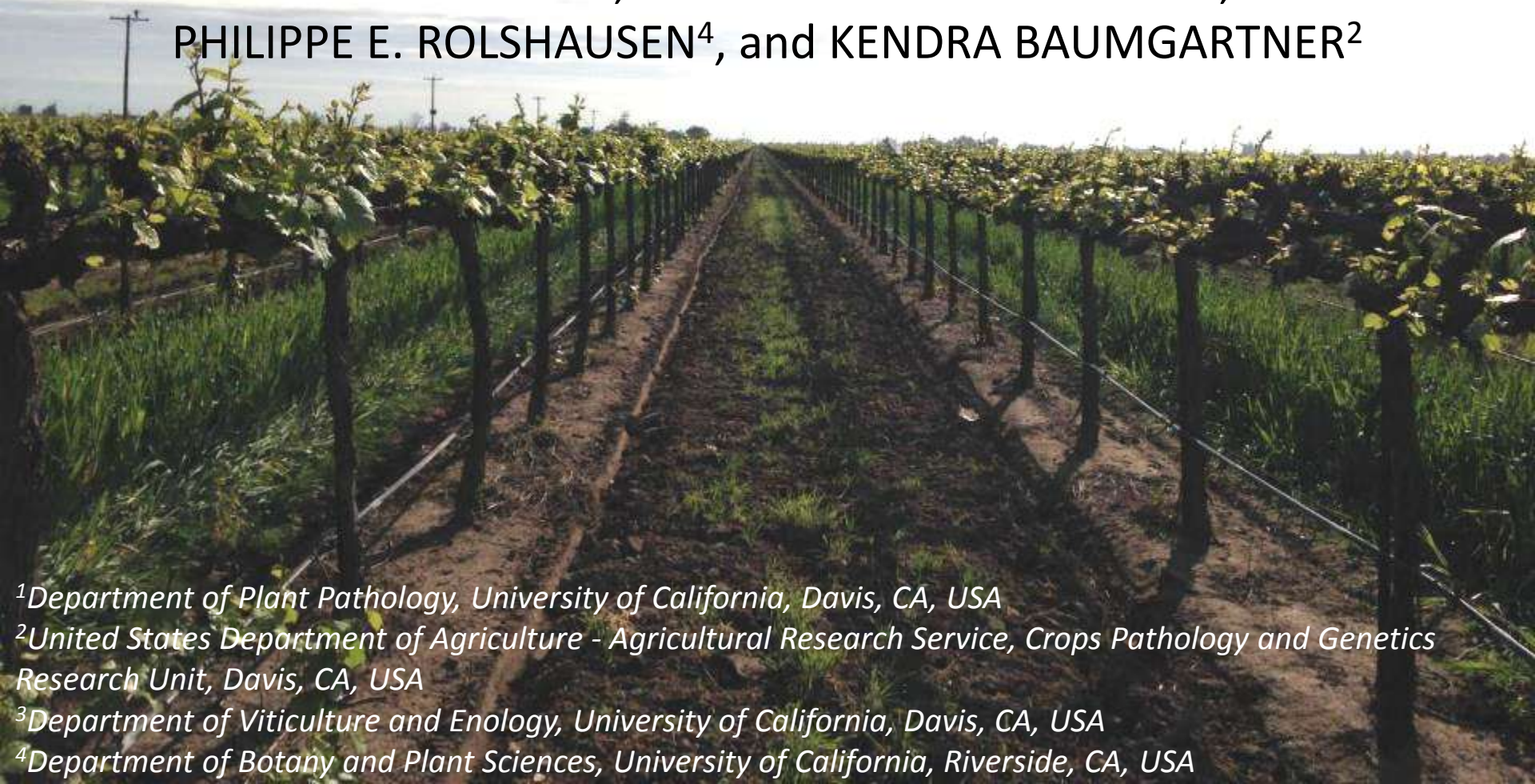


Detection of trunk pathogen inoculum in young vineyards to encourage adoption of preventative practices

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Study Objectives/Potential Applications

1. Evaluate detection tools usable by growers in their vineyard that target the spores of trunk pathogens.
2. Optimize culture- and molecular-based detection methods.
3. Preventative practices have been shown to minimize infections of pruning wounds. Therefore, if adopted in a young vineyard (asymptomatic) and used annually, we expect these practices to reduce yield losses.
4. Allow growers to better match selection and timing of practices with disease risk as it changes from week to week.

