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Weather and inoculum factors associated with kiwifruit bud rot

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Pseudomonas syringae pv. *actinidiae* biovar 3 (Psa) causes kiwifruit bacterial canker and also bud rot, which destroys developing flower buds and can become a severe problem, particularly in green-fleshed cultivars. The effects of weather and inoculum factors on bud-rot development were investigated. Experiments were conducted on two green kiwifruit cultivars: *Actinidia chinensis* var. *deliciosa* 'Hayward' and *A. chinensis* var. *chinensis* × *A. chinensis* var. *deliciosa* 'Zesh004' (known as Green 14), at four sites for two consecutive years. Temperature and rainfall were recorded from bud burst to flowering and bud-rot incidence was monitored from approximately two weeks after flower bud appearance until flowering. Correlations between weather parameters and final bud-rot incidence, and between initial bud-rot and final bud-rot incidence were investigated. There was no significant association between temperature and final bud-rot incidence, but total rainfall and number of days of rain were positively correlated with final bud-rot incidence. Initial bud-rot incidence showed the strongest correlation with final bud-rot incidence and appeared to be the main factor that contributed to bud-rot.

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Propidium monoazide combined with qPCR to differentiate live and dead conidia of *Neofabraea actinidiae*

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Neofabraea actinidiae can occasionally cause post-harvest rot in kiwifruit. Quantitative polymerase chain reaction (qPCR) analysis represents a feasible and accurate option for identifying and quantifying this rot but is limited because qPCR results do not differentiate live and dead conidia. Propidium monoazide (PMA) is a photoreactive dye that penetrates into the damaged cell-wall membranes of dead conidia binding to the DNA and thus suppressing its amplification by qPCR. A commercial kit containing PMA was trialled for differentiating between live and dead *N. actinidiae* conidia. The most suitable conditions were 1 µM PMA with 10 min light emitting diode (LED) exposure, and could clearly distinguish high concentrations of live from similar concentrations of dead conidia when tested separately and as a mixture. Low concentrations of live *N. actinidiae* conidia could be distinguished from dead ones when tested separately, but not as a mixture. Additional work is needed to optimise the effectiveness of the PMA binding and apply this concept in the orchard.