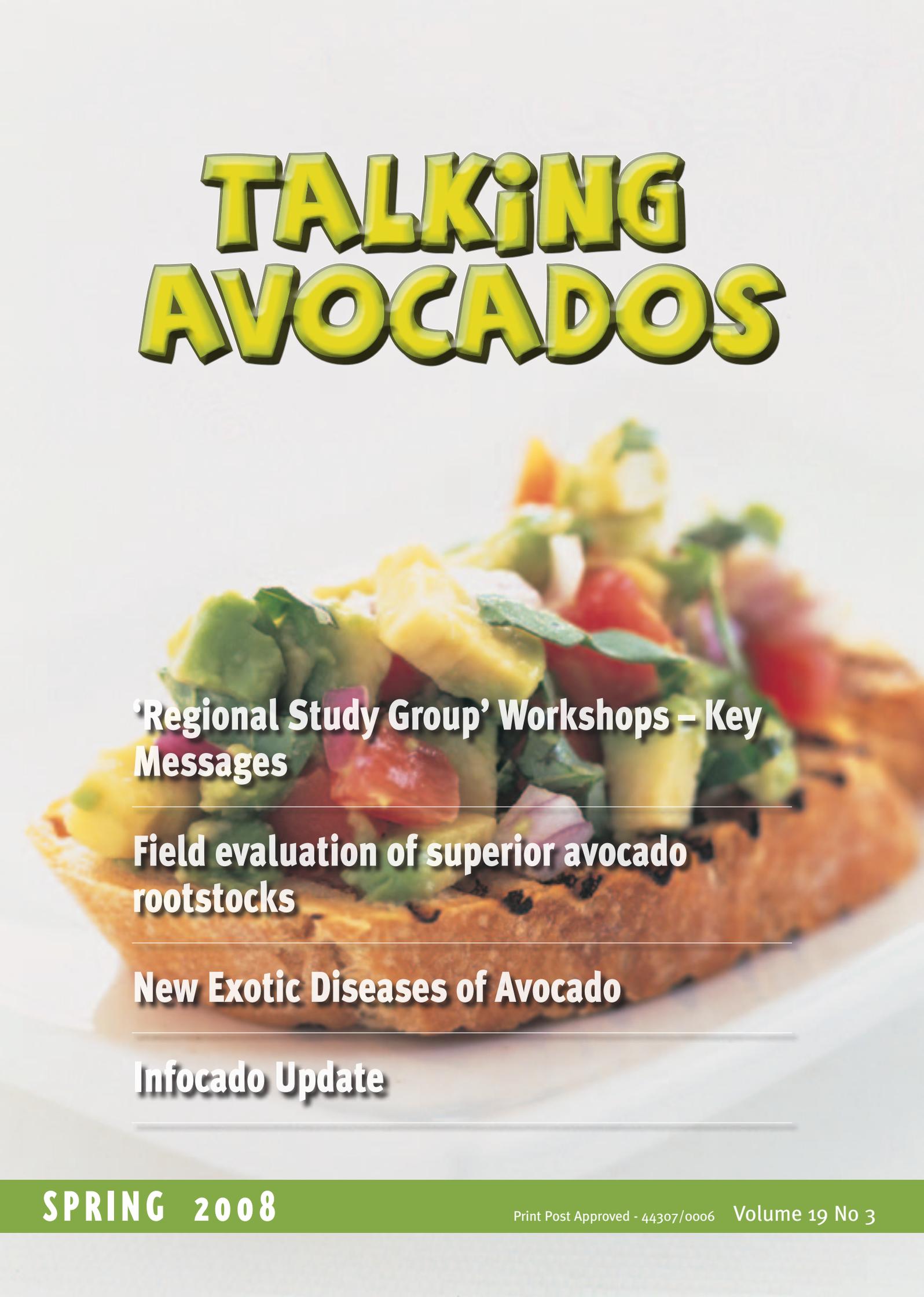


# TALKING AVOCADOS



**'Regional Study Group' Workshops – Key Messages**

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**Field evaluation of superior avocado rootstocks**

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**New Exotic Diseases of Avocado**

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**Infocado Update**

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**SPRING 2008**

Print Post Approved - 44307/0006 Volume 19 No 3



# Chairman's Perspective

## Change and growth

**Niccolò di Bernardo dei Machiavelli** (3 May 1469 – 21 June 1527), was an Italian diplomat, political philosopher, musician, poet and playwright – a prominent figure of the Italian Renaissance.

Five centuries ago, Machiavelli said:

*"Nothing is so difficult as trying to change the nature of things. You have as sworn enemies, all those who benefit from the status quo and as lukewarm defenders those who might benefit from the new."*

In the avocado industry, we are facing many challenges in today's world. The media is full of information about recessions, depressions, crashes, doom and gloom. We are being bombarded from every direction. And despite the challenges of change, described above, we have no choice but to be proactive and embrace change, rather than simply sticking to the same well worn and seemingly safe path.

I am not advocating change for the sake of change. But I am advocating a keen eye for improved ways of operating, in order to keep several steps ahead of the game – extracting benefits from local and world conditions, as they change around us.

## What's this got to do with the Australian avocado industry?

Avocados Australia has, for the last five years, been pushing the theme of smarter marketing. How far have we moved along this difficult path? And have we extracted the benefits of a new, smarter way of marketing? Or are we still just selling our product in the same old way ie sending it to the market and hoping for the best?

Are environmental issues going to force some changes to the way we operate? If we are not proactive in responding to environmental pressures, change will be forced upon us by local,

state or federal authorities, and these impositions may not be palatable or comfortable.

If we can shake ourselves out of our comfort zone, and aggressively seek to embrace beneficial change, the return on this investment will be realised.



I recently had the privilege of attending meetings in Israel with the Avocado Marketing and Promotion Working Group (AMAPWG). This group has been meeting since humble beginnings in 1999, and now comprises representatives of the 12 avocado producing countries. The philosophy is to collaborate and share information about supplies, timing, markets, promotion strategies etc. A few years ago, it would have been unthinkable for this exchange of knowledge to take place freely and with good grace. Yet this group has come to the conclusion that sharing knowledge and information actually brings benefit to all countries involved.

What is the lesson from the AMAPWG? To me it signals that a change in attitude towards cooperation and collaboration, while sometimes seeming to be outrageous, actually brings tangible benefits to the commercial entities involved.

Machiavelli made his statement 500 years ago. Now we need to embrace the opportunity to change, and extract the good of it. All you have to do is move along Machiavelli's spectrum, from the being stuck in the status quo, to realising the benefits from the new.

*Henry Kwaczynski*

Henry Kwaczynski  
Chairman  
Avocados Australia

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# Industry Matters

Written, edited and compiled by

Antony Allen, CEO of Avocados Australia

## Avocado volume continues to grow

The Australian avocado industry continues to expand at a rate that is unprecedented in the industry's history. The table below indicates the previous 12 months and the estimated crop volume in 2009. The ongoing need for promotion, demand development and export development is essential, the industry's R&D and promotion programs are fully leveraged to drive demand for and quality in avocados.

The other important area that all growers and marketing groups need to be working on is coordination and supply management in partnership with their wholesalers and other supply chain partners.

### Oct 07 to Sep 08 Dispatches & Oct 08 to Sep 09 Australian Avocado Production Estimates 5.5kg eqv trays

| Region              | 2007/08          | 2008/09          |
|---------------------|------------------|------------------|
| North Queensland    | 1,034,547        | 1,158,126        |
| Central Queensland  | 2,461,935        | 3,666,149        |
| Sunshine Coast      | 524,247          | 518,249          |
| Southern Queensland | 1,145,179        | 1,151,576        |
| Northern NSW        | 400,378          | 311,941          |
| Central NSW         | 697,040          | 822,118          |
| Tri State           | 150,794          | 190,129          |
| WA                  | 572,306          | 1,118,765        |
| <b>Total</b>        | <b>6,986,425</b> | <b>8,937,054</b> |

## Who, what and how our system works?

The discussion below is indented to assist growers understand how our organisations work and determine what projects are funded for the avocado industry.

### What is Avocados Australia Limited?

Avocados Australia Limited is the Peak Industry Body in Australia for Avocados. We are a "not for profit" membership based organisation. Our members are Avocado growers along with associated businesses and industry people.

Avocados Australia seeks to work with all parts of the chain from production through to the consumer. By working together we seek to continually improve the ability of growers to provide a healthy, profitable and safe product for all consumers. As part of this continual improvement we direct a "research & development" and "marketing and promotion" program for the Australian Avocado industry.

### Are all growers members?

No, not all growers are members. Avocados Australia currently has approximately 55% of all growers as members. To be a member a grower must join and pay a membership fee of \$143 (including GST). Paying the national avocado R&D and marketing levies has no connection to membership.

### Why is membership separate from levies?

The Australian Government specifically stops anyone, including Avocados Australia from using levies for any "agripolitical" purposes. Levies can only be used for avocado R&D and marketing. This means that any government work must come from funds separate from levies, for example membership fees.

### How are decisions made in Avocados Australia?

A board of directors is elected by the grower members. The current board has nine directors which serve three year terms, three directors must retire each year. The board is a mix between locality and production, so we ensure our widely based growing regions and large production areas have a balanced say in decision and direction setting. The board sets in place decisions and policies, these decisions and policies are then carried out by the Avocados Australia management.

### How are levy projects determined and decided?

The avocado industry levies are collection by the Australian Government. These levies are then transferred to the avocado account within Horticulture Australia Limited (HAL).

Avocados Australia along with 43 other Peak Bodies for horticulture crops are owners/members/shareholders of HAL. Avocados Australia and HAL put in place an Avocado Industry Advisory Committee (IAC, a committee of HAL) to select and recommend projects to the HAL board that meet the Avocado Industry Strategic objectives. The IAC is made up of the Avocados Australia Board along with an independent Chairman. IAC meetings are held three times through the year. HAL then manages the contracting of all projects

### Can Avocados Australia undertake projects?

Yes we can, although HAL have an active policy to not allow Avocados Australia to undertake projects unless, no one else can undertake them cost effectively. Currently Avocados Australia is directly contracted to undertake less than 15% of the programme per year.

**What and who is HAL?**

HAL is not a peak industry body.

HAL is not a government organisation.

HAL is a service organisation that owned by the National Peak Industry Bodies (PIB) and exists to manage the R&D and Marketing programs on behalf of the 44 levy paying National PIB grower organisations and the Australian Government (for the R&D matching dollar) and manages a system of matching voluntary contributions from horticultural businesses and organisations.

HAL provides services directly to the National PIB grower organisations to help in the management of the projects that are selected by the Avocado Industry Advisory Committee.

**Next Edition**

In the next edition we will out line how the marketing program is determined and rolled out for the Australian avocado industry.

**Big shed will process most of WA avocado crop**

Western Australia’s avocado industry is surging ahead, with a new multi-million-dollar packing shed in the South West one of the biggest high-tech facilities of its kind in the country.

The site at Manjimup has taken six months to build, and will handle projected volumes of 1.3 million trays in three years’ time from 30 local farmers. The first fruit is being packed next week, with up to 50 per cent of avocados grown in WA expected to come through the shed.

Project manager, Wayne Franceschi, says it also includes the latest technology to track fruit back to the grower. “I would say at this point we would be the most high-tech packing facility in WA,” he says.

“There’s a few on the east coast, but I’m not too sure they’re up to our level yet. The industry’s going to end up in a few places as far as production goes and this is one of them.” Source: ABC

**Productivity Commission says no-strings drought payments should end**

The third part of the Federal Government’s review of drought payments is recommending they should be changed to encourage farmers to become better prepared for drought.

The Productivity Commission says interest rate subsidy payments and income support have divided the farming community, with arbitrary lines on the map deciding who gets help.

Victorian grain farmer Chris Cook said: “People that were in the same position couldn’t get it for different reasons.” The review says that bad farm managers who’ve least prepared for drought are being rewarded, and no-strings payments should be changed

to turn that around. But a welfare safety net should be maintained and more research is needed.

NFF President David Crombie: “It’s understanding climate change and then it’s enabling them to prepare better.”



The Commission’s plan tallies with the Federal Government’s climate and social drought review findings. But changes will be tough for some farmers, and the Government won’t make decisions until after the Commission’s final report in February. Source: ABC

**Home brand expansion could squeeze farmers**

A retail food analyst says farmers and food processors should be worried that Coles is trialling carrying a smaller range of products. Coles says it’s just one of a number of small trials, and there’s no plan at the moment to roll it out nationally.



Avocados Australia has for a number of years paid a large amount of money for the industry’s right to use the **Heart Foundation “Heart Tick”** on avocados.

*If you are using a “Heart Tick” logo from anyone other than the label companies **Label Press, Spicer Labels, Sinclair International and Warehouse Packaging and Design** you are acting illegally.*

No other label printers are able to legally print the “Heart Tick” for use on avocados. Avocados Australia is undertaking a clean up of the “Heart Tick” printing. We will lose access to the “Heart Tick” logo if it is used illegally.

Avocados Australia, AUF and the Heart Foundation will enforce their Registered Trademark rights to the fullest extent.

If you have non-genuine labels do not use them. If you know of label companies offering to print non-genuine “**Heart Tick**” labels for you please let us know on **1300 303 971**, so we can all help keep this valuable tool.

*All growers could lose access to the “Heart Tick” logo if you don’t act now.*



CERT TM

## Industry Matters continued

But analyst David McKinna says both Coles and Woolworths are increasingly pushing their own brands ahead of other local brands. And, he says, food manufacturers are finding it increasingly difficult to get their products onto the supermarket shelves. “The mid level companies - many of them have already disappeared, but certainly they will be under a lot of pressure,” he says.

“They really don’t have the turnover and critical mass to strongly market their brand and innovate, so they really struggle.” Source: ABC

### Review demands better telco deal for rural areas

An independent review has called on the Federal Government to draw up a new agreement on a better level of telecommunication services in rural Australia.

The rural telecoms review, commissioned by the previous Coalition Government, has found rural mobile and internet services are totally inadequate, and are holding back the economy. It found only there’s only mobile coverage across only 15 per cent of the country, or 25 per cent if users have a car kit antenna.

Review chairman Dr Bill Glasson says it’s hard to tell how much improvements would cost, but a better minimum service level must be guaranteed.

“Within that area, the economic basis of this country exists. In other words, that’s our mining towns, our mining communities. It’s our agricultural towns, which produce a vast amount of our gross domestic product,” he says.

“And I think that we owe it to that 3 per cent or that 70 per cent of our landmass that we put in appropriate telecommunications services, so that we can support them in the industries that they exist in.” Source: ABC

### Rural jobs more certain in economic crisis

Analysts say rural workers are likely to have better job security than their city counterparts during the current economic uncertainty.

Rural skills shortages are tipped to continue despite forecasts of higher overall unemployment, and the low Australian dollar is likely to increase demand for goods like processed food.

David Edwards, from recruitment company Drake International, says skills shortages in the mining industry are likely to continue for at least another year.

“As new projects are being examined for their viability, then reduced resources prices and lower forecast of demand will mean that those new projects look less viable and they may be delayed or put on hold, but that’s not an issue in the short term,” he says. “But there is still plenty of work, skills shortages exist and there are many projects going on.” Source: ABC

### Australia may miss out on fertiliser price fall

Fertiliser prices in the US have fallen between 18 to 26 per cent since the end of August. Analysts say the global financial crisis is the main reason, but they aren’t confident the lower prices will be passed on to Australian farmers.

Rabobank commodities analyst Adam Tomlinson says an expected increase in worldwide fertiliser demand may offset the current price drop. And he says the falling Australian dollar will also work against our farmers.