Mature Vineyards (13-15 years old)

Six mature and six young vineyards were selected in each of two counties, **Napa** and **San Joaquin**, in northern CA.



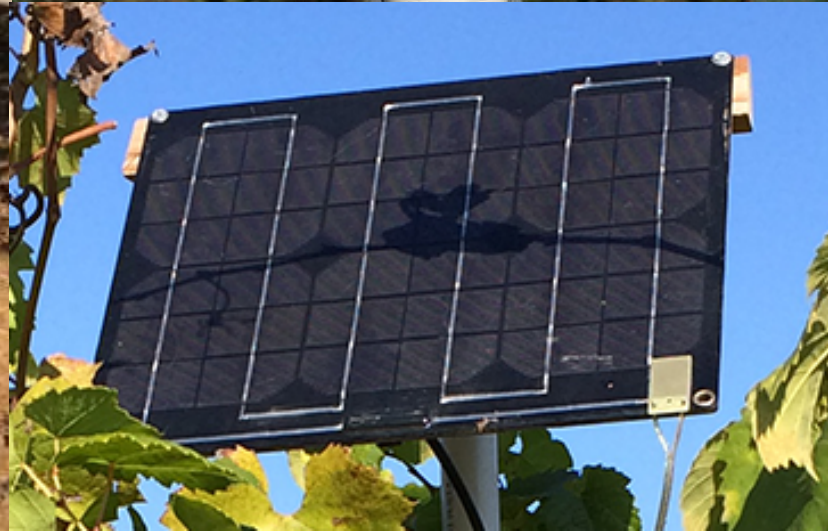
Young Vineyards (3-5 years old)



- Positioned spore trap lower in canopy
- Removed mesh
- Added moisture sensor







1. Set spore trap in the vineyard



Rotorod spore trap



Vaseline coated slide trap

2. Diagnostic lab collects traps after rain



3. Wash spores from traps



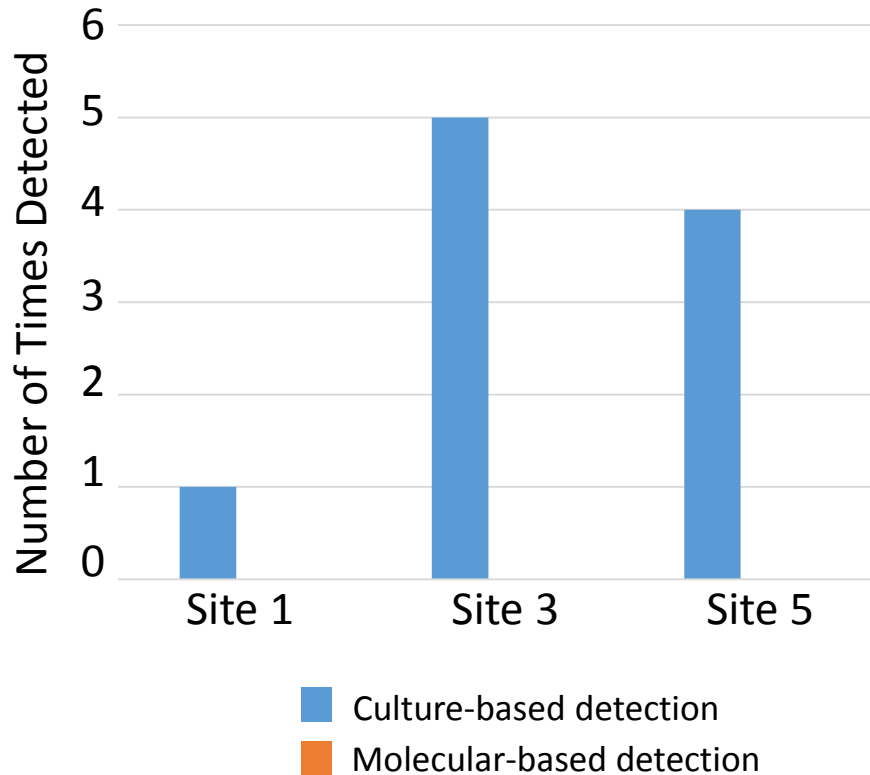
4. DNA-based assay detects DNA from spores

