# 2nd NQ AVOCADO STUDY GROUP

**Minutes from meeting at Craig and Rita Feher's 'Lone Gum' orchard, Tolga**

9:30 am till 4pm Wed 4 June 2008

Aim of project
**"Make Australian avocado production more internationally competitive"**
Main topic of today
**"Integrated Pest Management"**

Present (29)
David Adil, Mick Coleman (Massaso Farming), Colin Cummings, William Ericson, Dino Falvo, Craig & Rita Feher, Chelley Howe, Andrew Irving (Howe Farming), Mick Hodgson, Kevin Ikin, Jim Kochi, Ian & Ann Leighton, Tony Manser (Lavers Orchards), Etienne & Gerrie Theart, Bob Waterman, Michael Zappala, Walter Zugno (20)
From TGT: Russell Hunt, Paul Keevers, Aaron Myrteza, Nicole Orchard (4)
From Landmark: Zane Micola (1)
From Queensland DPI&F: Stef De Faveri, Simon Newett, Matt Weinert, Leonie Wittenberg (4)

**PROGRAM**

- MORNING TEA
- Welcome and introduction – Matt Weinert & Simon Newett
- Spotting bug update – Stef De Faveri
- Industry issues
    - Local – Craig Feher, President, Atherton Tablelands Avocado Growers' Association (ATAGA)
    - National – Jim Kochi, Avocados Australia Ltd (AAL) board member for NQ
- Integrated Pest Management (IPM) in avocados – Matt Weinert
- Overview of 'Lone Gum' orchard, farm walk and insect monitoring – Craig Feher & Leonie Wittenberg
- BBQ LUNCH
- Report on avocado tour to Chile, Nov 2007 – Simon Newett
- 'Positive Points' self assessment of orchard management
- Select topic and date for next workshop

*Leonie Wittenberg inspiring us all to monitor for insects, both pests and beneficial insects*

**INDUSTRY ISSUES – Craig Feher and Jim Kochi**

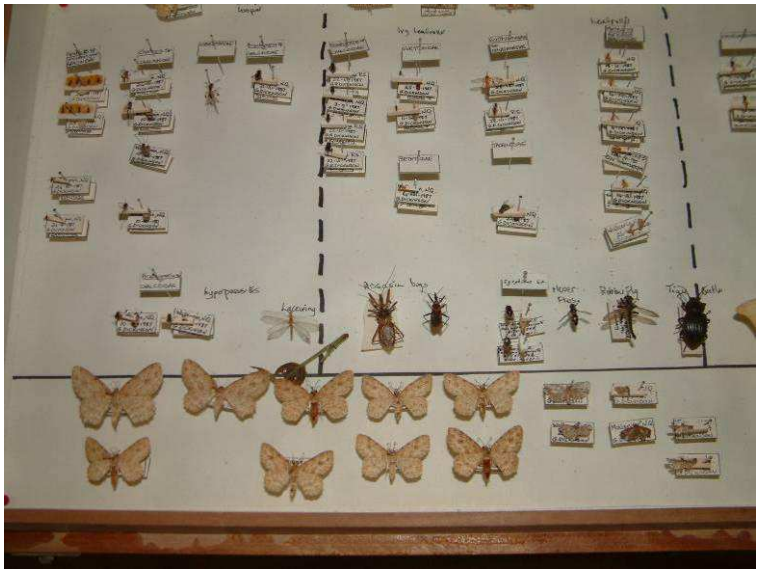
Craig Feher, president of the Atherton Tablelands Avocado Growers' Association (ATAGA) and Jim Kochi, Avocados Australia Ltd (AAL) board member for North Queensland, encouraged growers to join ATAGA and AAL. Both organisations were about getting growers together into a position of strength and helping each other out. ATAGA focuses on local issues whilst AAL is the national body representing the whole avocado industry and amongst other roles decides how your levy money is spent. As a united group, effective communication and planning can be undertaken at different levels, even down to knowing many cartons, carton inserts, trucks need to be ordered for a local region.

On the subject of avocado promotion to consumers, Jim said that currently women are the main shoppers for avocados in the stores but this group has been the focus of a fair amount of promotion in the past. An untapped potential market is the group in their 20's that are now having families (this age group wasn't targeted when they were teenagers). This group is therefore the focus of a new promotional program running for 6 months targeting magazines, radio and some TV adverts in the big cities. A lot of the promotion that the avocado industry gets is for free through magazine articles. The effectiveness of a campaign is monitored by surveys which also use the internet.