“Demand has slowed in September worldwide, but in view of demand picking up later in October and November, we may see a difference in that,” he says. “However, given that the Australian dollar depreciated by 16 per cent since the end of August, it has offset that advantage of the US dollar fall in prices.” Source: ABC

### Rural consumers not helped by grocery choice site

The price of groceries has narrowed between supermarkets since the Grocery Choice website was set up, according to the ACCC. The competition regulator’s latest survey shows there is now less of a difference between the prices at Coles, Woolworths and independent supermarkets in 61 regions. The ACCC says Coles was cheapest on a grocery basket in 40 of 61 regions, but ALDI offered the cheapest staple products.

Christopher Zinn, from the consumer group Choice, says the information isn’t very useful to rural consumers. “It’s not as local as people would require, certainly out in the regions you can be bundled into very large areas where there can be huge price differences,” he says. “And certainly the independents have an argument when they say that having all their prices compared, just as independents, does not really reflect the spread of prices that there are on the ground.” Source: ABC

### ACCC finds no evidence of fertiliser price gouging

Farmers will continue to pay record high prices for fertiliser. While costs have more than tripled in the past few years, the Australian Competition and Consumer Commission says there’s nothing underhand or illegal about the price rises.

The ACCC inquiry was set up by the Federal Government, and has concluded ahead of a Parliamentary inquiry into fertiliser prices, chaired by Liberal Senator Bill Heffernan.

In its findings, the ACCC found there wasn’t enough evidence to prove farmers’ claims that fertiliser companies breached the Trade Practices Act by overcharging or refusing to supply.

Kerry Gleeson, from fertiliser company Incitec Pivot, says the findings put the industry in the clear. “I think we’re in the middle of a super cycle, and when you look back over history, super cycles last some 30-odd years typically, so I think we can well see prices at this sort of level for the foreseeable future.” Source: ABC

## Guest worker scheme could start by November

Four Pacific countries will be asked to send people to help with Australia's fruit and vegetable harvests, under a trial guest worker scheme.

The Federal Government will put the plan to a Pacific Island Forum meeting this week and hopes the first workers will arrive by November. Swan Hill in Victoria, Griffith in New South Wales and the Atherton Tablelands in Queensland, will be among the first regions to participate.

It's very exciting for us as a partial solution to resolve 22,000 shortages in the horticulture sector across the country. They have announced two and a half thousand visas available, over a three-year pilot program.

A senior World Bank economist says overstaying won't be a problem if Australia's seasonal guest worker scheme is designed properly. Doctor Manjula Luthria says the countries that offer continuity and reliable work are the ones with the most successful guest worker schemes.

"One element of good design is to allow these workers to come back year after year," she says.

"If they turn out to be good workers, it shifts the incentives in favour of playing by the rules and having access to a job year

after year after year, rather than by blowing your chances by not complying in one year."

Kiribati, Tonga, Vanuatu and Papua New Guinea will be the countries trialling the scheme.

But a Darwin melon grower has questioned the wisdom of the scheme, because it focuses on Pacific workers and ignores the availability of Asian workers.

Dave Cormack, who uses workers from Korea and Taiwan, says there are advantages to using Asian labour.

"I don't care where they come from, but I think we really should have a balanced approach to this and look at the Asian areas as well," he says.

"We've had very good response from the Asian area over the last four or five years.

"At this stage, we are using them from Taiwan and their level of English is very good and we find them excellent workers."

## Hail-hit farmers get natural disaster funds

New South Wales mid-north coast farmers battered by recent hailstorms have been granted natural disaster relief. Primary Industries Minister Ian Macdonald announced the relief package yesterday, saying the wild storms of October 20 and 21 had left

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## Industry Matters continued

mid-north coast property owners with damage of more than \$1.8 million. More than 60 properties from Rollands Plain in the south to Woolgoolga in the north were hit, losing avocados, bananas, lettuce, blueberries and stone fruit to hailstones described as tennis ball sized.

To be eligible for assistance, growers must demonstrate an urgent need of help and derive most of their income from primary production. Landowners can access help through the state's Rural Assistance Authority. General manager Steve Griffiths says they can get loans of up to \$130,000 with two years of no interest or repayment.

"The Department of Primary Industries regularly monitors these events and they are reliant also on calls and advice from local producers," he said. "When they've reached a certain level there's a report done that recommends the declaration of natural disaster which is what's occurred in this circumstance." Source: ABC

### Award modernisation hurdle for rural workers

The National Farmers Federation wants 40 agricultural awards across the country to be merged into one.

The NFF is talking to the Australian Workers Union to try to simplify terms and conditions for employees.

But the union says one award won't work, and it wants a minimum of five, to cover the sugar, wine, cotton, aquaculture and wool sectors. National Secretary Paul Howes says the NFF plan could erode workers' rights. "There's not a lot of commonality between, say, an aquaculture farm in Hobart and a shearing shed in outback Queensland," he says.

"We think it is important to have maybe five or six rural awards that take into consideration the very different circumstances that apply from one agricultural venture to another," says Mr Howes. The NFF says nothing has been finalised. Source: ABC

### Laser leaves mark on avocado fruit

A laser beam may be lighting the way of the future at an organic farm in Queensland. Fruit and vegetables at Googa Farms are being labelled with a laser that makes a permanent mark on the skin without affecting the flesh. The system is the first to be installed in Australia. As the food is effectively branded, the label cannot be swapped or tampered with.

It also uses far less electricity than a sticker machine - the same amount as a light bulb. The laser can label 14 pieces of fruit a second, however Googa Farms director Anthony Beutel said he had set the machine to label "only" five pieces of fruit a second. "It's certainly much quicker than sticking them by hand," Mr Beutel said. "It seemed pointless buying stickers to be just looked at and then thrown away."

So far the Natural Light Labelling System - made by manufacturing company Durand Wayland - has been used on avocados,

pumpkins and tomatoes. It sits above a conveyor belt equipped with dishes for the fruit or vegetable. The laser points down at the produce and is activated when an inbuilt sensor detects it.

Googa Farms sales manager Nick Miall said the machine could also print a phrase or picture on the produce, such as "Merry Christmas" or "Happy Father's Day". "We can write whatever we want, if a customer wants their name on it we can do that as well," Mr Miall said. He said the business should recoup the \$80,000 set-up cost within five years.

### Unit pricing for Woolworths

Woolworths is introducing unit pricing across all its stores, allowing shoppers to more easily compare the prices of different sized products and brands.

The labels will display two prices - a total price and a price per kilogram or litre.

A national system of unit pricing was a key recommendation of the Rudd government's grocery price inquiry, which reported in early August. Woolworths is the first major national chain to implement it.

Aldi has a unit pricing scheme, as does Franklins in NSW. However, it could take up to a year before all Woolworths labels display a unit price. It will introduce 12.5 million new labels in the next year. Source: Food Week

### Pink Lady wins agribusiness award

Apple and Pear Australia Ltd (APAL) has won the Agribusiness Value Adding Award at the NAB Agribusiness Awards for Excellence for its international development of the Pink Lady apple brand.

The Pink Lady, developed from the apple variety Cripps Pink, has been developed to become a global brand worth \$1.6 billion a year.

When accepting the award last night, Chairman of APAL, Darral Ashton, announced that APAL had created a new commercial IP management division based on the experience and expertise APAL had gained through managing the Pink Lady™ IP.

"We are very pleased to have the International Pink Lady™ business recognised by these prestigious awards," said APAL chairman, Darral Ashton. "We still find it an exciting business, even though we have been close to it for more than 15 years.

Ashton said as a consequence of the Pink Lady™ commercialisation, APAL has been repeatedly asked to assist government agencies, funding bodies and overseas breeders with the commercialisation of plant varieties. "The experience and expertise that has developed through the international commercialisation of the Pink Lady brand is rare. The global development of this brand is often quoted as being the most successful example of a fresh apple commercialisation in the world," he added. Source: Food Week

## Stiff new penalties to curb cartels

Business owners face 10 years in jail and companies up to \$10 million in fines under tough new anti-cartel legislation proposed by the federal government. Competition Policy and Consumer Affairs Minister Chris Bowen (pictured) today released the final cartels legislation, saying the tough new jail term matched those in the United States, making them the toughest anti-cartel measures in the world.

The release of the draft legislation makes good on a Rudd government promise to crack down on businesses which collude with competitors to control prices. The legislation calls for maximum 10 year jail terms for individuals found guilty of price collusion, or a maximum \$220,000 fine. Corporations will face fines of \$10 million or three times the value gained from the cartel, whichever is greater.

The Australian Competition and Consumer Commission (ACCC) will also be able to request Australian Federal Police phone taps in criminal cartel investigations, to help overcome difficulties in prosecuting misbehaviour. "We have always said that a jail term for cartel offences sends a clear message - price fixing is theft from consumers and won't be tolerated in this country," Mr Bowen said.

"Cartel conduct harms consumers, businesses and the economy. People who operate cartels are thieving from the community - it is corporate theft."

Mr Bowen said the government would seek support from state and territory governments before introducing the bill to parliament later this year.

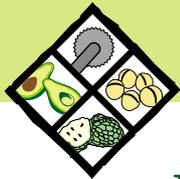
Mr Bowen said the ACCC investigated numerous cartel allegations each year, but often found it difficult to prove price collusion. The new phone-tap powers would improve the success in prosecuting cartels, he said. "This is an important measure," Mr Bowen said. "Telephone tapping powers will give the ACCC the weapons they need to prove serious cartel cases."

He said the laws also would remove the so-called "dishonesty defence" - which allowed those accused of price collusion to argue they had not intentionally been engaged in the practice.

"What we didn't want to see was the position where people ... could come forward with the defence where, 'this is always the way it has been done around here ... we just thought it was a good way to do business ... we weren't meaning to rip anyone off'," Mr Bowen said. "I don't think that is a legitimate defence."  
Source: Food Week

MECHANICAL

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# Around Australia

## Central Queensland Report

By Lachlan Donovan and John Walsh  
Avocados Australia Directors for Central Queensland Growing Area



As written in the winter edition of Talking Avocados watch out 2009 - it's shaping up to be significantly the largest crop produced out of Central Queensland. This has now been confirmed by the fruit set just completed across most varieties. It is important that now the crop has been set that growers review their Infocado estimates and update them when next asked so that the most up to date information is available when marketing decisions are made.

Water allocations are now 100% on the North side and 40% on the South side. Groundwater allocations are currently on average 10% higher than last year. These water allocations will allow most growers to maximise the fruit set.

As has been highlighted the last couple of seasons the harvesting of immature fruit has had a detrimental effect on the market, not at the time the fruit is sold but for some time after impacting on growers doing the "right thing" as immature fruit is a major turn off for consumers. Focus group studies have proven this to be correct Fruit Quality's Effect on Consumer Purchasing (AV06025) and Online Consumer Quality Survey (AV07019). There is plenty of source information and testing available for growers to determine when their fruit is mature - QDPI, Avocados Australia research, publications and web sources. For next year the last thing that this industry needs is to drop the ball at the kickoff.

Coordinated marketing using information from Infocado on volumes available will be critical to move the fruit through the system next year both domestically and through export channels.

## North Queensland Report

By Jim Kochi Avocados Australia Director for the North Queensland Growing Area



Spring has sprung in the Far North and here we are none the wiser. The northern growers have always had a keen interest in watching the flowering process because some are mango growers and that crop has such variances the amount of fruit set can mean boom or bust returns. The avocado growers around Mareeba who have the first of the fresh Australian fruit for the year watch their flowering closely because it can mean an earlier start to the harvest in January or February.

Sometimes by as much as a week if conditions are right. The Shepard growers with older trees are just standing there - looking, looking and observing a split set with some fruit already at egg size in late October to flowers just setting pin head size fruit. It seems we had a mixed winter with bouts of cool followed by warm, some cold and cloudy then some more drizzle and more

cold, warm, fine conditions. My own Shepards are just at pin head to pea size in late October. The Hass is another story. Hass on the higher tablelands has always been more reliable because it is more cold tolerant but it seems it has now crossed with Shepard and taken on the unreliable persona. We will have to wait until November to really see the set and then we can all complete our Infocado forecasts with some degree of accuracy.

I congratulate Sam Collins who is the recipient of the Avocados Australia sponsored trip to PMA Fresh Summit in Florida and a visit to Mexico to observe avocados. This trip is an Avocado Industry Trade and Capacity Building Tour with the aim to promote further education and interest in world avocado affairs and techniques, particularly amongst the younger growers. Sam was one of three worthy applicants and his trip was selected out of the hat at the recent Avocados Australia AGM held at Mareeba in September. Sam will be joined by his wife Kylie who is deeply involved in all matters avocado and mango. I would encourage all young growers to keep these opportunities in mind and make the effort to be involved in the industry for access to these opportunities.

The northern growers are now planning for your visit to NQ for the Australian and New Zealand Avocado Conference to be held at the Cairns Convention centre 21-24 July 2009, next year, only eight months away. More details are at [www.avocado.org.au/industry/Conference.asp](http://www.avocado.org.au/industry/Conference.asp). Cairns can be accessed by air directly from Perth, Adelaide, Melbourne, Sydney, Brisbane and Auckland so there is no excuse for not coming. July in Cairns is usually dry cool at night, shorts sleeves- shorts and sandals all day and some Victorians even swim in the pool. Book early for the really cheap flights on Qantas, Virgin or Jetstar. Everyone in NQ is now taking the opportunity to tidy up their farms for your visit and the next wave of visitors from the rest of the Avocado world in 2011 for the Avocado World Congress.

## Central New South Wales Report

By Chris Nelson, Avocados Australia Director for the Central New South Wales Growing Area



At the time of writing the central NSW harvest is in full swing. Early coastal growers are in their last month of harvest while the late season tableland orchards are in their first full month of supply. Harvest volumes at this stage look to be down 15-20% on forecast across the board but solid returns all season have made up for the lower yields. It is clear from the last couple of months supply into the market that the industry has been successful in growing demand following last year's excess supply. I think industry members should also reflect with some satisfaction how the status of the avocado has changed over the last few years to the extent product usage has even reached the fast food chains! Levy funded promotion and even advertisements by chain stores featuring avocados have undoubtedly ensured that avocados are becoming a much more

common purchase in the shopping basket.

On the weather front the year started with good rain but the winter months were quite dry and a few storms in the last couple of weeks have brought much needed relief. On the tablelands excessive rain early in the year is continuing to manifest in increased prevalence of phytophthora in some orchards. Flowering along the coast is excellent with fruit now starting to set in good numbers.

I would like to take the opportunity to remind all about next year's joint Australian and New Zealand conference in Cairns July 21-24 and encourage growers to plan their escape from the orchard to attend what will surely be a very informative and enjoyable event.

### South Queensland Report

**By Daryl Boardman Avocados Australia Director for the South Queensland Growing Area**



Spring is here and it has been a great start reasonable rain and the trees are flushing well and looking great. It's a bit early to tell what the fruit set will be like but the flowering seems to have been quite good around the region. I would expect that by the time you are reading this most people would be finished picking and those that haven't would not be far away. We have been fortunate to have received very good returns of late and this has been a big help to those that had small crops or damaged fruit.

On the 15th of October we had the West Morton Study Group meeting with Simon Newett. The day was hosted by Greg and Jenny Krenske near Gatton. The day was one of the best we have had in my opinion even though all of these meeting have been very good and always well attended. Over 60 people attended the day and had the opportunity to listen to and learn from some of the fantastic research people that do work in our industry. Without these dedicated people our industry would not be in as good a shape that it currently is. I would like to thank Ken, Elizabeth, Lindy, Luke and Graeme for sharing their knowledge with us. Also I

would like to thank Greg and Jenny for the great venue and letting us look at their property. Also a big thanks for the stonefruit that was shared by everyone.

I would like to wish everyone a Merry Christmas and hope that the season progresses well and the summer storms don't bring any damage to your crops

### Sunshine Coast Report

**By Henry Kwaczynski Avocados Australia Director for the Sunshine Coast Growing Area**



The 2008 growing season is coming to an end in our region and crop levels have not been as high as was initially predicted. While financial return per carton was higher than last year, unfortunately many growers did not have the quantity of fruit they were expecting. Some growers were down by as much as 50% to 70% compared to initial estimates. Fingers crossed that next year will bring not only the good financial return but also a high yield.

