



***Apata***<sup>TM</sup> TOGETHER WE'RE BETTER  
**AVOCADOS**

**FIELD DAY**

**WHERE:** Goldstone Orchard

118 Prole Road, Omokoroa

**WHEN:** Tuesday 15 March 2016

**TIME:** 10am

**TOPIC:**

Pruning – The results one year on

# APATA FIELD DAY MARCH 2016

**JEROME HARDY** (027) 2334380

The key technical priorities at this time of year, bearing in mind most of us are carrying a large crop, are:

- A. **Tree health:** Keep canopy condition optimum -with timely mite control and frequent nutrition input- to ensure adequate cover of new leaf and maximize fruit size. Root health: inject all trees 'preventatively' this autumn if you haven't done so already. Pruning.
- B. Maximise **packouts** to reduce your exposure to the domestic market in 2016/2017 – the peak of leafroller and thrip problem has passed but we can still get ambushed late in the season by these bugs. Keep up the regular monitoring and timely sprays.
- C. Keep fruit **market compliant** – choose your sprays wisely and with the input of your Apata client service representative to avoid MRL complications.

## *Tree Health in more detail:*

Mites are a big enemy of leaf health and as night temperatures start to fall the mite numbers will increase: pest-monitor regularly and address low levels of mites with Avid/Verdex. If /when mite and mite egg populations start increasing (ie. growing percentage in the 5-10 and 10+ categories) then apply a Paramite. If using Paramite please remember 3 important considerations:

- Paramite should be applied early in the population growth phase and as soon as rapid growth is observed. Do not wait until the problem is critical as Paramite only sterilizes the mites and kills eggs so the population will take a month to decline.
- The with-holding period of 63 days for our key market Japan, and
- Remember to only apply one Paramite a year to avoid resistance.

Leaf and soil testing time is approaching. If you have battled historically to keep your leaf Boron levels close to the optimum of 40ppm then you should consider including Solubor at 80g per 100 litres water in all sprays from now on.

Inject all trees with phosphonate at the rate of 15% active ingredient, 1 x 20ml syringe per meter of canopy diameter. 15% AI translates to a 3 parts product to 5 parts water when using 400g/litre product or 1 part product to 3 parts water if using 600g per litre product.

## The 10 Laws of PRUNING *with on-orchard demonstration/discussion*

1. **Pruning emphasis should be in the low crop year** (ie. in the autumn after a light flowering and before a heavy flowering.... not this year for most growers). However it is recommended that growers do some autumn pruning now, for example to reduce cropload and/or remove branches that may have been missed last year: big structural cuts where necessary/possible to reduce height and cropload and restore some vigour/balance to the tree. Heavy capital pruning should avoid the peak of the summer ie. prune from March onward but maintenance pruning can commence earlier ie straight after picking.
2. **Prioritise HEIGHT and SUN.** Always look to remove the tallest branch(es). Start with the N-side in Year 1 and then work your way around the tree in subsequent years. But revisit/review the N-side every year....this is your 'front door' and you never want it closed.
3. **Be BOLD and THINK AHEAD 3 years**
  - a. **Make big cuts/openings** to allow generous (hours of) light onto the new growth sites. With enough light the new growth will be high quality, productive wood. With too little light, the new growth will be sappy, leggy and unproductive almost as useless as doing nothing at all.
  - b. Best-lit part of the canopy is the most productive ie. the TOP so accept that 90% of your production will come from the top down. Regrowth from ground level is far less productive yet many growers get preoccupied with this.
  - c. Create even 'succession layers' with your pruning ie. top (just picked) goes now, next layer (next crop) goes next year, and so on. Doing too little one year means you leave too much for next year.
4. **Make flush (low vigour) cuts.** There are occasionally the place for stumped (high vigour) cuts but this should be rare and only on very large trees. The absence of stumped cuts will slow or 'subdue' the vigour response.
5. **Be prepared to lose some fruit.** You will win back the loss in fruit size on the remaining crop and fruiting consistency in the future.
6. **Start early** ie. when trees are young. If possible start as soon as the trees become commercially productive and you will always be able to prune with a pole-saw....but we are not all that fortunate.
7. **It's not difficult.** Just common sense as you strive to
  - a. **Create a more favourable root:canopy ratio**
  - b. **Open the N-side,**
  - c. **Reduce height,**
  - d. **Improve picker access and keep spray access open.**
  - e. Most importantly keep an overriding view that you want to **reduce complexity** in the structure of the tree.
8. **You are at your final spacing now.** Unless very overcrowded, you should exclude orchard thinning' ie removing trees as an option or at least resort to this option as a last resort.
9. **Allow for the possibility that you may have to spray at short notice** ie. prune and clear manageable areas and don't cripple your ability to get in with a spray.
10. **There is no easy answer to clearing up the mess** and different approaches suit different growers. If you are fortunate enough to start in a young 5-8 year old orchard then most of the wood can be trimmed down and left as a helpful trap for leaf litter under the trees under the canopy. For large older trees some helpful guidelines are:
  - a. Big forestry type mulcher available such as Grants or: easiest but high hourly rate
  - b. If only smaller-tractor mounted mulcher available. Limbing the lighter wood first for mulching then cutting down the heavy wood and drag away for burning, or firewood or pushed under shelter belts
  - c. Belt-fed chipper from the local hire centre.