Jim said that there is a lot of false information disseminated around the markets which has a downward effect on prices – for this reason he encouraged growers to join Infocado (an AAL initiative) which is about collecting and providing accurate market information. Essentially this entails feeding your avocado despatch and forecast data into Infocado (run by Joanna Embrey at AAL) and in return you receive weekly reports from the system. Currently growers who contribute to the system supply 70% of all avocados to the Australian markets. One of the objectives of Infocado is to achieve a more even supply of fruit onto the market, also by having a better idea in advance of how much fruit is going to be arriving on the market it allows promotional activity to be done when large volumes are expected.

Jim pointed out that AAL was not able to justify any promotion of avocados to coincide with the NQ harvest until he was able to supply accurate data on the size of the NQ crop this year – another good reason to unite and to join Infocado. Chain stores are being encouraged to join Infocado too – they need information on the size of the crop too in order to plan their catalogues, conduct their own promotion etc, all of which should help sell more avocados and help maintain reasonable prices for growers.

As president of ATAGA Craig gets calls from people looking for work on avocado farms – by belonging to ATAGA Craig will be able to pass these people on to you.



*Some of the avocado insect collection on display*

**SPOTTING BUG UPDATE – Stef De Faveri**

**Please refer to the copy of the MS Powerpoint presentation attached.**

*Here are some additional notes covering some of the discussion and questions that arose.*

There are two species of Spotting Bug, *Amblypelta nitida* (Fruit spotting bug) and *Amblypelta lutescens* (Banana spotting bug) but they are very similar in behaviour and can be treated the same.

Spotting bug has 111 known plant hosts. Spotting bugs tend to live in places like native bush, in host plants in your garden and in macadamia orchards, so when scouting for spotting bug activity concentrate on parts of the orchard that are close to these areas. The 'Fuerte' avocado is one of the most susceptible varieties and therefore the first variety to monitor if you have some. Some growers even use a row of 'Fuerte' along the outside of their orchard that is closest to a source of spotting bug as a trap crop and spray this row regularly significantly reducing damage in the rest of the orchard.

Spotting bugs have some natural enemies such as green ants and assassin bugs but unfortunately these are seldom enough to control them.

In terms of registered insecticides 'endosulfan' is the most widely used one, it is "sort of soft" in that it is not too hard on beneficial insects. Unfortunately endosulfan only has a residual activity of about three days so must be sprayed very regularly. 'Bulldock' which is a synthetic pyrethroid and very effective against spotting bug unfortunately is very hard on beneficial insects including those that keep scale insects and mites under control naturally. Growers report that as few as one or two sprays of 'Bulldock' result in a flare up of scale insects and mites. 'Endosulfan' is relatively friendly to bees whereas 'Lannate' (active ingredient 'methomyl') is deadly. Try and avoid any insecticide spraying at flowering time – spotting bug shouldn't be a problem at this time anyway. There are no suitable pesticides that organic growers can use against spotting bug, pythrethrum would be effective but it needs better formulation and, being a pythrethroid it tends to kill beneficial insects as efficiently as it kills pest insects.

*Spotting bug pheromones*
Pheromones are compounds produced by insects for communicating with each other. In spotting bugs the male produces a pheromone to attract the female. For *Amblypelta nitida* the pheromones have been identified and for *A. lutescens* scientists are close to working them out. Once we know the chemical composition of the spotting bug pheromones and we can manufacture them in the laboratory we may be able to use them as a monitoring tool, this could be a few years away.
Craig asked if we would ever get to a stage like we have with Queensland Fruit Fly where we can monitor QFF levels with pheromone traps. Stef answered that it could be even better because the pheromones for spotting bug are species-specific.
Another question asked was 'How effective is it just to spray the hotspots?' Stef felt that it can work in some situations.
Col asked how far spotting bug would travel. Stef answered that they would travel several kilometres. Col mentioned that farming macadamias and avocados together was disastrous in terms of spotting bug pressure.

**INTEGRATED PEST MANAGEMENT (IPM) – Matt Weinert**

**Please refer to the copy of the MS Powerpoint presentation attached.**

*Here are some additional notes covering some of the discussion and questions that arose.*

Matt explained that the aim of his presentation was to introduce you to the pests and beneficial insects associated with avocados. He provided a handout listing registered pesticides that can be used on avocados plus another handout which lists avocado pests and hints on how to monitor and manage. Copies are enclosed with these minutes.

IPM should be considered as a 'management strategy' that can be used to manage insects in avocados. Its key features are:

1. **Regular monitoring** – get into the habit of this, you may be able to do it at the same time as checking sprinklers. There is a good section in the book "Citrus pests and their natural enemies" that describes IPM. Growers who have implemented IPM in citrus have saved between 20 – 50% on control costs.
2. **Use several pest management approaches**, not just one
3. **Use insecticides that are more selective** in order to target the particular pest you are trying to control (i.e. so as to avoid killing beneficial insects). This relies on correct identification of the pests, e.g. being able to tell the difference between Assassin bugs and Spotting bugs, the difference between Spotting bug damage and Fruit fly damage etc.
4. **Understanding seasonal pest occurrences** - so you don't have to scout for every pest at all times of the year
5. **Monitor pests regularly** - by getting into the habit of a good monitoring program you start to get a better idea of what pests and beneficials you have, you develop a history of damage times and you find out the location of hotspots.