L 1 2 3 4 5 6

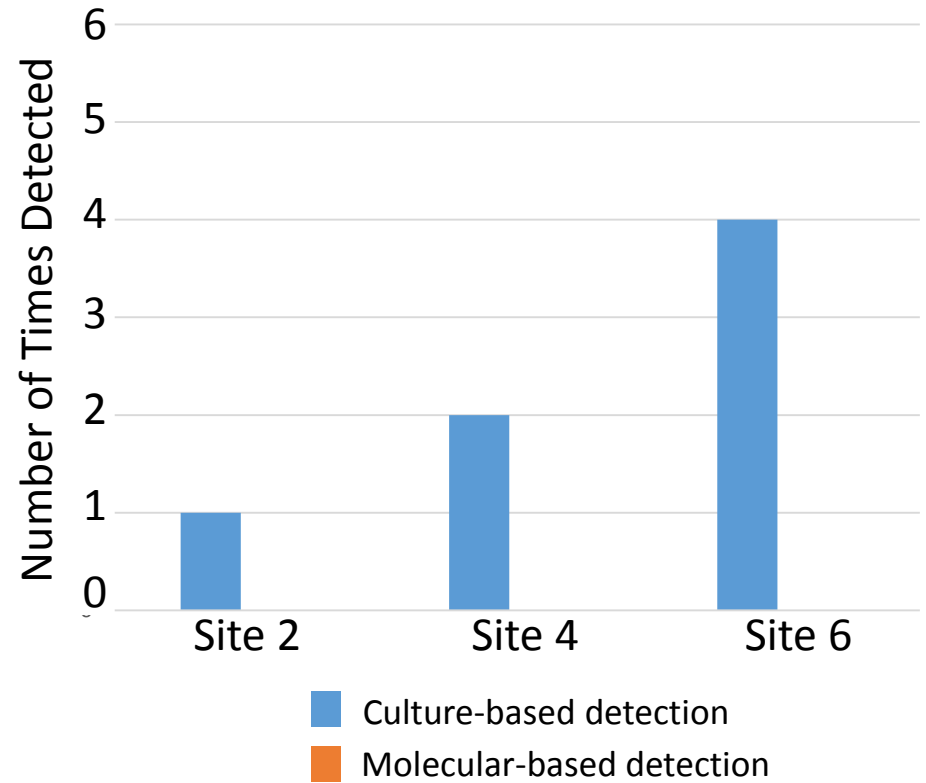


Sites with a band tested positive for the pathogen, whereas sites with no band the pathogen was not detected.