I recently attended a field day at the Nambour property of Stephen Jeffers. This was the fourth meeting of the Sunshine Coast avocado study group, part of the ongoing project conducted by Simon Newett of QDPI. Graeme Thomas was the main presenter on topics of nutrition and irrigation. I was pleased to see large attendance and great interest in the topics for discussion. Thanks to Steve for his outstanding hospitality – without such generosity, field days such as this would not take place.

In the last edition of Talking Avocados, I mentioned how blessed we are on the Sunshine Coast, with a high level of rainfall, when many avocado growing areas in Australia simply don't get rain. These growers have to face the constant dilemma about whether to pay the high price to buy water or whether to let their trees suffer and fade away. This dilemma is particularly poignant, when the value of the property is often measured simply by the amount of available water. From this region, our sympathies should go to these growers.



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*Around Australia continued*

**Tri State Report**

**By Colin Fechner Avocados Australia Director for the Tri State Growing Area**



This report will be a short one. Nothing much has changed in the last three months. Still very little rain here or in the main catchment area, so in South Australia we are on 11% allocation and a lot of water is being leased in again.

Those growers with fruit are starting their harvest and generally the size is on the smaller end. Prices are reasonable and so avocado growers are not as bad off as growers relying only on citrus or vines. Prices for citrus has been dismal and a lot of vine growers have to find a home for their grapes as contracts for some varieties are not being renewed.

The trees are just starting to flower, and it looks like a heavy flowering on those trees that had little or no fruit this season.

**North New South Wales Report**

**By Tom Silver, Avocados Australia Director for the Northern New South Wales Growing Area**



Northern NSW growers are for the most part enjoying an excellent 2008 harvest. Many orchards are yielding better than expected and a number of larger orchards will continue picking through to November, this combined with good prices will do a lot to turn around last years disappointing fortunes.

Since my last correspondence growers have enjoyed two very successful field days, the first being conducted by Dr Henry Drew on Fruit Spotting Bug and its Control. Thanks to Henry for a truly informative and interesting presentation as well as to David Brine and the "Summerland House With No Steps" team for their excellent hosting, I think we can safely say that we've found a field day venue for at least the next twenty years!

The second field day was conducted by Simon Newett and his team at Gary Gainfort's Uralba property. The topic of the day was 'Phytophthora and its Control' and seeing that this area has already received in excess of 1700mm for the year, it couldn't have been more relevant. Orchards have suffered heavily this year so growers were extremely keen to listen and learn from the wisdom and experience of Dr Ken Pegg as well as learning for the first time about *Phellinus noxius* from Luke Smith. Thank you to Simon's team, Phil Wilks and Gary's excellent hosting.

Flowering and fruit set for 2009 appears to be well on track and a wet year means reservoirs and water tables are filled up and ready to go. It is doubtful that orchards can maintain a bumper crop two years running so yields would be expected to be down on 2008, with some growers using this period to get ahead on some much needed pruning. Adult fruit spotting bug are already appearing in orchards making their control difficult if the current crop is still

hanging.

Growers would do well to start thinking about their attendance of the "Australian and New Zealand Avocado Growers Conference", 21-24 of July 2009 in Cairns. The conference to be held at the Cairns Convention Centre will highlight an excellent cross section of the industry including Australian and International speakers, products and services and a farm tour to visit the inspiring avocado orchards of FNQ's Atherton Tablelands. I encourage all of you to attend.

**Western Australia Report**

**By Jennie Franceschi Avocados Australia Director for the Western Australia Growing Area**



The WA harvest commenced in the Perth Metro region in early August with prices being the best seen in years. Some areas in the south west have also commenced and are well underway.

Luckily the winter has been mild on growers with no major frost events and August saw some lovely weather. September cooled off quite a bit but October is starting to see some nice fruit set temperatures. Some orchards have a lighter flowering due to the heavy crop load currently on the trees, however WA has many young orchards that are now coming into production.

We now have a new Industry Development Officer and I would like to welcome Cengiz Erol to his role. Cengiz has made the rounds of the growing regions & introduced himself to many of the growers. The aim of his visits was to introduce himself as a new WA Avocado IDO and to get growers opinion, thoughts and feedback about the strategic development plan and communication strategy of the WA industry. Cengiz visits were also an opportunity for growers to share their ideas with him in regards to what AGAWA could and should be doing to ensure a long term sustainable and profitable industry.

We also had Simon Newett run a couple of workshops in the south west. It was great to see such a large turn up at both days. I attended both days as WA's Avocados Australia's representative and was available for questions in regards to industry at a national basis. As I did not get many questions and everyone seemed happy, I can only assume that the WA growers are happy with where they are at. If you do have any concerns or questions that you have thought of at a later date, feel free to email me.

As we approach the lead up to a busy harvest and festive season I take this time to bring to your notice the issues regarding farm safety. Now is the time that we have extra personal on our farms, so it is a good time to think about what safety issues you need to address and what procedures need to be implemented.

I wish you all a successful harvest and a happy and safe festive season.

# The relation between percent dry matter and oil content, and the challenges of a commercial oil industry in Australia

By Peter Hofman<sup>1</sup>, Cecilia Requejo-Jackman<sup>2</sup>, Shane Olsson<sup>2</sup>, Barbara Stubbings<sup>1</sup>, Allan Woolf<sup>2</sup>

1 Horticulture and Forestry Sciences, Maroochy Research Station, PO Box 5083, Sunshine Coast Mail Centre, Nambour, Queensland 4560, AUSTRALIA

2 The Horticulture and Food Research Institute of New Zealand Ltd, Mt Albert Research Centre, HortResearch, Mt Albert Research Centre, Private Bag 92 169, Mt Albert, New Zealand

Avocado oil has been commercially extracted for many years, but most extraction procedures destroy many of the "health" characteristics of the oil. "Extra virgin" or "cold-pressed" oils are extracted at low temperatures under "soft" processing conditions, resulting in a high value culinary oil with distinctive colour and flavour, and high levels of "health-promoting" compounds. Recognition of the health benefits of avocado and its oil, and the commercial development of cold-pressed extra virgin avocado oil has increased interest in its culinary uses.

Motivated by the large volumes of small and non-export fruit left in the market, Olivado Ltd started in New Zealand seven years ago with the aim of producing very high quality cold-pressed avocado oil primarily for culinary use. To date, Olivado has achieved sales of more than NZ\$3.5m and is currently exporting to 11 countries.

## Avocado oil composition

One of the key marketing advantages for extra virgin avocado oil is its health-related composition. Avocados are high in mono-unsaturated fatty acids (the "good fats"). A diet high in mono-unsaturated fatty acids is recommended for a healthy lifestyle. The Mediterranean-style diet recommends abundant plant foods and extra virgin olive oil as the principal sources of dietary fats.

This diet has been shown to have health benefits by reducing the risk of coronary heart disease. Avocado oil has very similar fatty acid profiles to olive oil and hence can be considered as a healthy addition to the Mediterranean diet.

Avocados also contain high concentrations of the antioxidant  $\alpha$ -tocopherol (Vitamin E), the plant pigments chlorophyll and carotenoids (the green and yellow pigments in plants), lutein, plant sterols and folate. Refer to the article by Requejo-Jackman et al. (2005) for more detailed information on the health benefits of avocado and its oil.

## Cold pressed oil extraction and oil yield

Based on extra virgin olive oil extraction, cold pressed avocado oil is extracted using mechanical methods where the temperature of the flesh and oil is kept below 50°C. This involves removing the seed and much of the skin tissue, grinding the flesh to a paste to break the cells, then slow mixing of the paste in a "malaxer" to help release the oil. The oil is then separated from the solid and water phases in a horizontal decanting centrifuge ("expeller"). Further removal of all water from the oil is achieved in high speed centrifuges, sometimes referred to as polishing.

Oil yield with this system will depend on the efficiency of extraction, the maturity at harvest and on fruit ripeness. Maximum oil yield, obtained by solvent extraction from ripe avocados, varies between 10 to 25% of the original fresh weight of the intact fruit. However, cold pressed yields are significantly less than with solvent extraction due to the complex structure of avocado fruit cells. Oil content is generally higher in more mature fruit, but this relationship may vary with different cultivars. It is unclear at this stage whether grower and location can also affect oil yield (at the same stage of fruit maturity), and whether increasing maturity has

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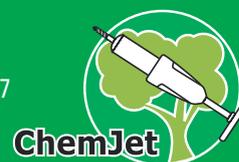
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## The relation between percent dry matter and oil content, and the challenges of a

the same effect across different growing regions. Clearly, the final oil yield has a significant impact on the viability of commercial oil extraction. Thus, baseline information on the maximum oil available for extraction is required to determine the maximum potential oil yield from fruit of various cultivars, regions, and maturities.

A previous article *Talking Avocados Winter 2008 Vol 19:2* described the changes in dry matter and oil content of several avocado cultivars from the main production regions in Queensland. This article describes in more detail the relationship between dry matter and oil content, and discusses some of the challenges associated with a commercial avocado oil processing operation in Australia.

This project was funded by HortResearch and by the Australian Government through Horticulture Australia Ltd., with in-kind contributions from the Queensland Department of Primary Industries and Fisheries (DPI&F) and Olivado.

### Methods

Fruit were sampled from selected commercial growers in the major production regions of Queensland and New Zealand between 2003 and 2005. Fruit were obtained from three orchards at 3-5

maturity times, starting at the beginning, and finishing near the end of the commercial harvest season for each grower. The dry matter was determined at the DPI&F Maroochy Research Station, Nambour, and then samples sent to HortResearch at the Mount Albert Research Centre, Auckland, New Zealand for oil yield. The maximum potential oil yield was determined by solvent extraction.

The focus of research activity in Australia was on the two most important cultivars 'Hass' and 'Shepard', however some research has been completed on several of the other minor cultivars.

### Results

From the dry matter and oil content results presented in the previous article, we examined the relation between the two. This relationship was strong, as illustrated by some examples in Figure 1. A similar relationship was found in all regions tested.

Using these relationships, we estimated the oil content at 24% dry matter (Table 1). (24% dry matter allowed better comparison between all samples, including the minor cultivars.) There were only small regional differences in the estimated oil content, suggesting that similar maximum oil yields could be obtained from these regions.



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## commercial oil industry in Australia

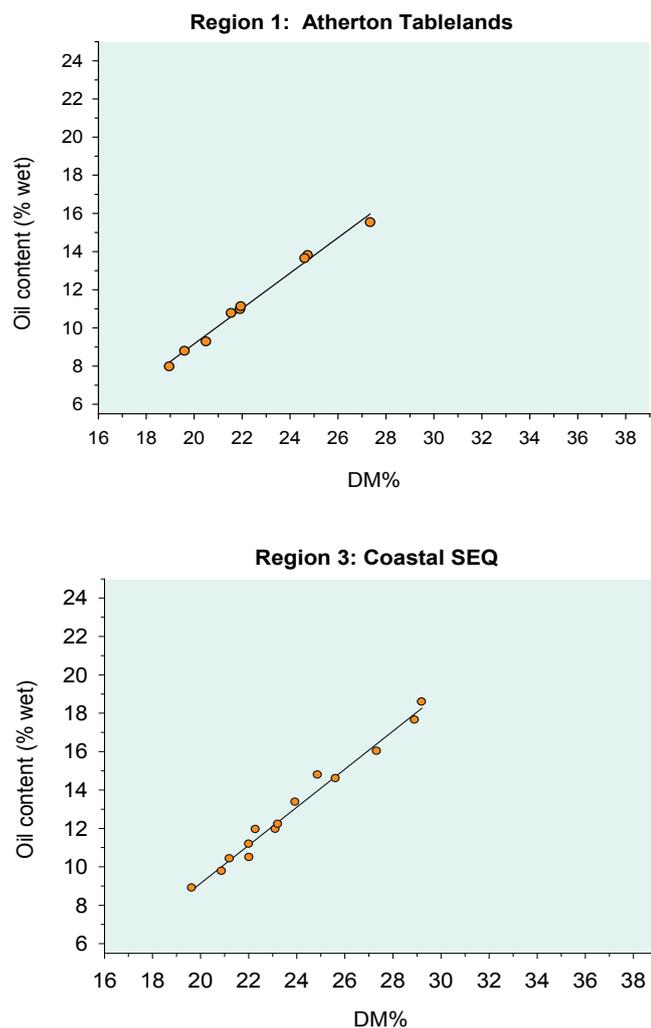


Figure 1. Examples of the relation between the % dry matter and the oil content (percentage wet basis) in 'Hass' avocado fruit flesh obtained from the Atherton Tablelands in 2004 and southeast Queensland in 2005

There were also strong, significant relationships between dry matter and oil content with 'Shepard'. As with 'Hass', there was little difference in the nature of these relationships between regions or years. Only small differences were found in the estimated oil content at 24% dry matter across the regions tested (Table 2), again suggesting that similar maximum oil yields could be obtained from these regions.

**Table 1. The estimated oil content (fresh tissue basis) of 'Hass' avocado fruit flesh at 24% dry matter (DM) obtained from the main production regions in Queensland in 2004 and 2005. Oil percentage was calculated using regression analysis of all the data.**

| Growing region      | % Oil content at 24% dry matter |
|---------------------|---------------------------------|
| <b>2004</b>         |                                 |
| Atherton Tablelands | 13.1                            |
| Bundaberg           | 11.8                            |
| Coastal SEQ         | 12.0                            |
| Blackall            | 13.2                            |
| Crows Nest          | 13.1                            |
| <b>2005</b>         |                                 |
| Atherton Tablelands | 12.9                            |
| Bundaberg           | 13.7                            |
| Coastal SEQ         | 13.1                            |
| Blackall            | 14.0                            |
| Crows Nest          | 12.2                            |

**Table 2. The estimated percent oil (fresh tissue basis) at 24% dry matter of 'Shepard' avocado fruit flesh obtained from the main production regions in 2004 and 2005. Oil percentage was calculated using regression analysis of all the data collected.**

| Growing region      | %Oil content at 24% dry matter DM |
|---------------------|-----------------------------------|
| <b>2004</b>         |                                   |
| Atherton Tablelands | 14.0                              |
| Bundaberg           | 13.8                              |
| <b>2005</b>         |                                   |
| Atherton Tablelands | 13.9                              |
| Bundaberg           | 14.2                              |

Some assessments were done with the other minor cultivars, and again there were similar, strong relationships between dry matter and oil content.

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For most of the minor cultivars, estimated oil content at 24% dry matter was similar to ‘Hass’ and ‘Shepard’ (Table 3). The exceptions were a lower estimated oil content at 24% dry matter for ‘Hazzard’ and higher estimated oil content for ‘Edranol’, compared with the other cultivars.