Healthy trees are more resistant to insects than say *Phytophthora* affected trees.

Chose your windbreak species wisely - some windbreak species are hosts for pests. Bamboo hosts beneficial insects but not pest insects. (Note: Make sure you use the non-clumping species of bamboo so it doesn't get out of control.)

There needs to be more reject analysis work done in NQ to determine the extent and detail of losses to insect attack.

View beneficial insects as free labour. Look after them. Low numbers of pests can be tolerated. Pesticides should be viewed as almost the last resort and some insecticides may not be available in the long term.

***Know your pesticides***

The insecticide 'Mimic' is an insect growth regulator (IGR) – it interrupts the instars (stages) in the insect's development. It is a stomach poison.
Dipel makes insects sick.

***Know your insects***

- Younger stages are easier to control than older ones. Sucking insects are more easily controlled by systemic insecticides e.g. dimethoate. Red shouldered leaf beetles come out in swarms when rain follows a dry spell.

- It is suggested that you spread out canvas or black plastic under a tree just before spraying and come back to see just what is there and what you are killing when you spray.
- *Taylorilygus* (also known as 'broken back bug') looks like green vegetable bug (stink bug). So far only found from the base of the 'jump up' and higher and only affects 'Hass' and only from early fruitset, say from October till December. If you slash the grass at this time *Taylorilygus* will move from the weeds and grass onto the avocados. *Taylorilygus* stung fruit shows more of the white exudate (persitol) than say spotting bug attack. Subsequently fruit develop deformed.
- Plant hoppers are sap suckers.
- Thrips rasp and suck.
- The exudate from red banded thrips dries black – this distinguishes their damage from that of mites.
- Loopers – crows eat them, so if you notice a large number of crows in your orchard you may have loopers and the crows may be sufficient to control them.
- Avocado fruit borer – hard to kill because they are inside the fruit – nothing is registered to spray them with

**Beneficial insects**
Beneficial insects include predatory mites – these can be distinguished from pest mites because they move much quicker. *Stethorus* ladybird (small steely blue round beetle) also preys on mites

- Assassin bugs
- Predatory shield bug – love to prey on loopers and leaf rollers
- Parasitic wasps – feed on pink wax scale
- Praying mantids – prey on many pests including moths and flies
- Lacewings/ant lions (Neuroptera) – prey on mealybugs, scale, mites, thrips, caterpillars, insect eggs
- Beneficial beetles such as 'tiger beetle' prey on *Rhyparida* and Red shouldered leaf beetle
- Predatory ladybird larvae feed on mites
- Chilocorus (blue) – very rounded small beetles
- Cryptolaemus – looks a bit like a mealybug – eats scales and eggs – can be purchased from 'Bugs-for-bugs'
- Stethorus – eats mites – slow to establish so should be introduced in big numbers
- Wasps, ants and bees
- Leaf roller parasite
- Apanteles (a tiny wasp) – can control loopers – wasps lay their eggs inside the looper which is used as a feed source when the wasp larvae hatch out
- Looper parasite has a distinctive pupa in the form of a hard black and white capsule which hangs from a thread
- Amcetus is a wax scale predator

It is important to monitor the reject bin to see the causes of rejection. If fruit is insect damaged you need to determine which pests are causing the damage and therefore what measures you need to take.

**FARM WALK**

*Eggs of Lacewing, a beneficial insect*

*Capsule containing the pupa of a parasite (Charops sp. belonging to Ichneumonidae family) that feeds on looper*

*Ectropis looper: Ectropis sabulosa*

*Avocado leafroller: Homona spargotis*

*Tussock moth larva: Acyphus leucomelas*

*Vacated pupae of a parasite, a tiny wasp called Apanteles spp which prays on loopers*

The photos shown on this page and the next were taken on the farm walk and illustrate the diversity of pest and beneficial insect species present in the orchard (no sprays had been applied since February).