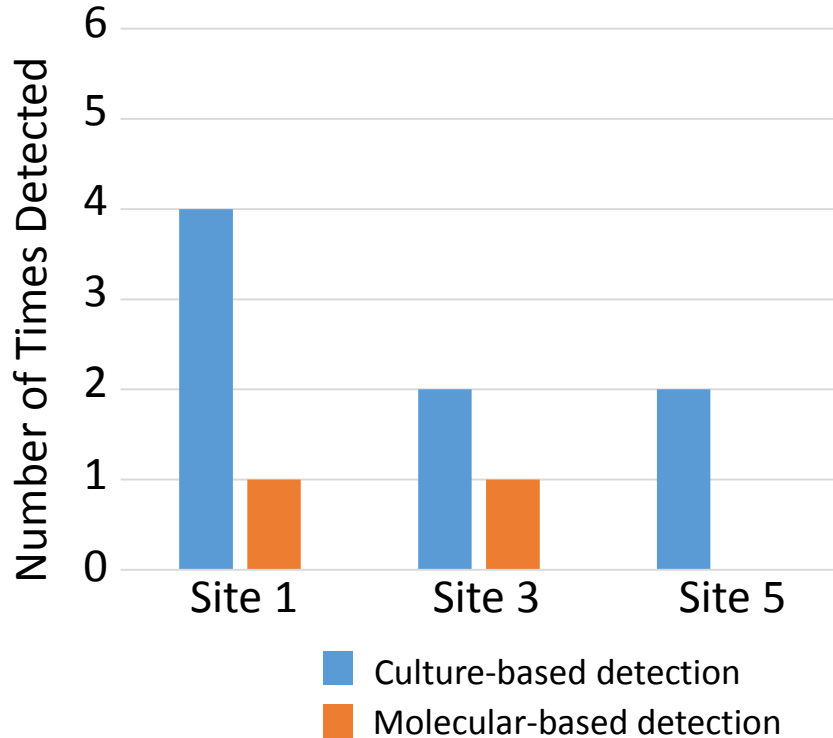
Lodi – Mature Vineyards – *Eutypa*



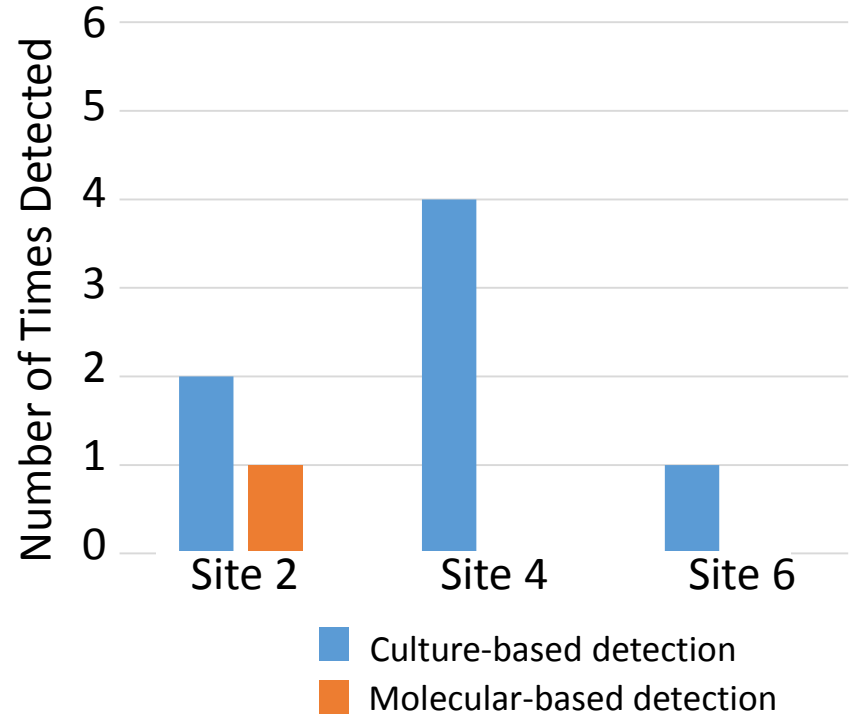
Lodi – Young Vineyards – *Eutypa*



Lodi – Mature Vineyards – *Botryosphaeria*

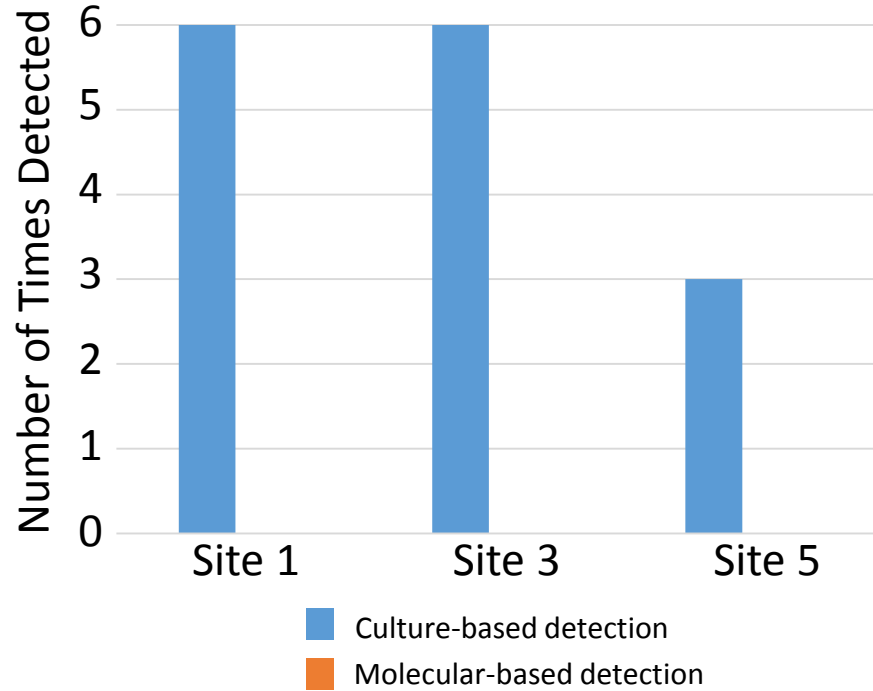