**A cast-iron outcome guaranteed.....** I can personally guarantee that if you start a meaningful annual pruning program you will improve fruit size and packouts immediately, improve tree health immediately, reduce picking costs, and most significantly reduce alternate bearing though this may require up to 2-3 pruning cycles.



Office: R424 Ohauiti Road, Ohauiti, Tauranga, New Zealand

Postal: PO Box 2007, Seventh Avenue, Tauranga 3140

Telephone: +64-7-281-1034

Email: [admin@cropcheck.co.nz](mailto:admin@cropcheck.co.nz)

Website: [www.cropcheck.co.nz](http://www.cropcheck.co.nz)

## **“Why is it so important to monitor pests in my orchard?”**

### **Getting to know your orchard**

New growers, and old, can learn from monitoring reports:

- **when their crop is most at risk from each pest**
- **how spray-timing is crucial**
- how sprays affect beneficial insect numbers
- which parts of the orchard are first to gain pests, and so on

We have found it is a very useful tool for growers getting to know their orchard!

### **Insect biology**

The 4 main pests:

- Leafroller – these occur year around so continue monitoring through Winter.
- Greenhouse Thrip – frequent monitoring from mid-January to late April allows growers to keep good control of thrip which explode in numbers very quickly.
- Armoured Scale – more have been seen since softer sprays are used.
- Six-spotted Mite – monitoring before flowering is essential, and Autumn monitoring can indicate whether a problem may occur in Spring.

All these insects are very different in how quickly they multiply, what climatic conditions they prefer, what sprays can deal to them.

### **Training in AvoGreen**

Learning more about insect biology and how to recognise the damage they cause, plus recognising the pests themselves, is covered in the AvoGreen Training course. We recommend new growers go through the AvoGreen training, where you can learn a great deal about pest management, helping you to work with your AvoGreen Pest Monitor to achieve better management on your orchard. Alternatively you can become an Owner Operator and monitor your own orchard.

**CropCheck Ltd has two registered AvoGreen Trainers: Cathy Harris and Jojette Drost.**

### **Exporting your fruit**

Before you spray your avocados, it is now mandatory to have a licensed AvoGreen Operator to monitor your fruit. Once a pest is on or over threshold, you have the choice whether you spray or not. This means our overseas buyers can be assured we only spray when it is proven to be necessary. Our exporters are working hard to grow new market and for this they need regular supplies of good fruit. The entire industry benefits when all growers strive to improve the crop, only spraying when it is proven to be necessary.