*Avocado leafroller: Homona spargotis*

*Mite eating ladybird larva (Stethorus spp.) feeding on tea red spider mite*

*Egg mass possibly of the cluster caterpillar (Spodoptera spp)*

*Pupa of unknown insect*

*Eggs possibly of caterpillar or beetle*

*Tussock moth larva: Acyphus leucomelas*

**OVERVIEW OF ORCHARD BY CRAIG FEHER**
Originally this orchard consisted of 'Rincon', 'Fuerte', 'Sharwil' and 'Hass'. In the late 1980's the 'Rincon' trees were topworked to 'Shepard'. After Craig took over in 2000, he pushed out the remaining 'Sharwil' and 'Hass', spelled the land for 12 months then planted 'Shepard'. Craig's avocado orchard now consists of 10 ha of 'Shepard' trees some of which are 5 years old and the rest are on rootstocks that are over 20 years old. They are mainly grafted to 'Velvick' rootstock and some to 'Duke 7'. Closer planted trees have given good production.

Craig has had sporadic tree deaths from *Phytophthora* root rot and *Phellinus noxius*, the latter derived from incomplete removal of tree roots from previous plantings. Cyclone Larry resulted in many trees being leant over. The big wet this year resulted in more trees being lost.

The main insect pests are fruit spotting bug and some thrips but they are not as bad as in the Mareeba/Dimbulah area.

**MONITORING – LEONIE WITTENBERG**
*Please refer to the 'Avocado Pest Summary' handout for hints on monitoring.*

Leonie gave an overview of what would be involved in insect monitoring an avocado orchard. She pointed out that there were a lot of beneficials insects in the orchard at present. Craig said that the orchard hadn't been sprayed since February – enough time for the beneficial insects to build up and achieve control of some of the pests.

It would require about an hour to monitor an orchard of this size. You need:

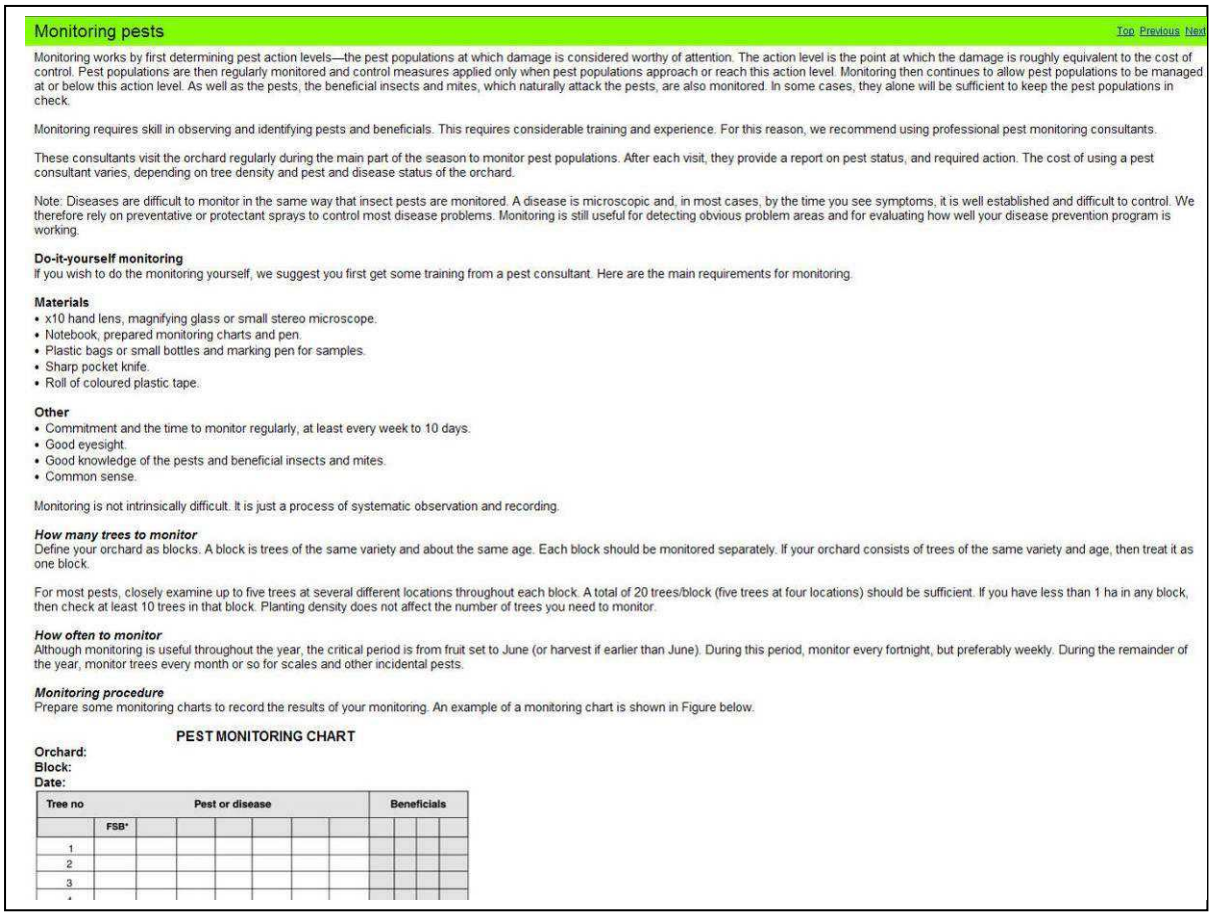
- A '10 X' magnifying glass
- Sampling bags (use paper bags if it will take a few days to get the sample to its destination).
- Small sampling jars.
- Coloured flagging tape to be able to mark trees that you want to return to later.


