DEVELOPMENT OF BIOLOGICALLY-BASED PRODUCTS FOR CONTROL OF *BOTRYTIS* IN WINE GRAPES

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Bunch rot of grapes caused by *Botrytis cinerea* is responsible for crop losses exceeding 30% under favourable disease conditions. The potential for greater losses exists due to a market-driven, industry-wide shift towards 'nil pesticide residues' spray programmes. Plant & Food Research is developing nil residue biological and natural products in partnership with New Zealand Winegrowers, Technology New Zealand, the Foundation for Research, Science and Technology, and Botry-Zen Limited. The biological product BOTRY-Zen[®], based upon *Ulocladium oudemansii* (Patent PCT/NZ01/00111), is applied early season for control of *Botrytis*, and ARMOUR-Zen[®], a chitosan-based natural product formulation, is applied mid- and late season, and complements BOTRY-Zen. Two developmental products, NP2 (PCT/NZ2005/000167) and BCA-L1, have provided excellent control of *Botrytis* during mid- to late season. NP2 is a plant-based natural product suitable for use mid-season, while BCA-L1 colonises the berry surface, thereby preventing *Botrytis* infection preharvest. These field trial results demonstrate that nil residue, full season biological control of *Botrytis* is achievable, with crop losses being similar to those under current fungicide-based spray programmes.

GUAVA MOTH (*COSCILOPTYCHA IMPROBANA*) MATING DISRUPTION USING ASIAN PEACH MOTH (*CARPOSINA SASAKII*) PHEROMONE DISPENSERS

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Guava moth has now been recorded as far south as Auckland on fruit trees, since first being detected in feijoa at Ahipara in 1997. The use of insecticides to control this internal fruit pest is not a viable option for growers. To develop the basis for an alternative control tactic using mating disruption, small-plot trials were carried out in a macadamia nut orchard using an existing polyethylene tubing pheromone dispenser used in Japan, containing pheromone of the related Asian peach moth (*Carposina sasakii*). Male moths were significantly disrupted from locating pheromone traps (as a surrogate for female moths), using three pheromone dispensers in a single tree and also using one dispenser per tree in a plot of nine trees. In a trial investigating the effect of height on trap catch, the largest catch was at 3 m, near the top of the canopy. Aspects of guava moth biology were also investigated in the laboratory: larval period in early fallen macadamia nuts, pupa period at ambient autumn temperatures, adult longevity with water or 10% honey solution compared to no food/water, size range and sex ratio of male and female moths.