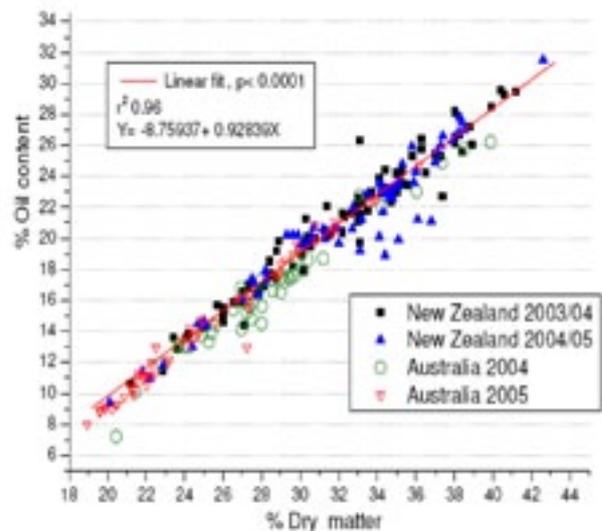
**Table 3. The estimated oil content at 24% dry matter for several cultivars grown in the Bundaberg and coastal south east Queensland regions. The estimates were based on either the regression lines or from single samples where insufficient data was available for accurate regression.**

| Cultivar                        | % DM | Oil (%) |
|---------------------------------|------|---------|
| <b>From regression equation</b> |      |         |
| ‘Sharwil’                       | 24.0 | 13.8    |
| ‘Fuerte’                        | 24.0 | 14.1    |
| ‘Wurtz’                         | 24.0 | 13.2    |
| ‘Pinkerton’                     | 24.0 | 14.8    |
| <b>From single samples</b>      |      |         |
| ‘Reed’                          | 23.7 | 13.3    |
| ‘Hazzard’                       | 23.1 | 8.6     |
| ‘Edranol’                       | 24.5 | 16.3    |
| ‘Rincon’                        | 24.6 | 13.3    |

**Comparing Australia and New Zealand results for ‘Hass’**

Similar studies were conducted the New Zealand. The typical dry matter and oil content of the New Zealand fruit were significantly higher than that from Australia probably for two reasons; the minimum dry matter standard for New Zealand is 24%, and the generally cooler growing conditions allows later harvesting and therefore higher dry matter and oil content.

Despite these differences, the relationship between oil content and dry matter was very similar for both Australian and New Zealand ‘Hass’ fruit, and the relationship was very strong across a wide range of growing districts (Figure 2). On this basis, it is reasonable to assume that fruit from Western Australia would have similar relationships to fruit from the warmer growing regions in Queensland.



**Figure 2. Relation between the percentage dry matter and the oil content (percentage fresh weigh basis) in the flesh of ‘Hass’ avocado grown in both New Zealand and Australia from 2003 to 2005. Each data point is the average of the three replicate samples for several growers and times of season.**

**Implications for Commercial Oil Extraction**

Perhaps the key commercial challenges facing oil extractors are achieving consistent oil production, and at a “reasonable” price. Two important factors here are sourcing of adequate numbers of good quality avocados, and maximising oil yield.

**1. Continuity of fruit supply**

**Supply/demand on local or export markets**

Fruit availability is affected by a complex interaction of supply/ demand. This has been compounded in a number of years by problems in both Australia and New Zealand with fruit supply. Climatic effects have led to large swings in fruit yields. Along with the resulting demand for local and/or export fresh fruit, this resulted in unpredictable and variable supply of processing fruit. Even factors within a season can influence processing fruit supply. For example, in 2005 in Australia, the supply/demand balance on the domestic market was consistently at a level that maintained high consumer demand and fresh fruit prices for the first half of the season. The prices that could be offered for processed fruit could not match those offered by the fresh fruit market.

**External quality/packout and quality standards**

The standards set by packhouses/customers will affect the proportion of fruit rejected for fresh fruit consumption. Clearly the quality of fruit produced by a given orchard/harvest time will also affect rejection rate and therefore the proportion of fruit destined for oil processing.

## commercial oil industry in Australia

### 2. Oil content and cold-pressed yield

#### Harvest timing from a maturity perspective

The timing of harvest is critical in determining maximum oil content. We found average maximum oil contents ranged from 8 to 26% (fresh weight) throughout the commercial harvest season.

#### Commercial harvest indices

These are significant since most avocados used for oil processing are fruit rejected from the fresh fruit market because of defects. Since avocados accumulate oil as they mature, if the commercial maturity standards are lower, then the oil content in reject fruit will be lower. On this basis, New Zealand's higher minimum maturity standard (24%) will mean higher average oil yields over the season than in Australia, where the standard is 21%.

#### Late hanging

Most of the New Zealand avocado industry is focused on the later market, so that fruit are held on the tree for longer and accumulate more oil.

In Australian early-season regions, leaving reject fruit (small or externally unacceptable) on the tree after commercially acceptable fruit are harvested could be considered. Smaller fruit left on the tree would increase in size and in oil content, which could provide sufficient returns to justify a separate pick for these later fruit.

#### Orchard/region/season/cultivar effects

The results indicate that these factors can affect average oil content over the season. The biggest factor was region, primarily dictated by whether the region targets the early or late season market. Therefore, the average dry matter over the whole season was lower for the Atherton Tablelands, than for Bellthorpe or Crows Nest. This would significantly affect the returns from oil processing in these different regions.

The results suggest that maximum oil content at the same dry matter may also differ between cultivars.

#### Cold-pressed oil yield

Although the maximum amount of oil available for extraction (as determined by laboratory based chemical extraction techniques) is a key factor, the most important issue for the oil processor is the yield of cold-pressed oil. Cold-pressed oil yield varies with fruit maturity, but may also be influenced by grower, region, season differences and cultivar. The experience of Olivado has shown that early season fruit have poorer yields than late season fruit (that is, lower extraction efficiency), even when dry matter is taken into consideration. This was not addressed in this work, but is an area that requires further study.

### Other aspects of fruit quality

Fruit are partly ripened before processing, so factors that reduce ripe flesh quality because of disease, bruising and physiological disorders can reduce oil quality. The main issues here are orchard management practices such as fungicide sprays, and postharvest factors that affect the levels of physiological and pathological disorders. These practices become more significant the greater the distance between the orchard or packhouse and the processing plant. Poor cool chain management and delays between harvest and processing (either from long transport distances, or imbalance between fruit supply and processing capacity requiring storage) can increase fruit losses due to inadequate disease control and poor handling and storage practices. Distance is clearly more problematic in Australia than in New Zealand, where travel times may be in the order of days, rather than hours.

### Viability of growing for oil only

To overcome variable fruit supply, production systems specifically for oil production has been considered. This approach would have to address some significant challenges in Australasia. Firstly, avocados require high quality land. Secondly, the possible savings in growing only for oil may not be large (such as fewer sprays for pests and diseases) and maintaining adequate tree health currently requires a high level of husbandry. Finally, it is unlikely that mechanical harvesting could be developed with the current commercial cultivars.

Growing specifically for oil would require some innovative approaches. These could include using a very productive cultivar to minimise vegetative growth, very effective canopy management systems to minimise spray applications and harvesting costs, pruning/training systems for mechanical harvesting, Phytophthora-tolerant rootstocks, and phosphonate foliar sprays for Phytophthora control. Alternatively, growing for oil might be successful in other countries, such as the Pacific Islands or elsewhere where currently fruit have no, or limited markets and labour and/or land costs are relatively low.

### Thanks

We wish to thank Pat O'Farrell (DPI&F, Mareeba) for his assistance in identifying suitable orchards in North Queensland, and harvesting and dispatching fruit to the laboratory at Nambour. We also wish to thank the growers for access to their orchards. We also wish to thank the growers for access to their orchards and HortResearch, Horticulture Australia, DPI&F, and Olivado Ltd.

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# New Exotic Diseases of Avocado

By Ken Pegg, Liz Dann & Lindy Coates of QDPI

In 2007 Plant Health Australia released the National Avocado Biosecurity Plan to industry. There is a need to regularly review this plan because destructive agents (pests and diseases) are ever changing and are a continual threat to productivity.

Constant revision of the plan becomes even more important because of greater global trade liberalisation and the sprouting of numerous bilateral and regional trade agreements. These have increased the movement of destructive agents to other countries.

Even though the Biosecurity Plan contains a list of forbidden plant pathogens it has been estimated that there are still up to half a million plant pathogens awaiting discovery in tropical regions where biodiversity is greatest because of the hot and humid seasons. These “unknowns” do not of course appear in lists of forbidden pathogens but some will in the future undoubtedly threaten existing crops including avocado.

Since the release of the Biosecurity Plan two serious diseases of avocado have occurred overseas and are considered a biosecurity risk to Australia.

They are Laurel wilt in the Southeastern United States and *Xylella fastidiosa* in Costa Rica.

Laurel wilt disease affects members of the Lauraceae, and is

caused by the recently described fungus *Raffaelea laurelensis* which is transmitted by the non-native ambrosia beetle *Xyleborus glabratus*. The beetle was known previously from Bangladesh, India, Japan, Burma and Taiwan. The fungus along with the beetle was apparently introduced into the United States on solid wood packing material from southern Asia.

Ambrosia beetles typically have symbiotic relationships with fungi they carry in specialised pouches. As the beetle attacks dead and dying trees; their fungal symbionts colonise and proliferate in infested trees, and larvae of the beetles graze on ‘lawns’ of the fungi that develop. In most cases, healthy trees are not attacked and the fungi don’t cause damage to the tree. Laurel wilt is different in that the ambrosia beetle attacks healthy trees and the fungal symbiont *R. laurelensis*, is an aggressive plant pathogen. The spores of the fungus ooze out of the specialised mycangial pouches and infect the xylem of the tree as the beetle constructs her tunnels and lays eggs. The fungus then moves systemically through the vessels of the tree and causes a vascular wilt disease. The disease has been observed in trees of red bay (photo1), sassafras, pondberry, pondspice, camphor trees and avocado

**Photo 1: Red bay, *Persea borbonia*, is a significant component of forests in the southeastern US. Tree death is caused by Laurel wilt. Photo courtesy of Steve Fraedrich, USDA Forest Service.**



(photo2). The disease is seen as a serious threat to commercial avocado production in Florida.

The ambrosia beetle (*Xyleborus glabratus*) is not known to



**Photo 2: Wilting and branch death in avocado cv. Simmonds 20 days after inoculation with *Raffaelea laurelensis*. Photo courtesy Randy Ploetz, University of Florida.**

be present in Australia. A *Raffaelea* sp. fungus has however been reported from Tasmania where it was associated with the mountain pin hole borer (*Platypus subgranosus*) and myrtle beech trees (*Nothofagus cunninghamii*).

*X. fastidiosa* causes disease in over 100 plant species including many fruit crops. The bacterium exists as various strains and subspecies which vary in host range. Diseases caused include phoney peach disease, citrus variegated chlorosis, Pierce's disease of grapevine, plum leaf scald and leaf scorch of coffee, almond, oleander, mulberry and pear.

Symptoms in avocado in Costa Rica include leaf chlorosis, leaf margin scorch, defoliation, shortened internodes and branch dieback.

The pathogen resides in the xylem of infected plants and can be transmitted by sap-sucking insects and by grafting.

Both these pathogens and the ambrosia beetle are considered a biosecurity risk to Australia.

### Acknowledgements

We thank Professor Randy Ploetz, University of Florida, for the information and photographs of Laurel wilt and avocado.

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# Field evaluation of superior avocado rootstocks with

By Danielle Le Lagadec

Senior Horticulturist, Department of primary Industries and fisheries, Bundaberg Research Station

Rootstocks can have a significant influence on avocado yields, tree health, growth and disease susceptibility (Ben-Ya'acov and Michelson, 1995; Bijzet and Sippel, 2001; Wolstenholme, 2003). Internationally, the importance of rootstock in maximizing avocado productivity is well recognised and large investments have been made over the past few decades in this field.

California, USA, was one of the first avocado producing regions to establish an avocado rootstock breeding and evaluation program in the 1940's (Whiley, et al 2002). Over the years, similar programs have been established in South Africa, Israel and Australia. Some of the superior rootstocks derived from the Californian, South African and Israeli rootstock breeding programs have been imported into Australia.

A trial was initiated in 2004 to test the efficacy of these imported rootstocks, as well as several other potentially superior locally selected rootstocks. The trial was established with 'Hass' and 'Shepard' as scions at Goodwood Plantation, Childers, Queensland and consists of 33 rootstocks including both clonal and seedling material (Table 1). Clonal and seedling 'Velvick' is used as the industry standard and clonal 'Duke 7' is used as the international standard. The 'BW-' and 'BC-' rootstocks are Birdwood Nursery selections. The trial extends over four hectares and is well replicated. The trees are managed in accordance with standard Goodwood Plantation orchard practices but have not yet received any phytophthora control. The trees began yielding in 2006 but since this project is privately funded the results have not previously been made public.

Table 1. Clonal and seedling rootstocks included in the trial with 'Shepard' and 'Hass' as the scions. The country of origin is given in parentheses

| 'Shepard'           |                   | 'Hass'              |                   |
|---------------------|-------------------|---------------------|-------------------|
| Seedling rootstocks | Clonal rootstocks | Seedling rootstocks | Clonal rootstocks |
| 'Ashdot' (Israel)   | BM-1 (RSA)        | 'Ashdot' (Israel)   | BC101 (Aus)       |
| BW18 (Aus)          | BM-2 (RSA)        | BW127 (Aus)         | BC128 (Aus)       |
| BW197 (Aus)         |                   | BW128 (Aus)         | BC16 (Aus)        |
| BW2 (Aus)           |                   | BW140 (Aus)         | BC19 (Aus)        |
| BW78 (Aus)          |                   | BW16 (Aus)          | BC197 (Aus)       |
| 'Degania' (Israel)  |                   | BW181 (Aus)         | BC62 (Aus)        |
| 'Reed' (USA)        |                   | BW19 (Aus)          | BC7 (Aus)         |
| 'Velvick' (Aus)     |                   | BW197 (Aus)         | BM-1 (RSA)        |
| 'Zutano' (USA)      |                   | BW2 (Aus)           | BM-2 (RSA)        |
|                     |                   | BW5 (Aus)           | 'Duke 7' (USA)    |
|                     |                   | BW6 (Aus)           | 'Velvick' (Aus)   |
|                     |                   | BW62 (Aus)          |                   |
|                     |                   | BW68 (Aus)          |                   |
|                     |                   | BW7 (Aus)           |                   |
|                     |                   | BW70 (Aus)          |                   |
|                     |                   | BW78 (Aus)          |                   |
|                     |                   | BW80 (Aus)          |                   |
|                     |                   | BW93 (Aus)          |                   |
|                     |                   | 'Degania' (Israel)  |                   |
|                     |                   | 'Reed' (USA)        |                   |
|                     |                   | 'Velvick' (Aus)     |                   |
|                     |                   | 'Zutano' (USA)      |                   |

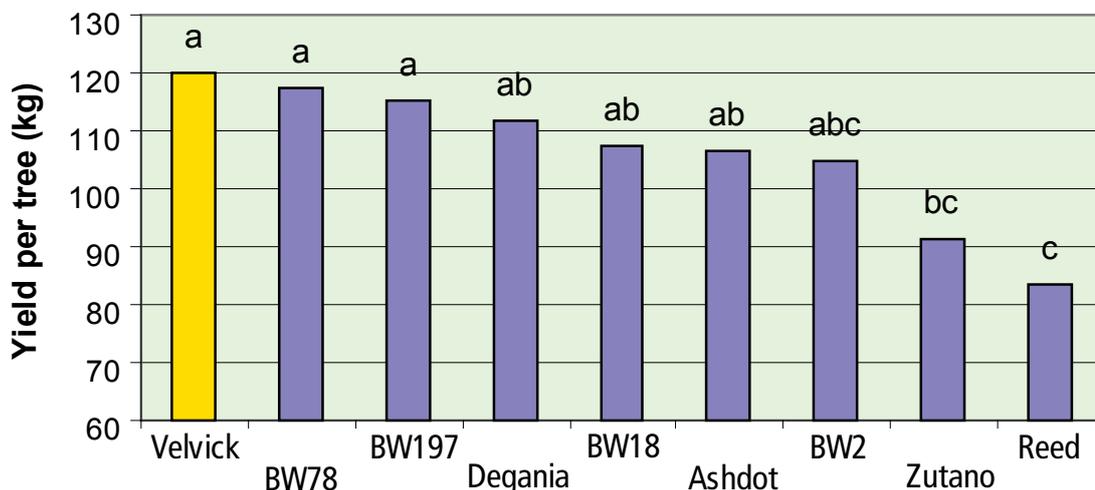


Figure 1. (below) Average cumulative yield for 2006-2008, for seedling rootstocks with 'Shepard' as scion. Letters above the columns that are the same are not statistically different.