*Leonie & Craig conducting the farm walk and pest monitoring demonstration*

## AVOMAN APPLICATIONS FOR AVOCADO PEST MANAGEMENT

The AVOMAN avocado management software includes the following features that support pest management.

- Illustrated Help files (see some of the screen grabs below)
- Database containing details of pesticides registered for use against insect pests
- Record keeping and reporting for insect pest management practices
- Numerous reports, including the spray diary



### Monitoring pests

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Monitoring works by first determining pest action levels—the pest populations at which damage is considered worthy of attention. The action level is the point at which the damage is roughly equivalent to the cost of control. Pest populations are then regularly monitored and control measures applied only when pest populations approach or reach this action level. Monitoring then continues to allow pest populations to be managed at or below this action level. As well as the pests, the beneficial insects and mites, which naturally attack the pests, are also monitored. In some cases, they alone will be sufficient to keep the pest populations in check.

Monitoring requires skill in observing and identifying pests and beneficials. This requires considerable training and experience. For this reason, we recommend using professional pest monitoring consultants.

These consultants visit the orchard regularly during the main part of the season to monitor pest populations. After each visit, they provide a report on pest status, and required action. The cost of using a pest consultant varies, depending on tree density and pest and disease status of the orchard.

Note: Diseases are difficult to monitor in the same way that insect pests are monitored. A disease is microscopic and, in most cases, by the time you see symptoms, it is well established and difficult to control. We therefore rely on preventative or protectant sprays to control most disease problems. Monitoring is still useful for detecting obvious problem areas and for evaluating how well your disease prevention program is working.

**Do-it-yourself monitoring**
If you wish to do the monitoring yourself, we suggest you first get some training from a pest consultant. Here are the main requirements for monitoring.

**Materials**
- x10 hand lens, magnifying glass or small stereo microscope.
- Notebook, prepared monitoring charts and pen.
- Plastic bags or small bottles and marking pen for samples.
- Sharp pocket knife.
- Roll of coloured plastic tape.

**Other**
- Commitment and the time to monitor regularly, at least every week to 10 days.
- Good eyesight.
- Good knowledge of the pests and beneficial insects and mites.
- Common sense.

Monitoring is not intrinsically difficult. It is just a process of systematic observation and recording.

***How many trees to monitor***
Define your orchard as blocks. A block is trees of the same variety and about the same age. Each block should be monitored separately. If your orchard consists of trees of the same variety and age, then treat it as one block.

For most pests, closely examine up to five trees at several different locations throughout each block. A total of 20 trees/block (five trees at four locations) should be sufficient. If you have less than 1 ha in any block, then check at least 10 trees in that block. Planting density does not affect the number of trees you need to monitor.