Lodi – Young Vineyards – *Botryosphaeria*

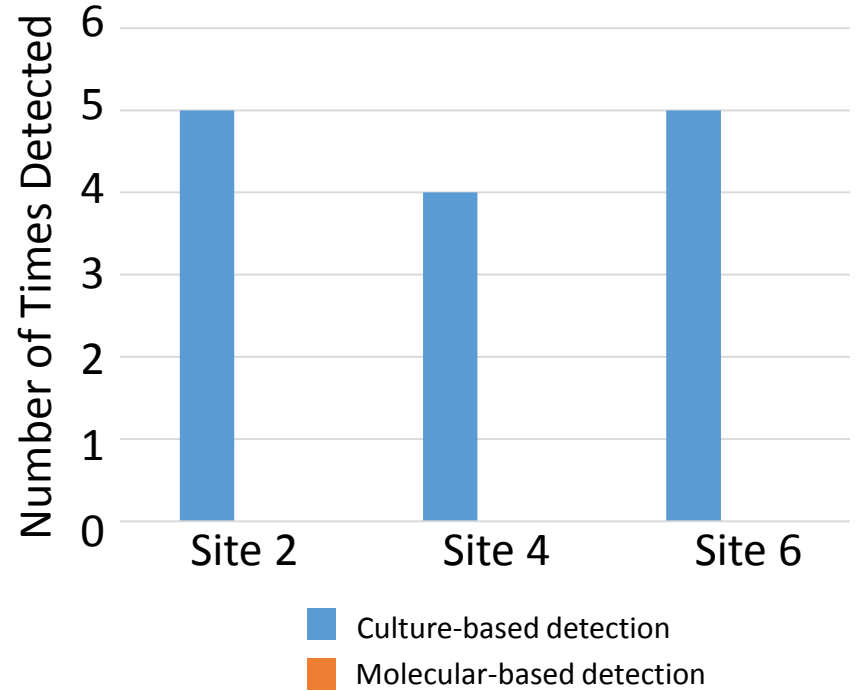


Culture-based detection included Botryosphaeriaceous fungi.
Molecular-based detection was specific to *Neofusicoccum parvum*.

