

# App- lied science

## Tech predicts future disease risk in vineyards

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Assessing the impact of climate change on a vineyard 30, 50 or 80 years in the future can feel like crystal ball gazing, says Plant & Food Research Senior Scientist Dion Mundy. But a new digital tool is using research results to provide guidance on the risk of powdery mildew and grape botrytis bunch rot anywhere in New Zealand in the mid and late century, under different climate change scenarios.

**“Why shouldn’t we have rich information about the likely impacts of climate change and plant diseases for horticulturists about to plan the next 30 to 50 years of production?”**  
Dion Mundy

“If you are looking at purchasing a new block of ground, planning for farm succession, or redeveloping a block, then understanding possible changes in disease risk due to climate change are worth thinking about,” says Dion, who introduced growers and landowners to the technology at WinePro in Blenheim in late June. “The first two questions that normally come to mind are, will risk increase? and what will that cost be compared with today’s costs?”

The Changing Climate: Disease Risk & Costs tool was created as part of the Our Land and Water (Toitū te Whenua, Toiora te Wai) National Science Challenge, as a collaboration between Plant & Food Research, Lincoln University, HortPlus, Applied Research and Technologies, and NIAB East Malling in the United Kingdom, using advice and climate data from NIWA. As well as vineyards, the platform is designed to show risk profiles in apple orchards, helping with climate adaptation planning, with “easy-to-digest” information in the two industries.

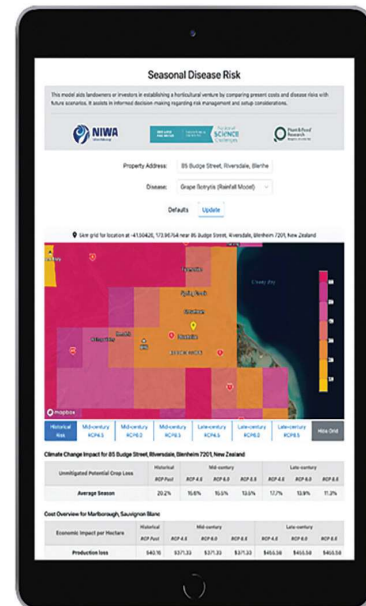


The new tool provides a ‘farm level’ view of plant disease risk under a changing climate.

Dion says the tool is more than a scientific model, as it also translates the risk into financial terms, helping people understand how climate change may affect the cost of managing plant diseases on their land in the decades ahead. “The economic modelling team compare this to looking before you buy. If you are buying a house, you would check flood maps – which you may also wish to do for future orchards. Why shouldn’t we have rich information about the likely impacts of climate change and plant diseases for horticulturists about to plan the next 30 to 50 years of production?”

The economic modelling took a range of factors into account, including likely increases or decreases in the costs of disease control measures, such as spraying, as well as changes in crop yields that might result from different climatic conditions. “These are based on current costs and tools being used, still effective and available,” Dion says.

Climate change is expected to change the suitability of different regions for growing wine grapes, and to impact botrytis incursions. Areas in Northland will become less suitable from a climate perspective, while in the South Island areas in Canterbury and Otago will become more suitable, Dion says. Overall, there is expected to be an increase in suitable grape production areas in New Zealand, he adds. “Importantly, Marlborough is not expected to have a decrease in suitable



areas, but specific locations’ suitabilities could change.”

Modelling based on rainfall and climate change was used to project the expected disease risk by region, with the botrytis risk in both Marlborough and Hawke’s Bay expected to decline under climate change, compared with current risk levels.

The digital tool is free and Dion says the best way to learn about it is to try it out at [olw.metwatch.nz](http://olw.metwatch.nz).