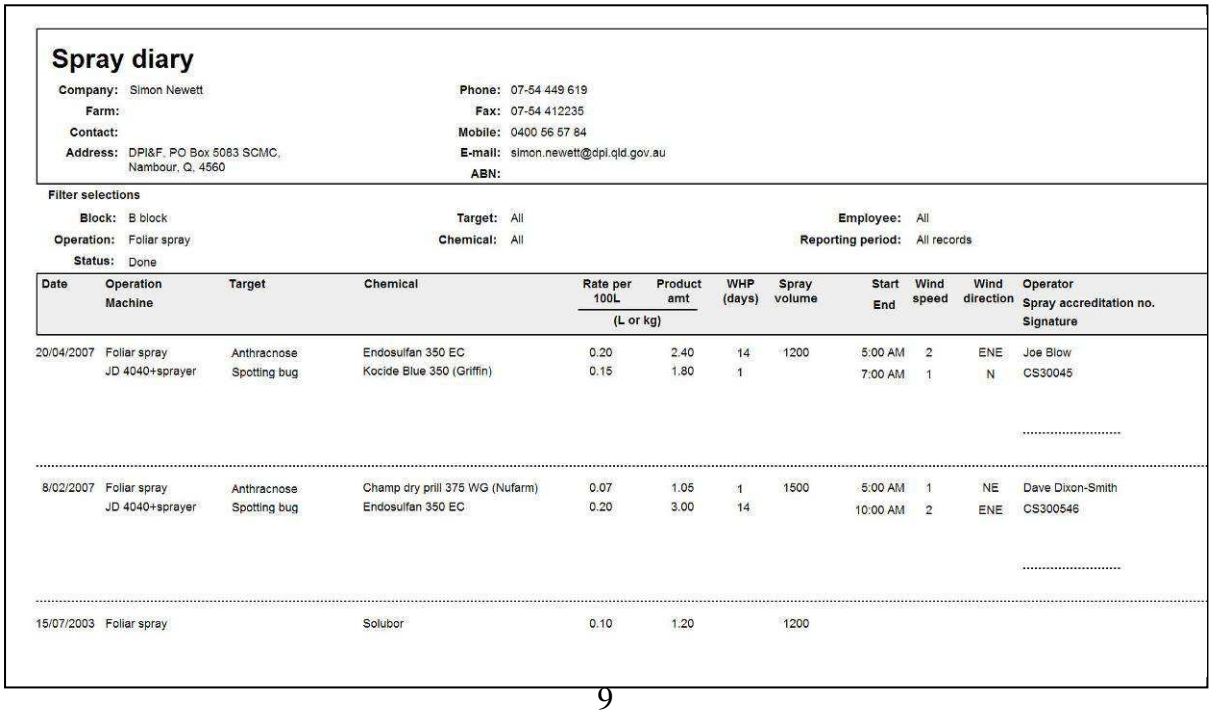
***How often to monitor***
Although monitoring is useful throughout the year, the critical period is from fruit set to June (or harvest if earlier than June). During this period, monitor every fortnight, but preferably weekly. During the remainder of the year, monitor trees every month or so for scales and other incidental pests.

***Monitoring procedure***
Prepare some monitoring charts to record the results of your monitoring. An example of a monitoring chart is shown in Figure below.

**PEST MONITORING CHART**

**Orchard:**
**Block:**
**Date:**

| Tree no | Pest or disease | | | | | | | Beneficials | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | FSB* | | | | | | | | | | |
| 1 | | | | | | | | | | | |
| 2 | | | | | | | | | | | |
| 3 | | | | | | | | | | | |



### Spray diary

**Company:** Simon Newett
**Farm:**
**Contact:**
**Address:** DPI&F, PO Box 5083 SCMC, Nambour, Q, 4560

**Phone:** 07-54 449 619
**Fax:** 07-54 412235
**Mobile:** 0400 56 57 84
**E-mail:** simon.newett@dpi.qld.gov.au
**ABN:**

**Filter selections**
**Block:** B block **Target:** All **Employee:** All
**Operation:** Foliar spray **Chemical:** All **Reporting period:** All records
**Status:** Done

| Date | Operation / Machine | Target | Chemical | Rate per 100L (L or kg) | Product amt | WHP (days) | Spray volume | Start / End | Wind speed | Wind direction | Operator / Spray accreditation no. / Signature |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 20/04/2007 | Foliar spray | Anthracnose | Endosulfan 350 EC | 0.20 | 2.40 | 14 | 1200 | 5:00 AM | 2 | ENE | Joe Blow |
| | JD 4040+sprayer | Spotting bug | Kocide Blue 350 (Griffin) | 0.15 | 1.80 | 1 | | 7:00 AM | 1 | N | CS30045 |
| | | | | | | | | | | | ..... |
| 8/02/2007 | Foliar spray | Anthracnose | Champ dry prill 375 WG (Nufarm) | 0.07 | 1.05 | 1 | 1500 | 5:00 AM | 1 | NE | Dave Dixon-Smith |
| | JD 4040+sprayer | Spotting bug | Endosulfan 350 EC | 0.20 | 3.00 | 14 | | 10:00 AM | 2 | ENE | CS300546 |
| | | | | | | | | | | | ..... |
| 15/07/2003 | Foliar spray | | Solubor | 0.10 | 1.20 | | 1200 | | | | |

## Pest and disease information and manage

Pest management
Pest and disease management (other than root rot)
Pest management
Monitoring pests

Algal Spot
Anthracnose
Avocado Sunblotch Viroid

Bacterial Soft Rot
Basidiomycete
Bug - Bathrus
Bug - Tea mosquito
Bugs - Fruitspotting and Banana spotting

Cercospora leaf spot

Fruitborer - Avocado
Fruitborer - Orange

Fruit fly - Mediterranean
Fruit fly - Queensland

Leaf-eating Beetles
Leafrollers
Looper - Bizarre
Looper - Brown
Looper - Ectropis
Looper - Grey

Mite - Broad
Mite - Six spotted
Mite - Tea red spider
Moth - Light brown apple
Moth - Saunders' case
Moth - Tussock
Moth - Yellow peach

## Leafrollers

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**The pest**

- Avocado leafroller (*Homona spargotis*); ivy leafroller (*Cryptoptila immersana*).
- Adult moths are a mottled grey to light brown and up to 25 mm long. At rest, the moths have their wings folded slightly downwards from the horizontal midline of the body and appear bell-shaped. The larvae of the ivy leafroller grow up to 25 mm long, and are a translucent green-yellow, with a white head capsule that bears four distinct black, wedge-shaped marks. Larvae of the avocado leafroller are green, with two black patches on the white head capsule.