### **Signing up for AvoGreen monitoring**

CropCheck Ltd is an independent monitoring business who has been monitoring orchards under the AvoGreen protocol since 2010. Two of the company directors, Cathy & Jojette are two of the most experienced AvoGreen monitors in the country. We have a simple permanent monitoring contract, which

***“Working for the Grower”***



includes your AvoGreen compliance, for you to sign before we monitor. Our office and staff will keep regular contact with you about your monitoring.

## A big crop will mean low local market prices

Regular monitoring can ensure that you spray pests in a timely manner, often spraying less and avoiding pest damage to export fruit.

Most growers who undertake regular monitoring only loose 1-2% fruit to export due to pest damage! Those who miss timing sprays when pests abound can loose up to 30% of exportable crop to pests. Lesser quality fruit tends to go to the local market and gain less income. Although there is a cost to monitor and spray, the crop is only worth good money if it is in good condition. The income is usually well worth the cost.

If you intend to go Local Market, it is wise to be AvoGreen compliant by only spraying after a monitoring shows you have pests to spray for, and make sure you fill in the Spray Diary on AIC's website. This means it is an easy process to register for export if you have a big crop.

## Low crop years

Maintaining your crop in light years has proven to help keep pests at bay in heavier years. Even a small amount of monitoring at targeted times can achieve very good results. We have several growers who only send fruit to Local Market, and monitoring has vastly improved their income also!

## Spraying

If you are going to apply any sprays on your orchard, you will need to attend a Growsafe Certificate course. This includes any weed sprays. All spray contractors are certified and have regular training in the latest spray, therefore have a good knowledge of what is effective for each pest.

There are with-holding periods on all spray products that are applied for pests. These are different for each country that your fruit is exported to. You need to keep in touch with your packhouse when planning sprays; they can advise you as to the best chemical to apply.

Growers need to also consider their own health and the health of their animals when spraying. Even though many spray instructions say you can enter the orchard as soon as the spray is dry, it is wise to stay out of the orchard for a couple of days, even with the softer sprays. Our company policy is that we advise our staff to stay out of an orchard for 7 days. This is advisable for Health & Safety plus monitoring for pests quicker than 7 days, does not give a true result after spraying.

## Where to get help

We are happy to help you as much as we can, but there are other very important people you need to talk to that specialise in areas that we don't work in.

1. You need to contact AIC (Avocado Industry Council). They have a lot available on their website, with everything you need to know. You will need to go and visit or phone AIC to arrange:
  - a. A password to get into the AIC website grower area
  - b. A PPIN property identification number
  - c. Register for your spray diary on the AIC website
2. Register with an AvoGreen Monitoring Operator such as CropCheck Ltd
3. Choose a packhouse and sign up with them (many of the packhouses have advisors on staff)
4. Choose a sprayer if you are going to spray. They can also maintain the spray diary for you.



## **More helpful contacts for avocado growers:**

### **Consultants in avocado growing:**

- AVOCO - John Cotterell - Ph 027 451 3138;  
Colin Partridge - email [www.southernproduce.co.nz](http://www.southernproduce.co.nz)
- Brenmark Consulting - Lindsay Heard – Ph 027 420 1544
- Jerome Hardy - Ph 027 233 4380, email [jeromeandfran@gmail.com](mailto:jeromeandfran@gmail.com)
- CKH Contracting Ltd – Conrad Hardy – Ph 07 549 4355, 027 478 1234
- Jack Crozier – Ph 021 271 8212
- ALLFERTLTD – Malcolm Cooke – Ph 021 140 1225

### **Spray contractors in the Western BoP:**

- Avomax – Colin Gane, Ph 027 333 3316
- D.S.L. – Ph 07 549 3357
- Gibson Spray Contracting – Andy Gibson, Ph 549 2114, 027 6699 056
- IPM Services – Alistair Walters (flowers, ornamentals, training in Grow Safe),  
Ph 07 552 0031, 027 238 7001
- MacPherson Avocado Spraying – Hamish MacPherson, Ph 027 516 8884
- Oceania Helicopters Ltd– Kelvin Amrein, Ph 575 0689, 027 492 046
- Tanner Spraying – Ross Tanner, Ph 549 4967, 027 256 4470



