

Rapid Diagnostic University of California, Davis publication support 2022

Mundy DC

June 2022

1 Activity in 2022

Funding from the Marlborough Research Centre Trust (MRC) has enabled the development and continued support of pathology interactions with staff at the University of California, Davis (UCD) campus including members of the pathology department, students and embedded United States Department of Agriculture (USDA) pathologists. Support by the MRC has also allowed interaction with multidisciplinary staff based at Bordeaux Sciences Agro to develop diagnostic methods of use for UCD and New Zealand.

During the period 1 July 2021 to 30 June 2022 it was not possible to travel to University California, Davis campus or Bordeaux Sciences Agro to work on joint publications so virtual meetings and emails have been the methods of communication. We have been active in publishing and our latest grapevine trunk disease (GTD) publication (Vanga et al. 2022) acknowledges our work with Daniel Lawrence, UCD to compare our results with their large database of verified DNA sequences for causal agents of GTD. This publication builds on previous joint publications with the Davis group (Travadon et al. 2017; Mundy et al. 2020).

The New Zealand Institute for Plant and Food Research Limited (PFR) staff in Marlborough have continued experiments in the MRC tunnel house, allowing us to link DNA and chemical sampling conducted in the 2021 season with external symptoms on mature potted plants during the 2022 season. These experiments, involving infecting mature vines with GTD and following the progression from infection to symptom expression, would not have been possible without the facilities provided by the MRC. Understandably growers are reluctant to allow researchers to infect healthy vines with trunk disease and monitor those vines over a number of years until they die. The tunnel house also provides a controlled environment that reduces the chance contamination from field infections during the experiments.

We plan to continue publishing results from our work with the wider scientific community and industry to add to the growing body of GTD research, in New Zealand and overseas. The MRC publication support has also enabled PFR to gain Nelson Marlborough Institute of Technology (NMIT) funding to prepare botrytis research summaries of past experimental work in the form of a literature review for students and have these results published and accessible to industry.

2 References

Mundy DC, Brown A, Jacobo F, Tennakoon K, Woolley RH, Vanga B, Tyson J, Johnston P, Ridgway HJ, Bulman S 2020. Pathogenic fungi isolated in association with grapevine trunk diseases in New Zealand. *New Zealand Journal of Crop and Horticultural Science* 48: 84-96.

Travadon R, Mundy DC, Baumgartner K 2017. Developing a model system for studying the interactions between *Vitis vinifera* and *Eutypa lata*. *Phytopathology* 107: S5.193-194.

Vanga BR, Panda P, Shah AS, Thompson S, Woolley RH, Ridgway HJ, Mundy DC, Bulman S 2022. DNA metabarcoding reveals high relative abundance of trunk disease fungi in grapevines from Marlborough, New Zealand. *BMC Microbiology* 22: 126.

Confidential report for:

Marlborough Research Centre Trust
Client project: MRCT Rapid ID of Grapevine Trunk

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