**Life cycle**

- The pale yellow (avocado leafroller) or green (ivy leafroller) eggs are laid in masses, sometimes exceeding 400, and overlapping like fish scales. They are laid on the upper surface of mature leaves. Eggs hatch after six to eight days, with the larvae dropping on silken threads to be dispersed by the wind or crawl a short distance to suitable feeding sites. They feed for up to six weeks before pupating.

**Damage**

- The caterpillars roll and web leaves together, and web leaves to fruit to form shelters in which they feed and develop. Inside these shelters they feed on adjacent leaf and fruit tissue. Although leaf damage may be severe, fruit damage is more important. Large areas of the fruit skin may be eaten (see Figure 1), sometimes to a depth of 4 mm. Damaged fruit may be infected with anthracnose and drop, or the injury may heal, forming scar tissue (see Figure 2). In either case, fruit is unmarketable. Heavy attack by avocado leafroller can result in partial tree defoliation.

***Figure 1:*** *Damage from ivy leafroller showing a larva of the insect.*

***Figure 2:*** *Typical damage from avocado leafroller. The two fruit have been separated to reveal the webbed shelter formed where the fruit were in contact with each other.*

***Figure 3:*** *The egg masses are pale yellow, elongated and felty. Eggs are laid in an overlapping pattern like fish scales on the upper surface of mature leaves.*

- Varieties worst affected are Wurtz and Reed, which form dense leaf and fruit clusters that the larvae find easy to web together. In Wurtz, the leaves often hang over the fruit and severe damage is common.
- Avocado leafroller can be a serious problem from spring to autumn, but ivy leafroller is mainly a problem in autumn.
- Both leafrollers may attack a range of other plants including custard apple, tea, macadamia, citrus, cotoneaster and honeysuckle.

**How to monitor**

- Monitor trees across the orchard. Pay particular attention to the highly susceptible varieties (Wurtz and Reed).

## Edit an existing job or reminder

Date 26/06/2003 Today

Status Reminder Done

Block Eastern

Operation Foliar spray

Spray volume (L,M,H,Bait) 2000 Litres

Target Set Clear 2 target(s) selected

Product Set Clear 2 product(s) selected

| Chemicals to be applied | Targets |
|---|---|
| Copper oxychloride 500 WP | Anthracnose |
| Endosulfan 350 EC | Spotting bug |

Record Record & Close Close

**Spray details**

| | Time | Wind speed | Wind direction |
|---|---|---|---|
| Start of job | 6:00:00 AM | 1 | SE |
| End of job | 9:00:00 AM | 2 | S |

**Labour & machinery**

| | | | |
|---|---|---|---|
| Employee | Dave Dixon-Smith | Hrs 4.00 | $ 70.00 |
| Machine | JD 4040+sprayer | Hrs 3.00 | $ 51.00 |

**Notes** Load template

GENERAL INFORMATION
No. of endosulfan applications this season: 5
Neighbours notified, date & method: 25/6/03 phone
Farm map held: Yes

CROP AND PEST DETAILS
Age of trees: 12 years
Health of crop: Good
Time since last irrigation: 5 days

WEATHER CONDITIONS AT APPLICATION SITE
Rain forecast for next 48 hours: No
Rain in previous 24 hours: Nil
Sky conditions at time of application: Cloudy
Humidity at time of application: Medium

APPLICATION DETAILS
Equipment and nozzles used: 24 XZT 34's
Speed of equipment: 2.3 km/hr
Sprayer pressure: 80 psi
Additives and rate of use: Spraymate 40, 5ml/100 L
Mixing and loading equipment used: Manual

**AVOCADO AGRILINK KIT**

The Avocado Agrilink Information Kits are now out of print but as an interim measure good photocopied kits are available from the Queensland DPI&F for just $33 plus postage and handling. The Problem Solver section is colour copied. To obtain a copy please contact Janelle Dahler, Qld DPI&F at Redlands Research Station (near Brisbane), either by phone on 07-3824 9555 or by email at growsearch@dpi.qld.gov.au. Janelle will photocopy the whole book (including colour copying the 'Problem Solver' section) for a cost of just $33 (includes GST) plus about $7.50 for postage & handling.