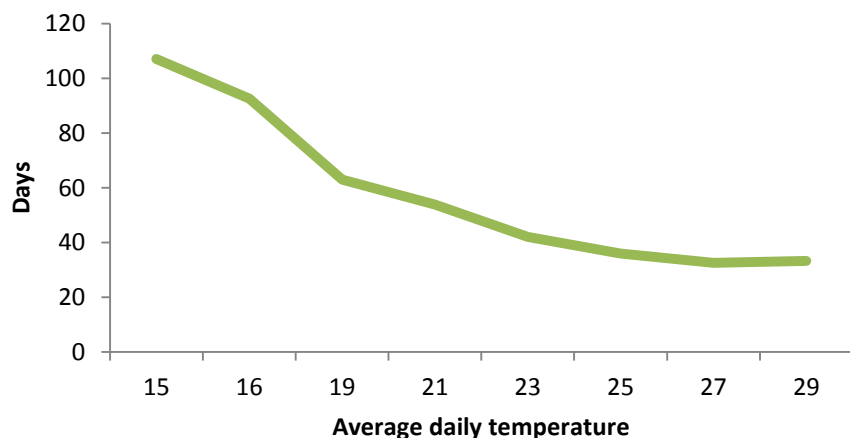
# Key Messages for Late Summer/Autumn

**Fruitfed Supplies**

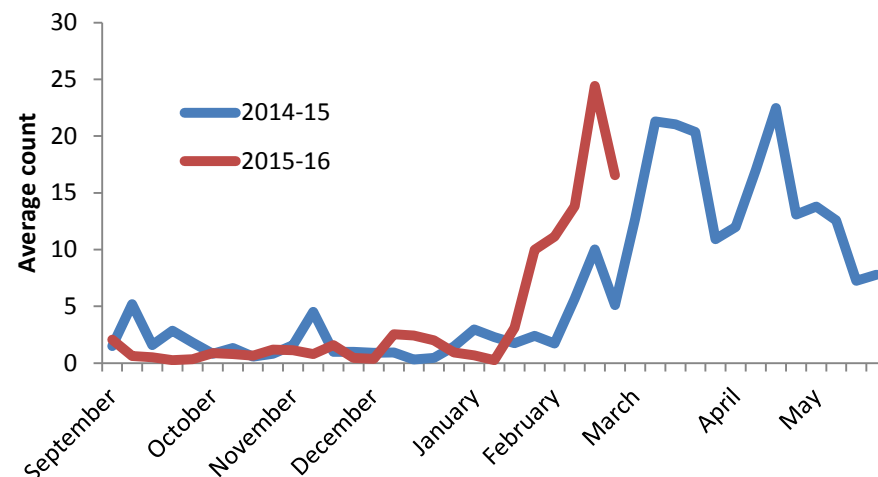
## Greenhouse thrips

### Effective control of thrips;

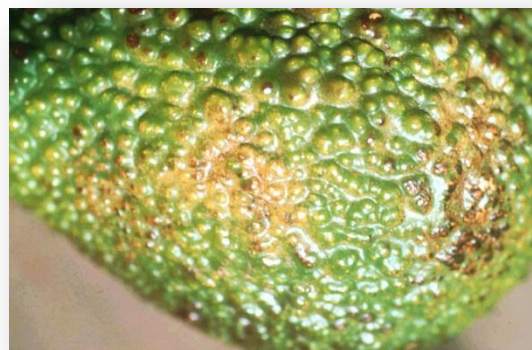
- Key period for control: Summer/Autumn
- Monitor regularly and respond in a timely manner if threshold exceeded
- Two sprays 2-3 weeks apart is recommended
- Coverage is critical
- Make use of products with different modes of action if requiring multiple applications
- Options include Calypso, Sparta, Fyfanon, Oils, and others (e.g. Dew)



**Figure 1:** Greenhouse thrips: days to develop from egg through to adult depending on average daily temperature



**Figure 2:** Average count of greenhouse thrips across monitored orchards in Katikati in 1415 and 1516 seasons (Fruitfed Supplies CMS data).