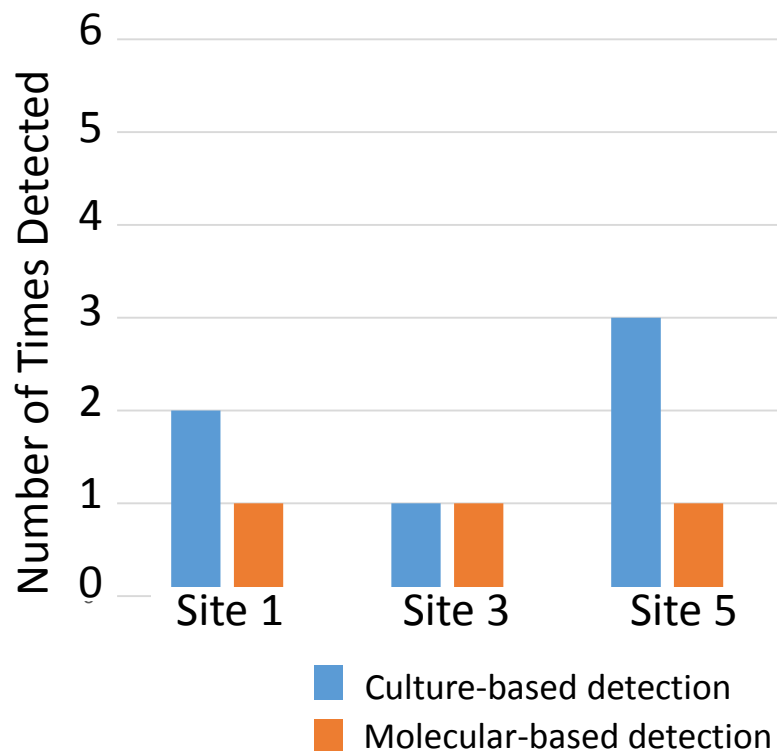
Napa – Mature Vineyards – *Eutypa*



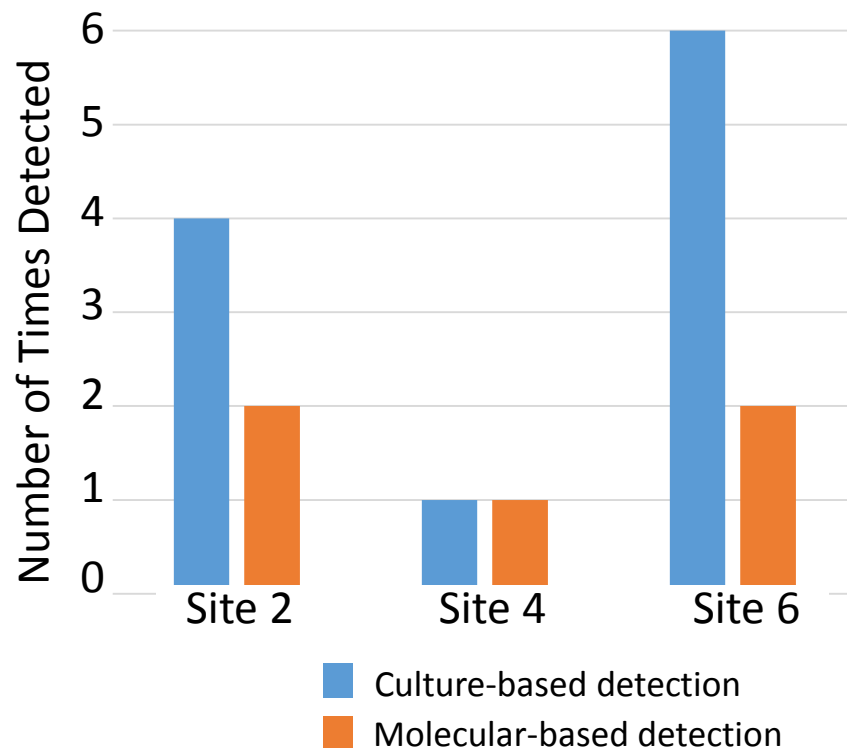
Napa – Young Vineyards – *Eutypa*



Napa – Mature Vineyards – *Botryosphaeria*

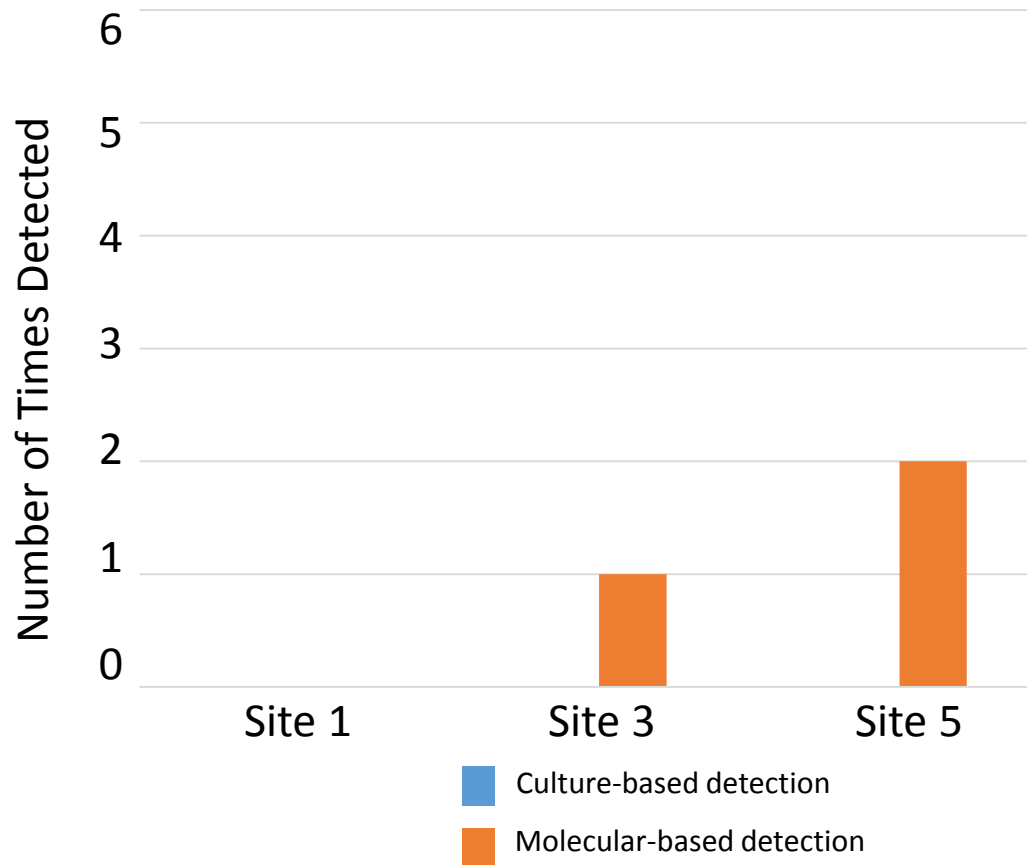


Napa – Young Vineyards – *Botryosphaeria*



Culture-based detection included Botryosphaeriaceous fungi.
Molecular-based detection was specific to *Neofusicoccum parvum*.

Napa – Mature Vineyards – *Phaeomoniella*



Phaeomoniella was only detected by molecular means in two mature Napa vineyards.

Summary and Tentative Conclusions

Eutypa was detected in all sites, regardless of age, via culturing, but not by molecular means.



Eutypa lata

Botryosphaeriaceous species were detected in all sites, regardless of age, by cultural means.

Neofusicoccum parvum was detected by molecular means in mature and young vineyards.



Botryosphaeriaceae



Neofusicoccum parvum

Phaeomoniella was only detected two mature vineyards in Napa via molecular detection.

Trunk pathogens can be detected via culture- and molecular-based means in young (asymptomatic) vineyards. Thus supporting the use of preventative practices early in the life of vineyards to extend productivity and longevity.

Acknowledgements

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Kevin Phillips

Bruce Fry

Kurt Gillespie

Madeline and Joe Spano

Joe Valente

Katey Taylor

Will Drayton