**NEXT MEETING**

Topics suggested and voted on:

- Irrigation 18 votes
- Nutrition 12 votes
- Canopy management 6 votes
- Post harvest management 3 votes
- Packing, packaging & marketing 3 votes

**Topic:** Irrigation
**When:** Tuesday 9 September 2008
**Venue:** Sam & Kylie Collins' orchard near Mutchilba

**APPENDICES & ATTACHMENTS**

- Grower feedback from the meeting
- MS Powerpoint presentation by Stef De Faveri
- MS Powerpoint presentation by Matt Weinert
- 'Chemicals registered to control avocado pests'
- 'Monitoring for Avocado Pests'
- Copy of the 'Positive Points Self Assessment' exercise for you to use

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# Results from feedback – 2nd North Queensland meeting

*Note: Feedback forms were not available on the day so the information below was gathered by fax after the event, thanks to those who responded.*

## Your current farm practice:

***Do you use the services of a specialist pest scout to help take decisions on pest management?***

Yes **1** No **3**

***How often do you (or a pest scout) monitor your orchard for pest problems?***

*Each week* **3** *Each month* *Not at all*

***How often do you calibrate your spray equipment?***

*Every6 months* **2** *Once a year* *Whenever something looks wrong* **1**

***Are you familiar with any beneficial insects in your orchard?***

- Yes
- Yes, assassin wasp & one which attacks looper.
- I wasn't but more aware now
- Yes

***How often do you replace the nozzles in your pesticide sprayer?***

- 100 hrs
- New sprayer. I expect to get 5 years.
- 2-3 years

## Today's workshop:

1. How useful did you find this workshop? Please circle the most appropriate description.

Not useful Fairly useful Useful **2** Very useful **2** Extremely useful

2. List the 3 most useful things that we did today and why?

- **Learnt about pests – nasties & beneficials, learnt about some spray applications, went pest scouting.**
- **Field walk looking at predators, have to refer to minutes for others.**
- **Update pest finding & identification knowledge.**
- **PowerPoint-able to see the insects, info/flyers on pest monitoring & suitable chemicals, ideas exchanged amongst growers.**

3. Did you feel able to participate? Please circle most appropriate description.

No A little Some **1** Many chances **2** Every chance **1**

4. Have you established new contacts today and/or had beneficial discussions with others?
Yes **4** No

5. Have you learnt something new about avocado production and/or fruit quality today? …
Yes **4** No

6. Has what you learnt today made you question your current farm practices?.....
Yes **3** No

7. Do you think, from what you learnt today, you will make a change to your farm practice?
Yes **2** No **1**

If yes briefly describe:

- **Look for predators as well as pests.**
- **I would be nervous to treat only the 'hot spots'. I think I'd rather "hit the lot".**
- **Instead of spraying immediately it will now be used as a last resort.**

8. In running the day, what could we do better?

- **Good job – perhaps the bugs that were on display could have been handed around in separate containers as you spoke.**
- **Don't know.**
- **Discuss aspects of insect infestation , eg hedges/windrows/local crops.**
- **More structured orchard walk with a debrief.**

9. Any other comments:

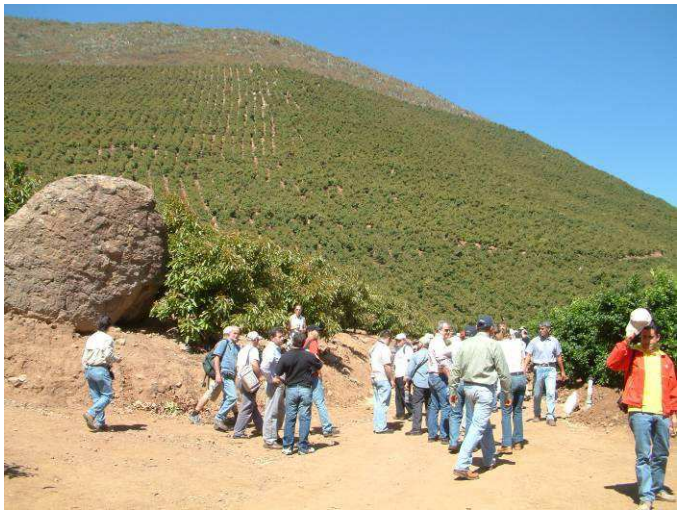
- **Would love to see more work shops like this one. Oh, so much more to learn!**
- **Information overload.**

# Avocado tour to Chile November 2007


*Avocado pulp is popular in Chile and more profitable than oil. Agricom packed 32 000 tonnes in this facility in 2006*

*Insectory on orchard for breeding beneficial insects*

*High mounds are used and drip irrigation is pulsed*



*Hillsides are used to get away from frost where grapes are grown. Avocados are planted halfway up these mountains.*