*Thrips are often found hiding between touching fruit, and cause characteristic bronzing*



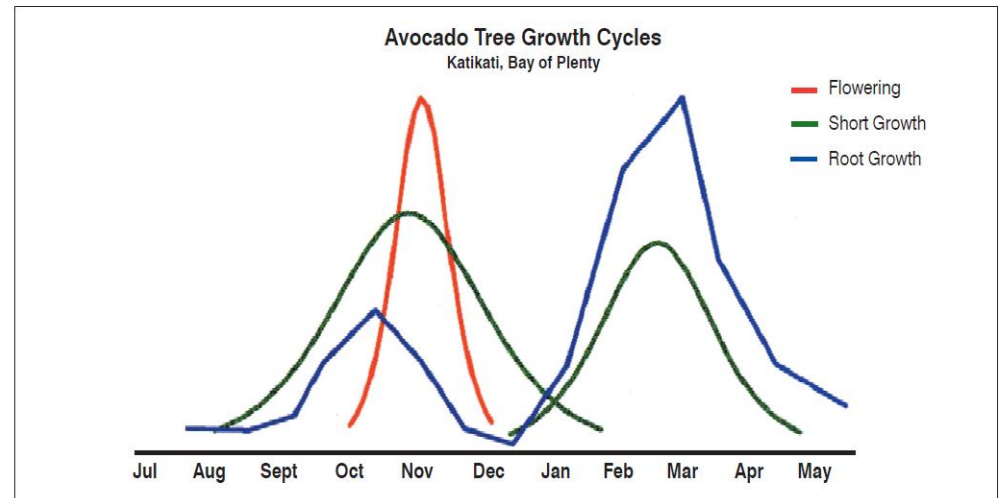
## Phytophthora root rot

### Key points for management of root rot;

- A number of cultural methods for maintaining healthy root systems (e.g. pH, organic matter, aeration, mulch)
- Two key periods for treatment: late-winter and autumn (one treatment in autumn normal for most)
- Liquid low-pressure injection (e.g. Agrifos) still most effective method. High pressure gun also an option
- Timing is critical in relation to tree growth stage



*Above ground symptoms include dieback, leaf yellowing and poor production*



**Figure 1:** Avocado tree growth cycles in Katikati (sourced from the AIC)

### Root sampling:

- A good way to test the concentration of phosphonate in your roots
- Minimum target level for control 20-25ppm
- Take from a selection of trees through each block
- Dig beneath litter layer to find white feeder roots







## PHOSPHONATE TESTING IN AVOCADO ROOT

### Introduction

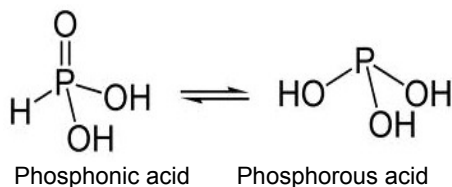
Growers that use phosphonate to control Phytophthora can test the roots of their avocado trees for treatment effectiveness.

The phosphonate analysis was developed in consultation with the Avocado Industry Association and is designed specifically to meet the quality requirements of the New Zealand avocado grower.

With our leading-edge technology and reliable method, results are reported within 5-10 days of samples being received in the laboratory.

### What is Phosphonate?

Phosphonate is used to describe salts of Phosphonic/Phosphorous acid:  $\text{H}_3\text{PO}_3$ , MW 82. These two acids exist in an equilibrium with Phosphonic acid being the predominant form. This acid is commonly purchased as Potassium Phosphonate ( $\text{KH}_2\text{PO}_3$  or  $\text{K}_2\text{HPO}_3$ ).



### Why test for Phosphonate?

Phosphonate is sometimes injected into the roots of trees to help protect against the effects of Phytophthora, a fungal like organism responsible for damaging plants.

