Phase Doppler technology for in-field assessment of drift potential

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Laser-based technologies for droplet analysis have existed for decades, but most of these devices are not suitable to be moved once calibrated. Phase-Doppler interferometer (PDI) technology has enabled the capture of live, in-field spray particle data, such as the particle size distribution, velocity and flux, which are essential to accurately measure and model the drift of agricultural equipment. The objective of this study was to develop and implement methods to determine if drift could be detected and, if so, to use the data obtained to cross-reference its validity with spray drift models, AGDISP and WTDISP. The spray apparatus consisted of a 12V, trailer-type sprayer outfitted with a 50 cm high, four-nozzle boom with 110-SG-02 nozzles delivering 238 litres/ha at 3.4 bar. This setup was selected to maximise the output of the sprayer and produce the worst-case drift scenario for the given spray system. It was observed that driftable particles of a passing and a static sprayer could be detected within close proximity of 8400 cm². These results also agreed with the model output generated.

Impact of covered structures on Psa-V in kiwifruit vines

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Trials have been established in three Bay of Plenty kiwifruit orchards to determine the impact of block-scale breathable-plastic covers on the progression of Psa-V (Pseudomonas syringae pv. actinidiae) in pre-infected established vines and in newly grafted uninfected plants. On each orchard there were three replicated covered areas, each spanning four rows and five bays, with the uncovered control areas adjacent. Two sites with established previously infected vines showed little or no reduction in the expression of disease relative to that observed in vines in uncovered control areas. No major progression of disease was observed in one of these orchards. In the second, there was widespread expression of Psa-V symptoms post-girdling, irrespective of whether they were covered or not. In the third orchard, uninfected grafted vines planted under the canopies of mature infected vines remained relatively disease free compared with similar vines not under cover, where numerous leaf spots and secondary symptoms were observed. The trials will continue to be monitored.