# 'Hass' and 'Shepard' as scions

The trial has been established in good deep red soils and the trees are not presently subjected to high phytophthora pressure. The trees are in excellent health and are not showing any obvious sign of stress. No significant differences were observed in the tree health of various rootstocks with both 'Shepard' and 'Hass' as scion. During the commercial harvest, yield is determined on an individual tree basis, and the average fruit size is recorded. The fruit post-storage quality is evaluated and available on request. The vegetative vigour of the trees is measured annually and a tree health rating is carried out prior to flowering. Rootstock-to-scion compatibility is monitored annually.

## 'Shepard' results

As clonal trees generally take longer than seedlings to establish (Ben-Ya'acov and Michelson, 1995) and since the two clonal rootstocks with 'Shepard' as scion trees are not yet four years old, the results will not be shown here. The 'Shepard' fruit were harvested in early March 2008 and the resulting yield is shown in Table 2. The industry standard rootstock, 'Velvick' seedling, proved to be the best bearer while 'Reed' and 'Zutano' seedling produced the lowest yields. The average fruit size was 230±1.8g and was not significantly different for the various seedling rootstocks

**Table 2. Seedling rootstocks with 'Shepard' as scion. Average actual and theoretical yields obtained during the 2008 season**

| Rootstock  | Avg yield per tree (kg) | Theoretical yield tons/ha at 11 x 5m spacing <sup>#</sup> |
|------------|-------------------------|---|
| 'Velvick'  | 68.8                    | 12.6  |
| BW78       | 63.6                    | 11.5  |
| BW18 BW197 | 61.0                    | 11.0  |
| 'Degania'  | 60.9                    | 11.0  |
| Ashdot'    | 58.8                    | 10.6  |
| BW2        | 51.3                    | 9.2   |
| 'Zutano'   | 46.0                    | 8.3   |
| 'Reed'     | 40.0                    | 7.2   |
|            | 39.1                    | 7.0   |

<sup>#</sup> Actual tree spacing of the trial, 11 x 5m; 180 trees/ha

The tree canopy size was not found to vary greatly between the various rootstocks with 'Shepard' as scion. Yield expressed in terms of canopy volume was not significant difference for the various rootstocks. The cumulative yield for 2006, 2007, and 2008 is shown in Fig 1. 'Velvick' as a seedling rootstock remains the highest bearer and 'Zutano' and 'Reed' seedling the poorest.

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## Field evaluation of superior avocado rootstocks continued

### 'Hass' on seedling rootstocks

The 'Hass' fruit was harvested in late April 2008. Birdwood Nursery selections BW80 and BW2 had the largest crop loads, while 'Reed' and 'Zutano' had the smallest (Table 3) and the industry standard, 'Velvick', produced a moderate crop. The average fruit mass was 200±2g and like the 'Shepard' fruit, no significant differences were observed in fruit mass between the various rootstocks.

**Table 3. The average actual and theoretical yields from 'Hass' for the 2008 season on seedling rootstocks.**

| Rootstock  | Avg yield per tree (kg) | Theoretical yield tons/ha at 11 x 5m spacing# |
|------------|-------------------------|---|
| BW80       | 105.0                   | 18.9  |
| BW2        | 104.0                   | 18.7  |
| BW62       | 94.2                    | 17.0  |
| BW78       | 93.3                    | 16.8  |
| 'Degania'  | 91.7                    | 16.5  |
| BW6 BW127  | 90.3                    | 16.3  |
| BW70 BW140 | 90.2                    | 16.2  |
| BW93       | 87.6                    | 15.8  |
| 'Velvick'  | 87.2                    | 15.7  |
| BW19 BW197 | 86.1                    | 15.5  |
| 'Ashdot'   | 86.0                    | 15.5  |
| BW7        | 85.1                    | 15.3  |
| BW128      | 84.7                    | 15.2  |
| BW181 BW5  | 81.5                    | 14.7  |
| BW16       | 80.0                    | 14.4  |
| BW68       | 79.8                    | 14.4  |
| 'Reed'     | 78.5                    | 14.1  |
| 'Zutano'   | 77.0                    | 13.9  |
|            | 76.6                    | 13.8  |
|            | 72.8                    | 13.1  |
|            | 65.9                    | 11.9  |
|            | 60.8                    | 11.0  |

# Actual tree spacing of the trial, 11 x 5m; 180 trees/ha

Significant differences as canopy volume and trunk cross-section area were observed in the tree size of the various seedling rootstocks (Fig. 2). Seedling 'Velvick' were the largest most vigorous trees and 'Ashdot' and 'Zutano' the smallest trees. When expressing yield in terms of tree size, significant differences were observed in fruit load per canopy volume. 'Ashdot' which is an average bearer, but a very small tree, had the highest crop load in relation to canopy volume. BW2 which is an excellent bearer is a moderate size tree and was also found to be one of the best bearers in relation to its canopy volume and trunk cross-section area. BW80, while having a heavy crop load is a relatively large tree and therefore a moderate bearer in relation to its tree size. The rootstock 'Velvick' produces a vigorous tree and was found to

have the lowest crop load in relation to its tree size.

The cumulative yield for the 2006-2008 seasons is shown in Fig. 3. BW2 remains the most productive rootstock while 'Zutano' and 'Reed' have the lowest cumulative yields).

### 'Hass' on clonal rootstocks

The Birdwood Nursery clonal rootstock BC62 produced the largest crop, an average of 110.6kg of fruit per tree, while the industry standard clonal 'Velvick' produced 77kg of fruit per tree. The international standard 'Duke 7' had one of the lowest crop loads, 59.7kg per tree (Table 4). Once again, the average fruit mass produced by the various rootstocks did not differ significantly.

**Table 4. Clonal rootstocks with 'Hass' as scion. Average actual and theoretical yields obtained during the 2008 season**

| Rootstock | Avg yield per tree (kg) | Theoretical yield tons/ha at 11 x 5m spacing# |
|-----------|-------------------------|---|
| BC62      | 110.6                   | 19.9  |
| BC101     | 88.9                    | 16.0  |
| BC19      | 85.7                    | 15.4  |
| BC197     | 85.6                    | 15.4  |
| BC16      | 82.5                    | 14.9  |
| BM-2      | 80.5                    | 14.5  |
| 'Velvick' | 77.1                    | 13.9  |
| BM-1      | 68.8                    | 12.4  |
| BC7       | 66.9                    | 12.1  |
| 'Duke 7'  | 59.7                    | 10.8  |
| BC128     | 51.9                    | 9.3   |

# Actual tree spacing of the trial, 11 x 5m; 180 trees/ha

The tree size of the various clonal rootstocks was found to differ significantly (canopy volume and trunk cross-section area) with BC16 and BC62 proving to be the largest trees. Similarly, yield in relation to tree size was also found to be significantly different for the various rootstocks both when expressed as fruit load per canopy volume and fruit load per trunk cross-section area. Despite being the largest tree, BC62 still remains the highest bearer in relation to tree size while BC128, which is one of the smallest trees, was also found to be the poorest bearer in relation to its size. The cumulative yields over the past three seasons, 2006-2008, is shown in Fig. 4.

### Discussion and conclusions

The preliminary results of this trial indicate that under low phytophthora pressure, the industry standard, seedling 'Velvick' appears to be a good rootstock for the scion 'Shepard'. Amongst the seedling rootstocks, BW2 appears to be an excellent rootstock for 'Hass', producing 20% more fruit than the industry standard

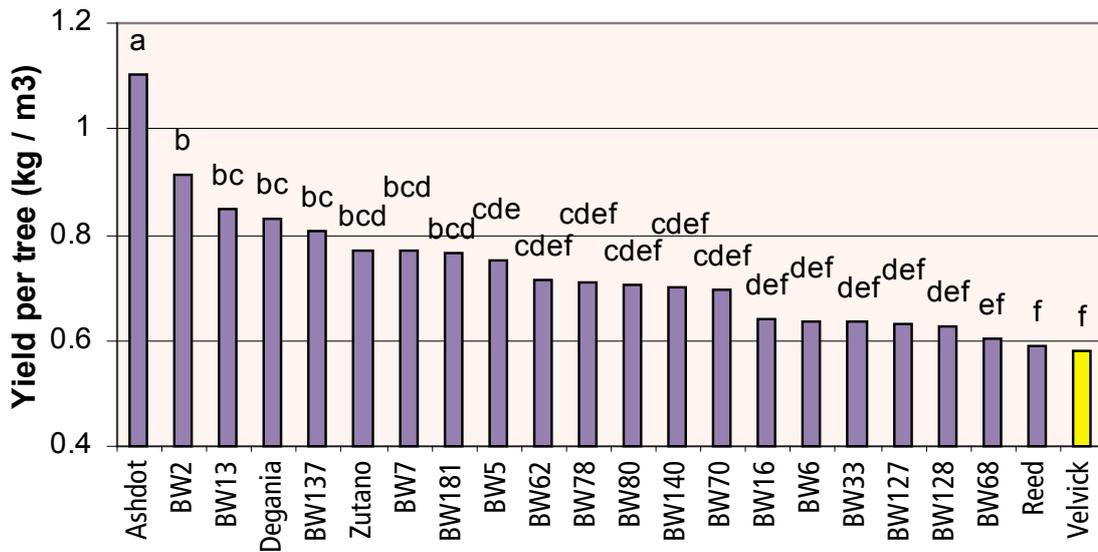


Figure 2. Average yield per canopy volume (kg/m<sup>3</sup>), for seedling rootstocks with 'Hass' as scion. Letters above the columns that are the same are not statistically different.

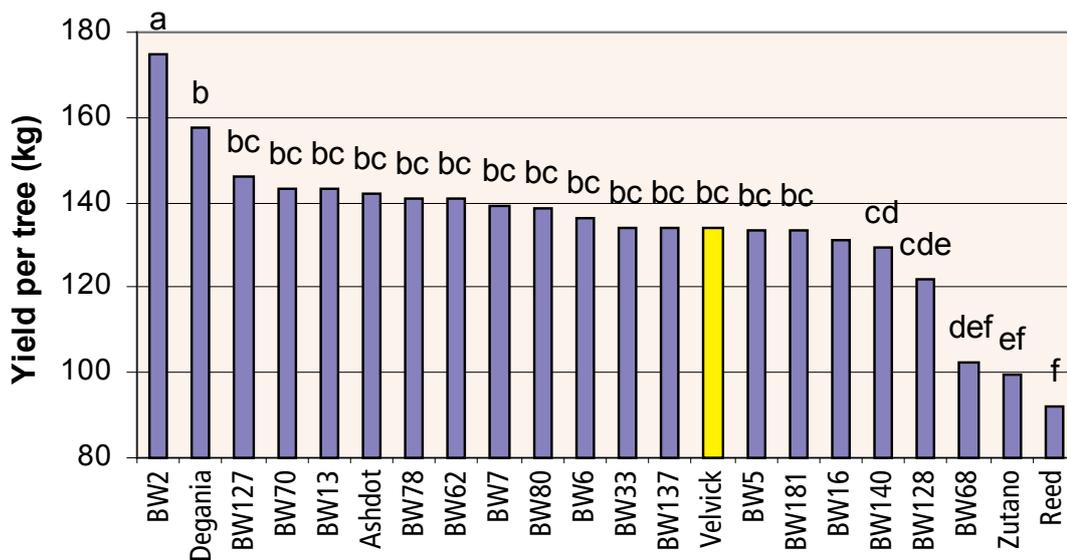


Figure 3. Average cumulative yield for 2006-2008, for seedling rootstocks with 'Hass' as scion. Letters above the columns that are the same are not statistically different.

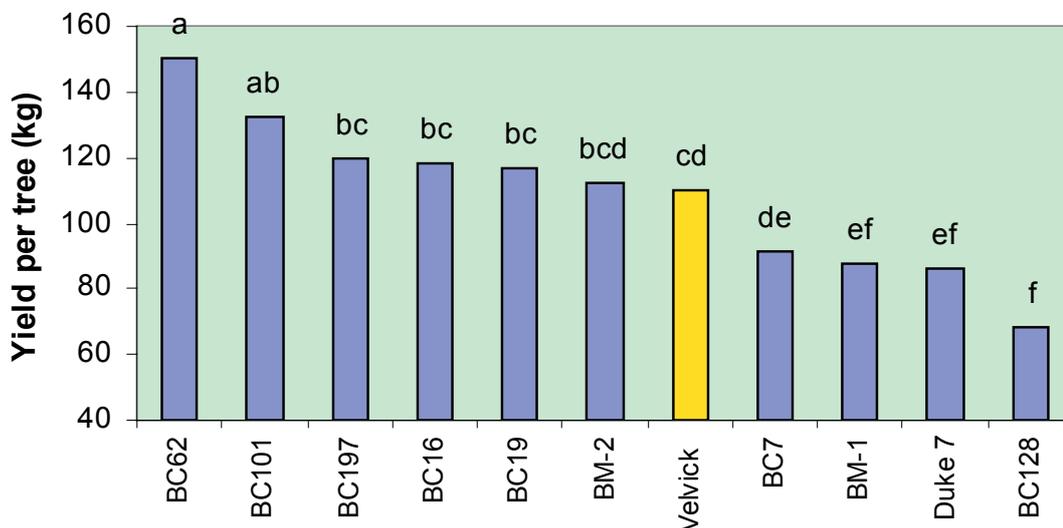


Figure 4. Average cumulative yield for 2006-2008, for clonal rootstocks with 'Hass' as scion. Letters above the columns that are the same are not statistically different.

Field evaluation of superior avocado rootstocks continued

'Velvick'. BW80 produced the highest crop load with 'Hass' as scion but because it grows into a relatively large tree, its effective yield, i.e. yield per canopy volume, is not as impressive as that of BW2. The Israeli rootstock 'Ashdot' with 'Hass' produced surprising results. Although its absolute yield was moderate, given its low vegetative vigour, 'Ashdot' has emerged as one of the best bearers in relation to tree size. This rootstock could have good commercial potential especially if high density plantings are being considered. Amongst the clonal rootstocks with 'Hass' as scion, BC62 is the best producer both in absolute terms and in relation to its tree size. This rootstock has consistently produced the best yield amongst the clonal rootstocks over the past three seasons. During the 2008 season BC62 produced almost 45% more fruit than did clonal 'Velvick' and produced a bigger crop than any of the seedling rootstocks. Its performance in the coming season will be carefully monitored.

Several of the imported rootstocks included in this trial were selected for their phytophthora tolerance and yielding potential under high-stress conditions. Declining tree health and vigour often only becomes evident once the trees are bearing heavily or are subjected to environmental stresses (Ben-Ya'acov and Michelson, 1995). The test trees are young and are not presently under high phytophthora pressure. As the trees mature and the phytophthora becomes more prevalent, it is possible that rootstocks that are presently only moderate bearers may emerge

as superior rootstocks. The trees will continue to be monitored for several years.

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Acknowledgments

My sincere thanks to Birdwood Nursery, Simpson Farms Pty Ltd, Horticulture Australia Ltd and the Queensland Department of Primary Industries and Fisheries for financing this project. I'm deeply indebted to my colleagues Rachael Langenbaker and Terry Campbell, and to Simpson Farms Pty Ltd for their technical support. Project No AV07008

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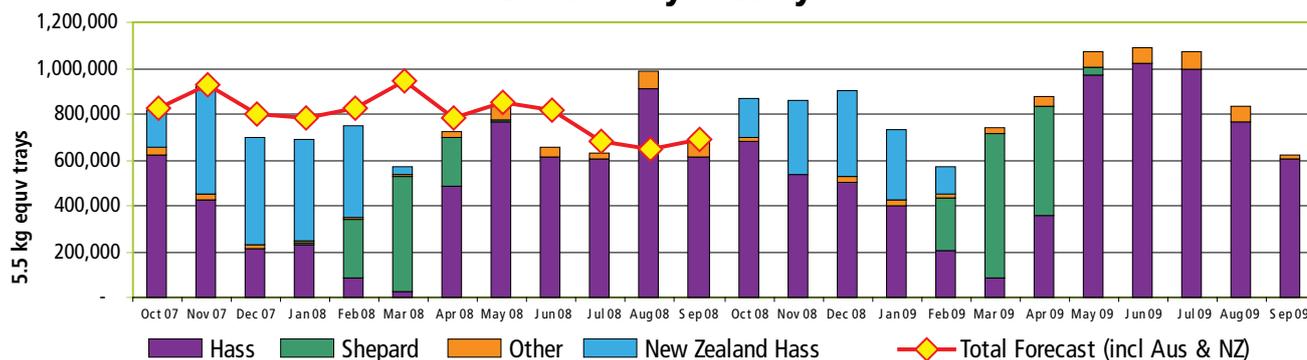
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# Infocado Update

The last 12 months' dispatches were lower than forecast, due mainly to a number of weather events in Northern and Central Queensland although as can be seen in the chart below there was a significant spike in production above what was forecast in August. Given the lower than expected dispatches in the months previous however, reasonable prices were still able to be maintained throughout August.