Once injected phosphonate trans-locates to leaves and to the root system where it protects feeder roots against Phytophthora root rot.

Knowing the phosphonate levels in the roots will help the grower assess the effectiveness of the treatment, by considering aspects such as timing of treatment, method used, and the length of time it was effective.

#### Hamilton

1 Clyde Street  
Hamilton 3216  
Private Bag 3205  
Hamilton 3240  
New Zealand  
T +64 7 858 2000  
F +64 7 858 2001

#### Christchurch

101c Waterloo Road  
Hornby Christchurch 8042  
PO Box 16607  
Christchurch 8441  
T +64 3 377 7176  
F +64 3 377 7276

## Sampling Guidelines

Please note: Acknowledgement to the Avocado Industry Council for sampling guidelines. Please refer to their website for further information [http://industry.nzavocado.co.nz/industry/root\\_phosphonate\\_testing.csn](http://industry.nzavocado.co.nz/industry/root_phosphonate_testing.csn)

- The preferred (but not essential) time-frame for sampling is approximately 2 weeks after treatment.
- Sample during a root flush (Spring or Autumn) so that the majority of the sample comes from the new feeder roots from the mulch layer.



- Sample representatively;
  - Select a block of trees
  - Choose trees of similar age, health and history
  - Take root samples from several trees and from a range of positions around each tree.
- Try and keep the root lengths as long as possible.
- Wrap in a paper towel, and put into the sample bag, which has been clearly labelled with the Sample Identification. (If you don't have one of our Sample Kits, a clean paper envelope or zip-lock bag is fine).
- Send samples and completed Analysis Request form to the laboratory as soon as practical after sampling, to avoid deterioration.
  - If required, samples can be frozen prior to sending to the laboratory for analysis.

**Do not wash the dirt off the roots; Phosphonate ion is very water soluble, and easily leached.**

**Handle carefully – Avocado roots are soft and easily damaged.**

## Sampling Supplies

For your convenience, we have complimentary Sample Kits available. These consist of 2 large sample bags, the Analysis Request form and a courier bag for returning the sample/s to the laboratory.

To order, please just give us a call, email or use our on-line form – our contact details are listed below.

## Contacts

- **Food & Bioanalytical Division Client Services Team**
  - 07 857 0636
- **Administration**
  - 07 858 2000
- **Email**
  - [office@hill-labs.co.nz](mailto:office@hill-labs.co.nz)
- **Website**
  - <http://www.hill-laboratories.com/>  
Order kits and sampling supplies – via our website
  - <http://www.hill-laboratories.com/page/pageid/2145845748>

# Increase of passionvine hoppers seen in the Bay of Plenty

By Brad Siebert, Biosecurity & Programme Manager, NZ Avocado [brad.siebert@nzavocado.co.nz](mailto:brad.siebert@nzavocado.co.nz)  
and Tayah Ryan, Fruitfed Supplies [tryan@pggwrightson.co.nz](mailto:tryan@pggwrightson.co.nz)

The Passionvine Hopper (*Scolypopa australis*) has a wide host range in New Zealand, with the adult bug commonly seen within avocado and kiwifruit orchards from January through to late May.

Over recent months there has been a sharp increase in reports from growers and AvoGreen® monitors seeing both the insect and the resulting honey dew left behind on leaves and fruit. This sugary exudate, which may sit on the fruit for a number of months, creates an environment for surface mould to develop. Although the female bug may cause minor damage when inserting eggs into thin twigs or new shoots, it is the increase in honey dew and resulting mould that is starting to raise questions about possible impacts this pest may have to avocado fruit quality.

There are four potential issues with this pest that need further investigation:

1. Is the honeydew and resulting mould effectively removed by post-harvest water blasting?
2. Is the occurrence of mould significantly affecting export fruit quality?
3. Do very high populations impact tree health or productivity through excessive egg laying into new shoot growth?
4. Could this pest be responsible for any disease transmission by vectoring avocado plant pathogens?

