Mealybugs in New Zealand vineyards: a case study of applied science working with and for the wine sector.

Vaughn Bell [*1], D. Maxwell Suckling [1], Tara Taylor [1], Lyn Cole [1], Andrew Twidle [2], Nicola Sullivan [1], Mano Sandanayaka [1], Gonzalo Avila [1], Asha Chhagan [1], Vicky Davis [1]

[1] The New Zealand Institute for Plant & Food Research Ltd

[2] The New Zealand Institute for Plant & Food Research Ltd and School of Chemical Sciences, University of Auckland, New Zealand

In New Zealand vineyards, the citrophilus (*Pseudococcus calceolariae*) and longtailed (*P. longispinus*) mealybugs (Hemiptera: Pseudococcidae) are regarded as important insect pests. As well as contaminating grape bunches, both species transmit (vector) the economically damaging grapevine leafroll associated virus 3 (GLRaV-3). GLRaV-3 negatively alters vine yield and wine quality. With a worldwide distribution, GLRaV-3 is the most important and the most destructive viral disease in New Zealand vineyards. Thus, for a sector aiming to produce high quality wine, this vine/virus/vector association is economically unsustainable in the absence of a robust management plan. We present details of an integrated (multi-tactic) response that has reduced the influence of mealybugs and the spread of GLRaV-3. We also discuss research ideas developed with the sector that are ecologically sustainable and may support an integrated response in future: mealybug synthetic sex pheromones, the use of ground cover plants to separate mealybugs from grapevines, and mealybug biological control.