The forecast for the coming 12 months is the highest on record with the largest increases being in the period from May through July. This forecast is just that, a forecast. The coming months will need careful crop estimations to ensure that as we get closer to 2009 we are confident of the figures.

## Oct 07 to Sep 08 Dispatches & Oct 08 to Sep 09 Forecasts Avocados by Variety

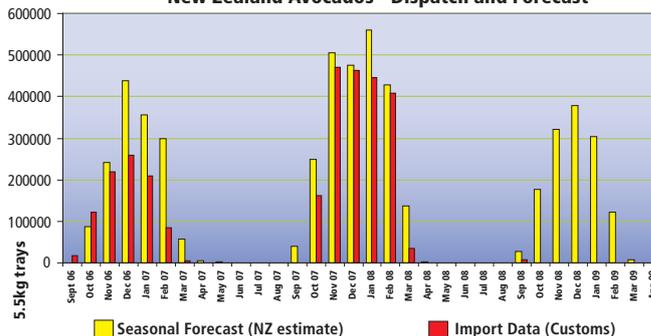


### Oct 07 to Sep 08 Dispatches & Oct 08 to Sep 09 Australian Avocado Production Estimates 5.5kg eqv trays

| Region              | 2007/08          | 2008/09          |
|---------------------|------------------|------------------|
| North Queensland    | 1,034,547        | 1,158,126        |
| Central Queensland  | 2,461,935        | 3,666,149        |
| Sunshine Coast      | 524,247          | 518,249          |
| Southern Queensland | 1,145,179        | 1,151,576        |
| Northern NSW        | 400,378          | 311,941          |
| Central NSW         | 697,040          | 822,118          |
| Tri State           | 150,794          | 190,129          |
| WA                  | 572,306          | 1,118,765        |
| <b>Total</b>        | <b>6,986,425</b> | <b>8,937,054</b> |

The New Zealand export estimate to Australia for 2008-09 has been maintained at around 1.3 million trays (as per the Winter edition of TA) however the expectation is that final imports will be closer to 1 million trays. This compares with last season's imports into Australia of approximately 1.98 million trays (see chart above). This season's increased Western Australian crop will certainly work to balance the loss in New Zealand fruit across the summer. Managing the flow of fruit through October, November and December will be critical for setting up the coming 2009 season.

### New Zealand Avocados - Dispatch and Forecast



The combined Australian and New Zealand forecast is critical in the planning for the 2009 year crop. All members of the supply chain need to begin the planning development to market the coming volume. The experience of the 2007 and 2008 crops will go a long way to preparing for the coming 2009 crop. The task will be a challenge but not insurmountable.

### Orchard Profiles

All Avocado growers throughout Australia will now have received their Orchard Profile forms for completion. If you are a grower and have an email address then you should have received the form both electronically and by post. An example of the form is illustrated below. With the form you would have also received a set of illustrated instructions to assist in its completion.

Given the expected increases in production over the coming years this information is very important for developing future marketing plans to buffer the industry against a slumping market.

There are prizes for getting your forms in on time. Winners have recently been drawn for Central NSW, South Queensland, Northern

Infocado Update continued

Please complete the form below, and when finished, email it to [infocado@avocados.com.au](mailto:infocado@avocados.com.au) or fax it to 07 3846 6566.

These fields or columns are mandatory when a variety has been selected.

Form Locked  Form Saved  Save

| Orchard Profile (Avocado)                        |            |       |                |                                   |           |                                     |              |             |              | Date     | 14/09/08     | Ref No                         | DPAC0-93 |           |
|--|------------|-------|----------------|-----------------------------------|-----------|-------------------------------------|--------------|-------------|--------------|----------|--------------|--------------------------------|----------|-----------|
| Grower: Accor Australia<br>Contact: 07 3846 6566 |            |       |                | Address: PO Box 100<br>Pine Grove |           |                                     |              | C.T. 1417   |              | S.W. 414 |              | Phone: 07 3846 6566<br>Mobile: |          |           |
| Transactions                                     |            |       |                | 2006 Season                       |           | Orchard Profile for the 2007 Season |              |             |              |          |              |                                |          |           |
| Unique Block ID                                  | Block Name | Vandy | Backstock      | Yield (T)                         | Beats (T) | Per Plant Spacing                   | Tree Spacing | Row Spacing | No. trees/ha | Ha       | Yield (T/ha) | Beats (T/ha)                   | Comments | Del. Date |
| 00000000000000000000                             | Block      |       | Vehicle/Client | 50.5                              | 10.7      | 1805                                | 8.00         | 7.00        | 500          | 2.1      | 600          | 5.0                            |          |           |
|  |            |       |                |                                   |           |                                     |              |             |              |          |              |                                |          |           |
|  |            |       |                |                                   |           |                                     |              |             |              |          |              |                                |          |           |
|  |            |       |                |                                   |           |                                     |              |             |              |          |              |                                |          |           |
|  |            |       |                |                                   |           |                                     |              |             |              |          |              |                                |          |           |
|  |            |       |                |                                   |           |                                     |              |             |              |          |              |                                |          |           |
|  |            |       |                |                                   |           |                                     |              |             |              |          |              |                                |          |           |

NSW and North Queensland. They are Ian and Rhonda Robba from Kulnura Ambrosia, Eric and Carol Erbacher from Mt Binga Orchards, J&J Raphael and Susan Christensen from Bellview Orchards. They have all received a gift voucher for Accor Hotels.

If you are a grower and have not received an Orchard Profile form or you have any queries or concerns please contact the Avocados Australia Office on (07) 3846 6566.

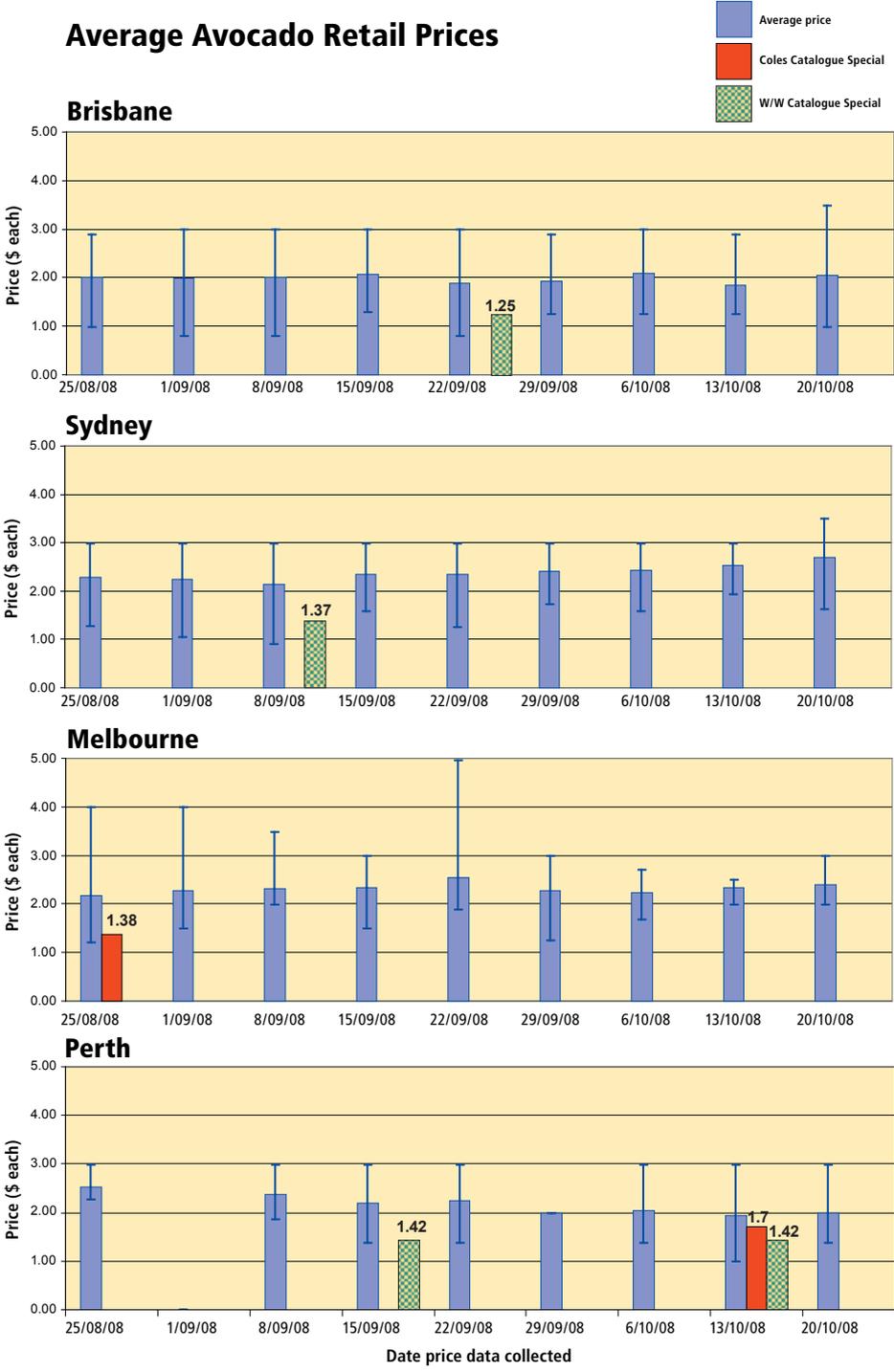
**New Improved Infocado Reports**

The weekly Infocado Reports received by all Infocado contributors now include both weekly retail price information and wholesale sales and stock on hand figures which are contributed by wholesalers in Brisbane, Sydney, Melbourne, Adelaide and Perth. We currently have 19 wholesalers contributing data to the system including all the main avocado wholesalers in the country.

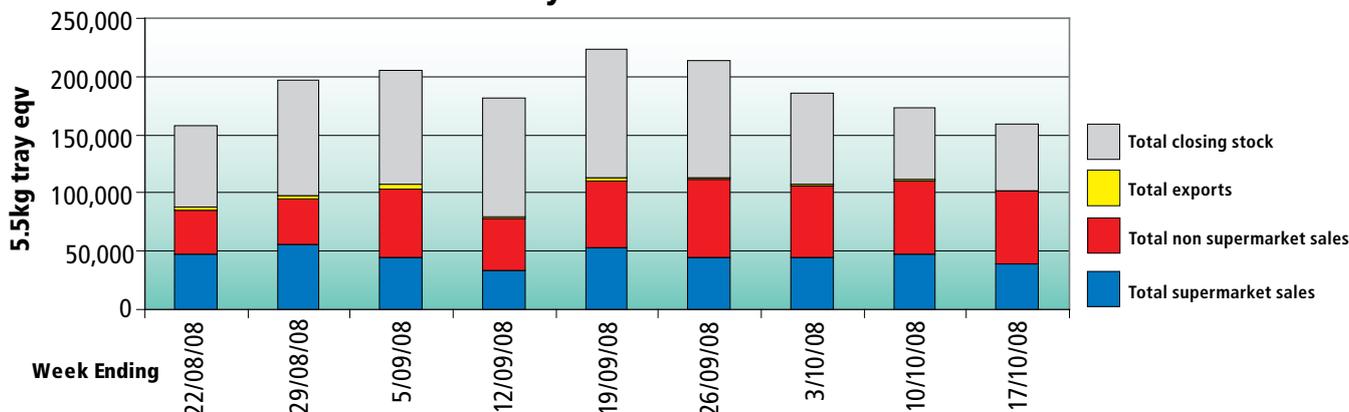
**Retail Price Surveys**

An example of the price data being reported on a weekly basis is illustrated below. It includes average prices for the four capital cities, Brisbane, Sydney, Melbourne and Perth, highest and lowest prices for that week and also any catalogue special prices in the major retail outlets.

**Average Avocado Retail Prices**



### Weekly National Sales



### Infocado Wholesale Module

Wholesalers in Brisbane, Sydney, Melbourne and Perth have now started contributing to the Infocado system. On a weekly basis wholesalers are entering data including their weekly receivals from packhouses and growers, their sales and weekly stock on hand. All wholesalers who contribute their data to the system receive both the weekly and quarterly Infocado reports. They are also listed in the weekly reports as contributors, flagging to packhouses and growers their commitment to the industry. An example of the data reported in weekly reports is illustrated

below. This, in combination with the retail price data provides a much more complete picture of weekly retail sales and the impact of different events on actual avocado consumption.

The wholesalers who are currently contributing to the system include:

| Company Name                           | City      |
|--|-----------|
| Costa Exchange Trading                 | Adelaide  |
| The La Manna Group                     | Adelaide  |
| Costa Exchange Trading                 | Brisbane  |
| Murray Bros                            | Brisbane  |
| Premier Fruits Pty Ltd                 | Brisbane  |
| Romeos Marketing                       | Brisbane  |
| Ross & Co Fruit and Vegetables Pty Ltd | Brisbane  |
| The La Manna Group                     | Brisbane  |
| Barkers                                | Melbourne |
| Dykes Bros                             | Melbourne |
| Kelly's                                | Melbourne |
| Moraitis                               | Melbourne |
| Premier Fruits Pty Ltd                 | Melbourne |
| Sculli & Co Pty Ltd                    | Melbourne |
| The La Manna Group                     | Melbourne |
| Etherington                            | Perth     |
| Mercer Mooney                          | Perth     |
| Quality Produce International          | Perth     |
| Allcrops Pty Ltd                       | Sydney    |
| Exotic Fruit Traders                   | Sydney    |
| Moraitis                               | Sydney    |
| The N&A Group                          | Sydney    |
| Tilbrook Marketing Pty Ltd             | Sydney    |

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# Canopy Management project coming to an end

By John Leonardi  
of Avocados Australia

The aim of the project was to identify canopy management strategies that have been successfully used by growers in the major production areas across Australia.

The main reasons for canopy management was to optimise light penetration (sunlight is required for flowering), maintain orchard access, reducing tree height (increase efficiency of harvesting and spraying operations), rejuvenate tree health and productivity (particularly in overcrowded orchards) and maintain consistent cropping (particularly in areas where biennial bearing is an issue).

There are several canopy management strategies being used by growers including selective limb removal, selective and mechanical pruning, staghorning, tree removal, cincturing, and plant growth regulator application. The decision on what strategy growers employ often depends on geographic location.

In north Queensland, central Queensland and the warmer coastal areas of south-east Queensland and northern NSW the crop can be harvested up to several months prior to flowering. In these growing areas pruning operations (including selective limb removal, selective and mechanical pruning) can be performed after harvest and prior to the onset of flowering.

While in cooler, temperate climates (eg. hinterland areas of southern Queensland and northern NSW and central NSW) and Mediterranean climates (the Tri-State region and south-west Western Australia) it is normal for the tree to carry two crops for a period of time (mature fruit from the previous season as well as current season's fruit). In many cases growers perform pruning operations after harvest and when trees are going into an "off" year so branches can be pruned with minimal fruit loss. However due to the light crop load (in an "off" year) managing the regrowth from these pruning operations can be more difficult. Growers in these regions typically adopt a selective limb removal method to reduce tree size and improve light penetration.

