Cicada Control

MORE IMPORTANT NOW THAN EVER NOVEMBER 2011

Introduction

Over the last several years, cicadas have been identified as a major pest species in some kiwifruit growing regions, including the Western Bay of Plenty and Kerikeri. Cicadas have been identified as a potential vector for the spread of Psa, and regardless of whether they spread the disease themselves, the extensive wounds created on canes where cicada eggs are laid provide multiple entry points for Psa (see figure 1).

Figure 1 Large wound caused by cicada egg-laying.
Photograph: Victor Jones, KVH

Pest species

The main pest species of cicada is the chorus cicada, *Amphisalta zelandica*. Nymphs emerge from the ground in late-December through to mid-January, and moult into the adult form, which causes significant damage in kiwifruit orchards. Another species, the clapping cicada, *Amphisalta cingulata*, is similar in appearance, but is not considered a pest as it is present at low densities. Consult the KiwiTech Bulletin *N61 Cicadas* for guidance on how to identify the two different species.

Trial work

Over the 2010-2011 summer, ETEC™ Crop Solutions carried out some trial work in an attempt to find a way to control cicada. This trial work looked at spraying the weed strip with combinations of insecticides and penetrants. The most successful treatment tested was Talstar® 100EC plus the Super-spreader Slikka® applied at two and one litre respectively per sprayed hectare.

Results

The average number of cicada cases (see figure 2) on trunks and posts in treated areas was 0.00, compared to 4.00 for untreated controls. Likewise, in a $1m^2$ area of canopy, the average number of cases in the treated area was 0.40, compared to 9.40 in untreated areas. Both of these results are statistically significant.

(Note that these results are from one trial in one orchard in one season.)

Figure 2 Cicada cases on a post.
Photograph: Tim Robinson, Agrivet Services

Cost

Treating one hectare of orchard using the strip spraying technique will cost around NZD50 excluding application costs (figure provided by ETEC) which makes it a cost effective approach to reduce endemic cicada populations. Obviously this treatment will not control populations that come in from outside the orchard, so a community approach is more likely to be effective in reducing the wider population (figure 3).

Figure 3 Chorus cicada adult.
Photograph: Tim Robinson, Agrivet Services

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Risks

The main risks that growers and contractors must take into account when applying this treatment are the potential for bees to be poisoned, and residues on fruit. In order to mitigate these risks, the following precautions should be taken:

Bee safety

Talstar® 100EC is not toxic to bees once dried on foliage or soil but bees will be killed if they are subjected to direct contact with spray or plants still wet from spraying. Mow the orchard prior to treatment. This will remove clover and wild flowers, and will discourage bees from foraging, and also take away tall plants that cicada may use as a launch site, thus directing them across treated soil, posts and trunks.

Residues

Control spray drift. This can be controlled by the spray operator. Use low pressures, large droplets and keep sprayer speeds down so that a vortex is not produced behind the sprayer. Extra care needs to be taken on T-Bar blocks, and on the edges of pergola blocks where skirts are hanging down, to avoid spray deposits on low lying fruit.

Timing

Treatment should go on before cicada start to emerge. Emergence varies from year to year and can be as early as the last week in December through until late-January. There is no disadvantage in making the application early as Talstar® 100EC is stable in the soil for more than two months.

Permission

This use pattern for Talstar® has a limited label claim for cicada control in kiwifruit with Agricultural Compounds and Veterinary Medicines (ACVM), and has Allowed But Unproven (ABU) status in the ZESPRI Crop Protection Programme (CPP). As such, there is no need for a justified approval to apply Talstar® in accordance with the limited label claim, and any grower wishing to take part should simply record all applications in the electronic spray diary system as per normal. This permitted use applies to Talstar® only. Other bifenthrin compounds not registered for cicada control are prohibited and any non-authorised use of these will result in non-compliance to the ZESPRI Crop Protection Standard.

Further work

Two further trials are planned for this summer to see if this current 'best available treatment' can be improved upon. However, the results of this work will not be available until after this year's population have emerged.

A further trial has been sprayed with a winter treatment aimed at the control of cicada and passionvine hopper eggs. Results so far are very promising.

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Zespri® Kiwifruit