A request has been made to a number of post-harvest operators to provide Quality Control pack-out information from the current season to understand if any rejections are due to excessive external mould, staining or honey dew residues. This information will be collated and communicated back to industry so that measures can be taken for next season.

Passionvine hoppers are a difficult pest to control because they are so mobile and often invade orchards from surrounding bush or scrub areas. Eggs are found for at least seven months of the year from March to October, with nymphs present from October to January. There has been little research looking at biocontrol of the passionvine hopper, so growers will have most success in reducing the populations that appear each summer by focusing on maintaining 'border control' during the winter and spring/early summer months before adults appear.



On the Orchard



## Outside the orchard

**Winter:** The winter months are a good time to attempt to reduce populations in the orchard surrounds by targeting the removal of overwintering eggs through chemical controls or by removal of alternative host species (or both). This can be achieved by ensuring orchards remain mown, spraying shelters and boundaries and removing alternative host plants like mahoe (whitey wood) and weed hosts such as bracken and blackberry from the orchard border and surrounding gullies.

There has recently been work done in kiwifruit with Talstar + Engulf on dormant canes/wood to penetrate eggs rafts and control eggs (label claim now exists). **This could not be used on avocado trees** but could be considered on gullies and surrounding host plants during winter.

**Spring and early summer:** Nymphs are present from October to January and are the easiest lifecycle stage to control as sprays are generally most effective at the nymph stage. However, adults may still appear in the orchard if populations remain significant in surrounding gullies or bush areas. Chemical control options discussed below are also relevant for controlling nymphs outside the orchard and in shelters, however care must be taken not to contact flowering plants as many of those mentioned are toxic or highly toxic to bees.

## Inside the orchard

**Summer/early autumn:** Adults are most abundant in February and March. If populations are severe, or removal of alternative hosts is not practical, growers may choose to apply a targeted spray or select a product that is known to also have activity for the passionvine hopper. There are no avocado sprays registered for this pest but a number of existing products will have some activity if well timed.

Passion vine hopper often concentrate in high numbers in certain areas or corners of the orchard. Determining the distribution of passion vine hopper within the orchard through monitoring may allow for isolated areas to be treated, as opposed to spraying the entire orchard.

Calypso (Thiacloprid) is registered in avocados for use against thrips and through research has been found to have activity on passionvine hopper, although this use is off-label. Attack (Permethrin, Pirimiphos methyl) or Lorsban (Chlorpyrifos) would have effects and may also have a



stronger contact action on adults found at this time of year. However cautious use of these products is advised, with many markets requiring residue testing after the use of Attack.

Pyrethrum products are also known to have good activity against passionvine hopper adults. Pyganic for organics, or Zeta Py (PBO-free) or Key Pyrethrum (contains PBO) for conventional. Normal practice for pyrethrum of spraying in the evening or early morning is best when UV exposure is low and the pests are at their least mobile due to temperature.

**Use of any of the above products specifically against passionvine hopper would be off-label use. Growers should contact NZ Avocado if they are wanting to apply a product specifically for passionvine hopper. Any request for off-label use of a product needs to consider the efficacy of the product against the pest, MRL implications and any withholding periods.** 🍋

*The information contained in this document is provided "as is" without warranty of any kind. NZ Avocado does not accept any responsibility or liability for the accuracy, content, completeness, legality, or reliability of the information contained in this document. Your use of information contained in this document is at your own risk, and you should seek further advice prior to making decisions based on the information contained herein.*





## Feedback Form

We'd like to know what you thought about today's Field Day. Your comments will help us ensure that future Apata Avocado Grower Field Days provide the information you want to know about, in the right format.

Please take a moment to answer the following questions. When you have completed the form, please hand it to a member of Apata's Grower Services Team.

**How was the venue for this Field Day?**

---

---

---

**Please comment on today's speakers and topics**

---

---

---

**Please comment on the length of today's Field Day**

---

---

---

**What topics would you like covered at future Apata Field Days?**

---

---

---

**Any other comments?**

---

---

---