Growers are using a range of canopy management strategies depending on tree age, size and extent of orchard crowding.

## Establishing young trees

The ultimate decision on tree spacing and orchard layout will depend on a number of factors including topography (slope of the site), cultivar (upright varieties such as Reed can be planted closer than other varieties) and on the canopy management system to be used during the life of the orchard. Two main strategies carried out at this early stage are tip pruning and central leader pruning.

**Tip pruning** - Growing tips are pinched out or cut back to encourage side branching. This technique produces a bushier more rounded tree suited to wider plant spacings. Using this method 3-4 major shoots/branches can be established early which assists in developing a tree shape suited to a selective limb

removal strategy.

**Central leader pruning** - Involves the removal or cutting back of side branches to produce a strong central leader. This technique is easier to achieve in more upright varieties such as Reed and Lamb Hass. This system encourages an upright tree for closer plantings and assists in developing a tree shape that is suited to mechanical or hedgerow pruning.

## Young trees prior to crowding

### (Maintenance pruning)

The objective of these pruning strategies is to maintain the trees at the desired size as long as possible to prevent crowding while maintaining fruit quality and yield. Growers are starting these procedures on 2-3 year old trees so minimum pruning is carried out to achieve these objectives.

**Selective limb removal** - Establishing trees with 2-4 major branches. This strategy involves cutting back dominant branches (reduce tree height and width), removing overlapping and crossing over branches (allow light penetration to prevent die-back of internal shoots) and removal of lower branches (to avoid fruit touching the ground).

**Mechanical pruning** - Trees are tip pruned to an "A" shape or barn shape. Mechanical pruning is usually carried out twice a year. The major shaping prune is carried out after harvest while a light trim to reduce the spring growth flush occurs in summer. Regular mechanical pruning can result in a dense canopy wall at the pruning surface. Selective pruning to open up windows may be required to improve light and spray penetration and assist in cherry-picker access into the tree. Vigorous water-shoots can also be removed at this time. This system of pruning is used in regions where fruit is harvested prior to the onset of flowering.

## Older trees/crowded orchards

### (Rejuvenation pruning)

Strategies used will depend on tree size and extent of orchard crowding. Painting of exposed branches and stumps following these pruning strategies is recommended to avoid sunburn damage.

**Selective limb removal** - Select 2-4 well spaced major limbs per tree depending on tree and row spacing. This strategy involves cutting back dominant branches (reduce tree height), removing branches that encroach on neighbouring trees and the inter-row space (reduce tree width & maintain orchard access) and removing poorly positioned branches such as overlapping and crossing over branches (allow light penetration & cherry-picker access). Limbs are cut close to the base to prevent suckering and promote healing of the wound. Selective pruning is carried out each year to maintain tree size and ensure light penetration into the tree.



Selective limb removal



Young trees mechanically pruned



Staghorning of large trees

**Mechanical pruning** - Trees are pruned to “A” shape or barn shape. Trees are pruned after harvest and again in summer. The major shaping prune to reduce tree height and width is carried out after harvest. Regrowth is tip pruned during summer to encourage branching and to cut back vigorous water-shoots. Selective pruning of bare and exposed branches may be necessary to avoid vigorous regrowth at the pruning surface. In older trees the initial pruning may be hard and yields the following year are often reduced. Yield losses can be reduced by pruning only one side of the trees. The other side is pruned when regrowth from the initial pruning comes into production. As with younger trees regular mechanical pruning can result in a dense canopy wall at the pruning surface and window pruning to assist in light penetration, spraying and harvesting operations may be necessary.

**Major limb removal** - These strategies involve removing more than 30% of the tree. An example of this strategy is “V” shape pruning where the eastern side of one row and the western side of the adjacent row is removed after harvest. Minimal pruning occurs in the next inter-row to allow orchard access. Regrowth on the pruned side is tip pruned to encourage lateral branches and any water-shoots or vigorous regrowth are removed. The other sides of the trees are removed when regrowth from the initial pruning comes into production.

**Staghorning** - Involves cutting trees back to a stump about 1m high and allowed to regrow. Trees are normally staghorned soon after harvest. In subtropical climates trees are staghorned between June-August and in temperate climates between October-December. To maintain uniform light interception, staghorn all trees in a block or a section of the orchard rather than alternate rows or alternate trees. Trees can be out of production for 1-3 years after staghorning. To maintain cash flow only sections of the orchard are staghorned at one time. The height of the stump is important and trees staghorned too high can become large before they come back into production. Regrowth from stumped trees is usually managed similar to young trees either using selective limb removal or mechanical pruning techniques. Trials indicate that application of Sunny® to the summer and autumn growth flush following staghorning can reduce shoot growth, enhance flowering and increase yield.

**Tree thinning/removal** - Alternate rows or trees within a row are removed as orchards begin to crowd or whole blocks are removed 10-15 years and replaced with new trees. The timing of tree thinning will depend on the initial plant spacing. Strategic tree removal should commence before orchard crowding to prevent decline in fruit quality and yield. In some situations tree removal can pose a disease risk. For example tree losses have been reported in orchards growing adjacent to rainforest and wet sclerophyll forest in northern NSW (Pegg et al., Talking Avocados Autumn 2008). Freshly stumped trees were infected by the wood-rotting fungus *Phellinus noxius*. The fungus spread from these infected stumps to attack the roots and crowns of adjacent avocado trees. It is recommended that when thinning an orchard,

## Canopy Management project coming to an end *continued*

stumps and as many roots as possible are removed to prevent build up of inoculum by the pathogen. Replanting in these infested sites is not advised as the fungus can survive in root debris for several years.

### Other strategies

**Cincturing/scoring of branches** - Involves cutting a fine groove (no thicker than a hand pruning saw width) around the branch to sever the phloem. When successfully carried out the wound will produce callus tissue and eventually heal, thereby restoring normal function of the limb or tree. Growers in the Tri-State region and south-west Western Australia have been trialling this scoring technique. Branches in both young and older trees were scored in autumn to reduce vegetative growth and increase flowering and fruit set the following spring. Early results indicate increased flowering and reduced vegetative growth in the scored branch. However in some cases leaf drop has occurred which may result in sunburnt fruit.

**Plant growth regulators** - Foliar applications of Sunny® at are applied at mid bloom (when 50% of the flowers have opened) to increase fruit size and reduce vegetative growth. Trials indicate that application to summer and autumn flush can enhance flowering and may increase yields in staghorned trees.



Large trees mechanically pruned

### Acknowledgements

Thanks to all growers who have provided information on their canopy management operations and hosted field days during the course of this project. This project was funded using avocado grower R&D levies which are matched by the Australian Government through Horticulture Australia.



V - shape pruning – Unpruned side



V - shape pruning – Pruned side

# 'Regional Study Group' Workshops – Key Messages

By Peter Rigden and Simon Newett of QDPI

We have been really pleased with attendances at the workshops and a major factor in attracting the good turnouts has been the high calibre of guest speakers who have so generously made time available to present and share their knowledge at the workshops. A lot of ground has been covered in the workshops held so far and now is a good time to reflect on some of the key messages from what has been learned.

We believe three strong messages have emerged from the 25 workshops held across the country to date:

## Key Message One

**Better *Phytophthora* root rot control and irrigation practices must be adopted!** Considerable gains can be made across the Australian avocado industry both in productivity and fruit quality by implementing some proven yet relatively simple practices to improve management in these two key areas. In many cases growers have not been aware of just how important these two factors are or how badly they are affecting their orchards. On many orchards they are not getting the attention they deserve and until they are addressed on an ongoing basis only minimal progress can be made by spending money in other areas of management.

## Key Message Two

**Timing is critical!** To get the timing right it is essential that you know and understand the phenological cycle of the trees in your orchard. The phenological cycle describes when bud break, flowering and fruit set occurs, when the leaf flushes occur, when the roots are growing and when fruit drop happens. This information is used to decide when many of the operations you carry out on the farm should be done whether it is irrigation, phosphorous acid application, fertilizing or canopy management. In Tony Whiley's words "Success in horticulture is all about timing!"

## Key Message Three

**Measure don't guess!** All the presenters at the workshop have stressed that successful growers monitor and measure what is happening in their orchard and do not rely on guesswork. Correct management decisions about irrigation, pest and disease control, nutrition and marketing cannot be reliably taken unless there is reliable information available on what is happening in the orchard, or in the market.

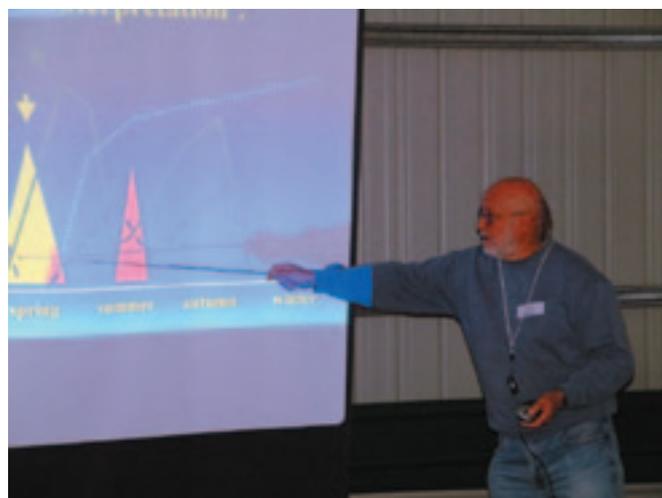
There are many monitoring practices and tools available to growers to help manage these critical aspects to success, some of those that have been discussed at the workshops include:

- soil moisture monitoring devices
- leaf and soil analysis
- compost analysis
- inspecting roots for root rot and analysis of roots for phosphorous acid levels
- pest monitoring/scouting consultants together with the use of reference guides to identify pests and diseases
- guidelines to assist with observation and mapping of the phenological cycle
- 'Infocado' to report to and monitor what is happening in the market
- there are even tools such as the AVOMAN software that allow you to keep good records and recall the records easily to help with your decision making

## Copies of all minutes to be made available via the internet

A wealth of information has been gathered from the workshops held so far on aspects of avocado orchard management aimed at achieving high productivity and fruit quality, and this information has been recorded in the minutes.

It is clear from the voting process held at each meeting to decide the subject of the next meeting that many growers are interested in topics not covered by their own group but which may have been covered by another. For this reason we plan to make the minutes of all meetings available to all growers via the internet. Many growers have indicated that they would be happy to access the minutes in electronic form.



Tony Whiley explaining to the Central Queensland group the importance of knowing the phenological cycle

*'Regional Study Group' Workshops – Key Messages continued*



Sunshine Coast growers listen to Graeme Thomas at a recent meeting on nutrition and fertigation



Mark Whitten demonstrates how to measure soil pH in the field at the WA workshop on soil health



At the recent NQ workshop Callum Rowe demonstrates how to measure the distribution uniformity of sprinklers

We are still working on exactly how this will be done but it is likely that the minutes will be posted onto the 'Growers' login section of the Avocados Australia website, [www.avocado.org.au](http://www.avocado.org.au), allowing growers free access to the information. An announcement will be made once this has been achieved.

**Recent Meetings**

Five meetings have been held since the last edition of *Talking Avocados*:

| Meeting               | Main topic of the day     | Guest presenters   | Grower attendance |
|-----------------------|---------------------------|--|-------------------|
| 1. Central Queensland | Avocado phenology         | Tony Whiley, Sunshine Horticultural Services Pty Ltd   | 31                |
| 2. North Queensland   | Irrigation                | Graeme Thomas, GLT Horticultural Services Pty Ltd. Callum Rowe, Waterwright Solutions Jeff Harrison, Toro          | 47                |
| 3. West Australia     | Soil health               | Mark Whitten, Dept of Ag and Food WA<br>Bob Paulin, Dept of Ag and Food WA   | 48                |
| 4. Sunshine Coast     | Nutrition and fertigation | Graeme Thomas, GLT Horticultural Services Pty Ltd.   | 41                |
| 5. West Moreton       | Disease control           | Ken Pegg, Lindy Coates, Liz Dann and Luke Smith from DPI&F, and Graeme Thomas, GLT Horticultural Services Pty Ltd. | 54                |

The last meeting of the year will be in Central Queensland on Friday 7 November on the topic of Integrated Pest Management.

**Acknowledgements**

These workshops would not be possible without the great cooperation and hospitality of the growers on whose orchards the activities are held and they would not be as informative if it were not for the guest presenters and the growers who provide their time and share their knowledge. The local Avocados Australia board members have also been very supportive. We thank all these people as well as the organisers from the various state departments of agriculture for their hard work in making the meetings happen. The project is funded by Queensland DPI&F, Avocados Australia and HAL, and supported by the Dept of Agriculture & Food WA, NSW DPI and EE Muir & Sons.

# THE PERFECT WINTER ESCAPE!

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**Avocado Growers  
Conference 2009**

**21 - 23 July 2009**  
**Cairns Convention Centre**



The Atherton Tablelands in the far north of Australia will be the region showcased during the 2009 Australian and New Zealand Avocado Growers' Conference in Cairns.

Avocados Australia and the New Zealand Avocado Growers' Association will welcome all avocado growers and members of the supply chain to attend the fourth quadrennial Australian and New Zealand Avocado Growers' Conference, on 21-23 July 2009 at the Cairns Convention Centre, Cairns, Qld Australia.

Over 480 industry members attended the last Joint Conference held in 2005 in Tauranga, New Zealand.

More details will be available at  
[www.avocado.org.au/industry/Conference.asp](http://www.avocado.org.au/industry/Conference.asp)  
and will be provided over the next few months.



# Pollination R&D Program Update

Avocados Australia is a member of Pollination Australia, which is a group of industries concerned at the potential impact on horticulture crops of a Varroa mite incursion on European honey bees in Australia. The avocado industry has contributed funding to the HAL portion of the funding table below.

The Interim Advisory Committee for the Pollination R&D Program was brought together for the first time in Canberra, on Thursday, 28th August to review a series of Pollination R&D project applications for contracting in the 2008/09 financial year.

Committee members present at this meeting comprised:

- AHBIC - Lindsay Bourke
- HAL - Kim James
- Honeybee R&D Chairman - Des Canon
- Pollination Australia - Julie Haslett (Almond Board of Australia)
- Pollination Australia - Jeff McSpedden (AUSVEG)
- RIRDC - Margie Thomson

Pollination R&D funding committed for the 2008/09 financial year is as follows:

|                     |                  |
|---------------------|------------------|
| Honeybee R&D        | \$100,000        |
| RIRDC               | \$50,000         |
| HAL (Hort Industry) | \$264,800        |
| <b>TOTAL</b>        | <b>\$414,800</b> |

A series of Pollination R&D project applications were reviewed at the meeting. A brief outline of these projects is included below.

However, prior to finalising contractual arrangements with any of these projects, it was agreed to review DAFF's current and future plans to avoid duplication of activities, and to potentially collaborate on initiatives (where possible and appropriate).

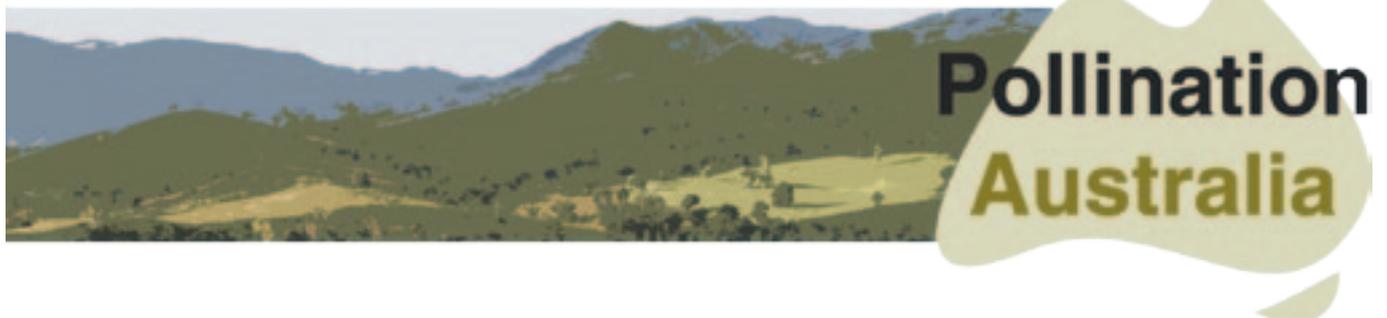
Five project applications are currently under consideration, as summarised below:

## 1. Five Year Pollination R&D Strategic Plan & Related Communication Plan

- This project is to be funded directly by RIRDC's \$50,000 contribution.
- It is aimed to build a business case for investment in the program over the next five years.
- Future industry investment in this program is required for continuity. In order to facilitate this, a summary document will be circulated to all relevant Industry Advisory Committees (IAC's), in addition to a DVD of the recent 60 minutes story on Varroa mite, featuring Dennis Anderson.
- Further to this, funding has been allocated by RIRDC for direct communication at the IAC meetings prior to April 2009, enabling presentation of the 5 year Pollination R&D strategic plan, underpinning a request for continued funding commitment.

## 2. Simulation Exercise

- This project aims to undertake an emergency response exercise, simulating a Varroa mite incursion, with a view to testing preparedness and existing decision making processes.
- The project will be broken into a two-step approach, with an initial workshop focussing on eradication and containment strategies, followed by a second exercise with a focus on both short and long-term management, with a view to developing a National Management Plan.
- Importantly, this review requires input from the broadest range of people. A key objective of this project will be co-ordinating and consolidating feedback and input from the many stakeholder groups associated with this surveillance program.



### 3. Bioeconomic Model

- This project aims to develop a modelling tool and input relevant data, in order to model the spread of Varroa mite incursion and consequent impact on Australia's horticultural production. This model could then be used to assess economic impact of various quarantine decisions in the event of a Varroa mite incursion.

### 4. Economic Impact Assessment

- This project aims to utilise data generated in the bioeconomic modelling project and input it into ABARE's "Ausregion" tool, in order to quantify the total economic impact of this reduction in horticultural output.

### 5. Surveillance Review

- This project aims to undertake a comprehensive assessment of potential surveillance measures, outlining the related costs, benefits and risks associated various strategies by exploring the strengths and weaknesses the range of surveillance strategy options. Ultimately the project will result in the development of a business case for investment in a recommended Australian surveillance

## DAFF/ Industry Honeybee Meeting

A joint DAFF/Industry meeting was convened by DAFF on Friday, 29th August in Canberra. The meeting was chaired by Tom Aldred - Executive Manager, Product Integrity, Animal and Plant Health, DAFF. Attendance at this meeting included representation from:

- DAFF / AQIS / Biosecurity Australia / State and Territory Agencies / CSIRO
- Honeybee Industry / Pollination Australia
- Rural Industries Research and Development Corporation (RIRDC)
- Horticulture Australia Limited (HAL)

- Animal Health Australia (AHA) / Plant Health Australia (PHA)

The meeting was initially convened in response to Pollination Australia's letter regarding continuation of the National Sentinel Hive Program, however the scope of discussion was broader than this.

During the meeting, a suite of more than 12 projects were scoped for collective input, including those projects currently being reviewed for Pollination R&D funding. An update was presented by those present on any specific activity that has already been undertaken with respect to each project and any future plans in order to capture current initiatives and avoid duplication. Suitable timeframes were agreed and responsibilities allocated for each project.

A majority of projects specifically focussed on a potential Varroa mite incursion, spanning the biosecurity continuum: pre border, border and post border, addressing aspects of risk assessment, preparedness, response and communication. It was noted that there was a need to broaden the scope of projects to encompass other threats, both exotic and endemic.

It was agreed that the full suite of projects should be scoped in a consistent format and developed into an integrated "Honeybee and Pollination Program" (potentially to be co-ordinated into the existing Pollination R&D framework). DAFF have agreed to explore this concept with RIRDC. Funding arrangements for the DAFF R&D projects are still to be determined.

I am pleased to provide the above report, which I believe represents positive progress, both in terms of progressing urgently required project outcomes, but equally importantly with respect to strengthened collaboration, communication and awareness raising of the importance of the current issues facing Australian pollination.

I look forward to providing a further update when available.

Julie Haslett – Interim Secretary

Secretariat: PO Box 2246 • 9 William Street • Berri SA 5343 P: 08 8582 2055 | F: 08 8582 3503 | M: 0418 958 187



# News from Around the World

## MHAIA Plans Integrated Marketing Campaign under New Leadership

Jacqueline Böhmer, the new marketing director for the Mexican Hass Avocado Importers Association, has taken bold steps to revamp the organization's marketing program. Qualitative and quantitative consumer studies conducted in August provided detailed insights that will be used to guide promotional activities.

"We were surprised to find that, despite educational efforts over the years, many avocado purchasers continue to lack basic knowledge, such as knowing when the fruit is ripe or being aware of its spectacular nutritional qualities," says Böhmer. "Consumers primarily view avocados as a special-occasion purchase, but we want to expand their use as an everyday food."

To this end, MHAIA's marketing program will focus on value, with an emphasis on nutritional benefits and providing everyday usage ideas that can maintain sales momentum apart from traditional high-volume sales occasions such as Super Bowl Sunday and Cinco de Mayo. Focus groups held in Boston, Baltimore and Chicago indicated that educating consumers on the benefits of Hass avocados can change their perception of value in a positive way. In pre-session questionnaires, about 52 percent of nonuser participants expressed the belief that avocados are "expensive,"

compared to 35 percent afterwards—even though price was not mentioned during the sessions.

MHAIA will work closely with APEAM, the Avocado Producer and Exporting Packers Association of Michoacán, to develop consumer, retail, and media programs that complement each other, minimizing overlap. To support their unified message, the two groups will share a logo. "We are all trying to increase consumption of Mexican avocados in the U.S., so it is logical for us to coordinate our efforts and maximize their impact," says Antonio Villasenor Zurita, chairman of MHAIA.

The integrated marketing campaign team includes Dallas-based Encircle Marketing, which conducted the consumer research and will serve as MHAIA's advertising agency. Working closely with members, The Botsford Group will manage retail promotion activities. Red Urban will assist MHAIA in a redesign of the Web site to deliver comprehensive consumer materials, support promotional activities, and enable members and the trade to share information. Lewis & Neale Inc, which has managed APEAM's communications programs for the past eight years, will be responsible for MHAIA's media relations and consumer event marketing activities.

Radio advertising will continue to support retail promotions, and there will be increased emphasis on print advertising in

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large-market newspapers and national women's interest, food and health magazines, carrying the message that avocados from Mexico are part of a healthy diet. To help support these efforts, MHAIA will participate in a series of consumer food and health events (such as American Diabetic Association Expos) in target markets. A spokesperson will speak to nutritional issues at events and in media appearances.

Promoting avocados from Mexico at NASCAR events will continue to be a priority, according to Böhmer. Negotiations are already under way for next year's racing season, and MHAIA plans to leverage this asset more effectively across all parts of the marketing program to support members and retailers along the East Coast.

An increase in funding will support the new marketing campaign, in anticipation of record volumes of avocados arriving from Mexico in 2009. "MHAIA's board and everyone in the industry are excited about the new direction and the team Jackie has put together," says Ron Campbell, MHAIA Executive Director. Source: MHAIA

### Agrexco Israel hosts world avocado marketing and promotion group

The 2008 annual meeting of AMAPWG (Avocado Marketing and Promotion working group) was held in Israel during the last week of September.

The event was headed by Mr. Gabi Naamani, who is managing the Avocado business in Agrexco along two decades, with the participation of 25 members and representatives from eight countries around the globe (Chile, Peru, Mexico, Spain, South Africa, Australia, New Zealand and Israel). The group spent three extensive days in a fruitful conference, along with agricultural tours around the country.

AMAPWG was established in 1999 as a voluntary organization of producers and exporters from various countries that identified "Common interests in developing the Avocado consumption all over".

Gabi Naamani defined the affair as a simple model of "free competition with free information". He further added that Israel is a leader in the European Avocado markets and attaches great importance to the conference, regarding it as a means of contributing to the Avocado world.

Meanwhile, the first shipment of the newly Israeli Avocados season had just arrived to Europe. Starting with Ettinger, with other varieties to join later on, the export season will continue till May 2009, with expected total volume of 35-40,000 tons. Agrexco runs more than 70% of the Israeli Avocado Export, and is aiming to distribute the avocado all over Europe with special attention for the specific requirements of its clients, including the leading organizations and supermarket chains.

# Grower Member Application Form

## Avocados Australia Limited

ACN 105 853 807

For Associate and Affiliate membership application forms please go to [www.avocado.org.au](http://www.avocado.org.au) or call 07 3846 6566

### Member Details

Business name and/or trading name: \_\_\_\_\_

ABN: \_\_\_\_\_

Key contacts: \_\_\_\_\_

Preferred address (postal): \_\_\_\_\_

Address of property (if different): \_\_\_\_\_

### Contact Details

Business phone: \_\_\_\_\_

Home phone: \_\_\_\_\_

Fax: \_\_\_\_\_

Mobile: \_\_\_\_\_

Email: \_\_\_\_\_

### Corporate Structure

How would you describe the nature of your operations (please circle)?

- Individual   
  Partnership   
  Company   
  Trust  
 Lessee   
  Cooperative   
  Other (please specify) \_\_\_\_\_

Please indicate the area of property that you crop for avocados (please circle)

- 0.5 - 5 ha   
  6-19 ha   
  20-49 ha   
  50-99 ha  
 100-149 ha   
  150-199 ha   
  200-499 ha   
  500 ha+

### Special Interests

Please tick your main areas of interest from any of the following:

- |   |   |
|---|---|
| <input type="checkbox"/> Consumer information                     | <input type="checkbox"/> Production management        |
| <input type="checkbox"/> Environmental management/ sustainability | <input type="checkbox"/> Quality Assurance            |
| <input type="checkbox"/> Organic farming systems                  | <input type="checkbox"/> Technology/innovations       |
| <input type="checkbox"/> Water management                         | <input type="checkbox"/> Marketing                    |
| <input type="checkbox"/> Field days                               | <input type="checkbox"/> Supply chain management      |
| <input type="checkbox"/> Pest management                          | <input type="checkbox"/> Key political issues         |
| <input type="checkbox"/> Food safety                              | <input type="checkbox"/> Other (please specify) _____ |

## Grower Member Application Form continued

### Payment Options

Grower Membership of Avocados Australia is \$143 pa (including GST). You can pay your membership by cheque or credit card. To pay your membership fee, please choose one of the following options:

**Cheque**

Please find enclosed a cheque for \$143.00 made payable to Avocados Australia Ltd.

Please charge \$143.00 to my credit card. Details are listed below.

**Credit card** (please circle):

MasterCard    Visa

Credit card number: \_\_\_\_\_

Name on credit card: \_\_\_\_\_

Expiry date: \_\_\_\_\_

Signature: \_\_\_\_\_

### Privacy Options

Avocados Australia Ltd adheres to privacy rules with respect to the way we collect, use, secure and disclose personal information. Please indicate below (tick) if you do not wish to receive additional information.

I do **not** give Avocados Australia Ltd permission to allow my postal contact details to be accessed by other organisations other than Avocados Australia Ltd which offer beneficial products and services.

- NB - No personal details other than name and postal address will be given out under any circumstances.

Once you have completed this form please place it in an envelope addressed to:

**Avocados Australia**  
**Reply Paid 8005**  
**Woolloongabba Qld 4102**

(no stamp required within Australia):  
For more information or assistance please go to  
[www.avocado.org.au](http://www.avocado.org.au) or call on **07 3846 6566**



## News from Around the World continued

### Exporters demand tighter entry rules for SA goods

Players in the local horticultural industry now want the Government to impose non-tariff barriers on South African imports in retaliation to the recent ban on Kenyan avocados exports. The fresh produce exporters say the Government should also tighten the rules of entry for South African fruits found in leading supermarkets.

“The Government must take adequate steps, including banning the entry of South African fruits into the country,” said Fresh Produce Exporters Association’s (FPEAK) CEO, Dr Stephen Mbithi. South Africa has banned Kenyan avocados from its market, saying they could spread fruit flies. Market players, however, say this excuse is flimsy because the flies are a common pest across Africa.

Kenya is South Africa’s largest trading partner in the eastern African region with the Economic Survey 2008 showing an exponential growth in the country’s import from the country.

### Avocado costs hurt Calavo Growers 3Q profit

Calavo Growers Inc., which distributes avocado and other fresh produce, said Friday fiscal third-quarter profit fell 38 percent as the cost of avocados rose. Profit for the quarter ended July 31 fell to \$1.4 million, or 10 cents per share, from \$2.2 million, or 15 cents per share last year. Revenue rose 6 percent to \$96.9 million from \$91.3 million a year ago.

Calavo said profit fell because of the higher cost of Mexican-grown avocados, which hurt margins in both fresh and processed-product operations.

“A significant factor in Calavo’s fiscal third quarter performance and a principal differentiator in year-over-year operating results was a short supply of Mexican-grown avocados that resulted in sharply higher costs for fruit sourced from that region,” said Lee E. Cole, chairman, president and chief executive, in a statement.

He said the costs are beginning to lessen, however, which likely will not help fourth-quarter results but is expected to boost gross margins in fiscal 2009.

### Chile: 10% less avocado’s than last year

The avocado crop is expected this year to be 10% smaller than last year. The avocado estates are still getting over last year’s frost and this year’s dry period. Nevertheless the Chilean Hass Avocado Association (CHAA) expect to export an almost equal volume as last year. This means that less avocados will be available at local markets. Last year the harvest was 156,000 tons, of which 117,000 tons were exported.

The first Chilean avocado’s are expected to arrive in Europe during the third week of September, according to the Chilean Hass

Avocado Association.

### Korea's imports of avocados increase

Korea's imports of avocados rose from 610 metric tons (mt) valued at \$1,965,976 in 2006 to 655 metric tons (mt) valued at \$2,083,000 in 2007, nearly an 8 percent increase. 2007 was the first year that the United States did not hold the top market share. U.S. exports were down from 417 (mt) in 2006 to 161 (mt) in 2007. Many importers believe this is due to an increase in unit price which rose 26 percent in the United States from 2006 to 2007. Mexico now stands as the dominant supplier of avocados to Korea. The United States, Mexico, and New Zealand were the only exporters of avocados in 2007 to Korea. There is no domestic production. Source: USDA

### Peru inches closer to US avocado market

The South American nation hopes to ship its first volumes of avocados to the US as of early 2009. Peruvian avocados could shortly become a regular fixture on US supermarket shelves once a Free Trade Agreement (FTA) is established between the two nations.

According to the Peruvian Ministry of Agriculture (Minag), a sanitary and phytosanitary protocol to facilitate exports of Peruvian avocados is currently in the final review stages and is

due to be signed by the end of this year.

"This would mark the entry into a new market for Peruvian avocados starting in 2009," revealed Oscar Sebastiani, who heads up Minag's Agricultural Promotion Programme.

"Under the Peru-US FTA, Peru will receive immediate zero tariff treatment for its avocados, meaning Peruvian growers with an entrepreneurial attitude will have the opportunity to take advantage," Mr Sebastiani added.

The Peruvian avocado industry has for the last five years negotiated to gain access to the US, where the country will compete directly with Californian growers.

Peru is also reportedly working to open up the avocado markets of country members belonging to the Asia Pacific Economic Cooperation (APEC) Forum, such as China.

Peruvian avocado exports reached some US\$54m during the January to July period of this year, marking a 32 per cent increase on the value of shipments during the same period of 2007.



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