

Pre-Pack
Avocados
3.99

Choice
Avocados
.89¢

Loose
Garlic
5.99

Pre-Pack
Garlic
3.99

Talking Avocados

PRODUCT OF CHINA

**Orchard Thinning
triggers Phellinus Epidemic**

Spotting Bug and Airblast Workshops

Clonal Propagation of Rootstocks

**Using Phosphonates
to control Phytophthora Root Rot**

Autumn 2008

Print Post Approved - 44307/0006

Volume 19 No 1

Avocados Australia Limited

Talking Avocados is published using avocado grower levies which are matched by the Australian Government through Horticulture Australia.

AVOCADOS AUSTRALIA LIMITED
ABN 87 105 853 807

Level 1, 8/63 Annerley Road
Woolloongabba, Qld 4102 Australia

PO Box 8005 Woolloongabba
Qld 4102 Australia

Phone: 07 3846 6566
Fax: 07 3846 6577

Email: admin@avocado.org.au
Web: www.avocado.org.au

Antony Allen *a.allen@avocado.org.au*
Chief Executive Officer



Avocados Australia Directors

Henry Kwaczynski Chairman 07 5442 1767
Sunshine Coast *h.kwaczynski@avocado.org.au*

Daryl Boardman 07 4697 8000
South Queensland *d.boardman@avocado.org.au*

Chris Nelson 02 6569 0881
Central NSW *c.nelson@avocado.org.au*

Jim Kochi 07 4054 2188
North Queensland *j.kochi@avocado.org.au*

Jennie Franceschi 08 9777 3246
Western Australia *j.franceschi@avocado.org.au*

Lachlan Donovan 07 4159 7670
Central Queensland *l.donovan@avocado.org.au*

Tom Silver 02 6628 8929
North NSW *t.silver@avocado.org.au*

John Walsh 07 4126 8200
Central Queensland *j.walsh@avocado.org.au*

Colin Fechner 08 8541 2819
Tri State *c.fechner@avocado.org.au*

Talking Avocados

Talking Avocados is published by Avocados Australia Limited.

Published:

Quarterly - Autumn, Winter, Spring and Summer

Editor: Antony Allen,

PO Box 8005 Woolloongabba Qld 4102

Phone: 07 3846 6577, Fax: 07 3846 6566

Email: TalkingAvocados@avocado.org.au

Circulation: 1,100 Copies

Printed by: Snap Printing, 101 Edward Street Brisbane 4000

Phone: 07 3221 5850, Fax: 07 3221 3208

Email: brisedward@snapprinting.com.au

Subscriptions: Four issues per year: Australia: AUS \$50.00
New Zealand: AUS \$65.00
Rest of the World: AUS \$80.00

Advertising: Avocados Australia Limited,
PO Box 8005 Woolloongabba Qld 4102 - Phone: 07 3846 6577,
Fax: 07 3846 6566 Email: TalkingAvocados@avocado.org.au

Disclaimer: This publication is produced upon the understanding that no responsibility is accepted by Avocados Australia Limited (ABN 87 105 853 807), its Directors and Officers or the Editor for any opinions, claims, statements made and views expressed in any edition of Talking Avocados. Readers should rely on their own inquiries when making decisions concerning their interests. All material in the magazine is copyright. Reproduction in whole or part is not permitted without written permission of the editor.

We all make mistakes: If we make a mistake please let us know so a correction may be made in the next issue.

Contents

Chairman's Perspective	3
Industry Matters	4
Australian Roundup	12
Orchard Thinning triggers Phellinus Epidemic	15
Australian and New Zealand Avocado Conference 2009	16
Avocados Australia: have moved	17
VI World Avocado Conference Study Tour - Chile	18
Spotting Bug and Airblast Workshops	23
Regional Study Groups feature expert guest presenters	24
Clonal Propagation of Avocado Rootstocks	27
Changes in dry matter and oil content of avocados	28
Using Phosphonates to control Phytophthora Root Rot	33
Permit to allow emergency use of a Registered AGVET Chemical Product No -PER10722	35
Principles of Phytophthora root rot management	36
PMA Fresh Summit: Part Two	39
News from around the world	44
Grower Member Application Form	45

Cover Pic: Retail display at an IGA store in Sydney, during the Retail Quality Surveys

Chairman's Perspective

In this issue I intend to concentrate on two key topics - marketing and the environment

Marketing

The start of the 2008 season brings an opportunity for smarter collaborative marketing for the year, and again I express my long standing hope that growers will adopt a more innovative and flexible approach to marketing. By now you are all aware that production levels of avocados are increasing, with the rate of increase far higher than it has been for the last ten years - I believe that this trend will continue for at least a few years to come. So there is really no choice about smarter marketing – we either go for it or suffer the consequences of lower returns or worse still, nil returns.

I am not advocating takeovers or mergers, but a coordinated and cooperative marketing approach that will give a clear signal that supply is readily available to the market all year round. Supply programs to retailers and wholesalers in the domestic market need to be honed in such a way that when one supplier's variety concludes supply, another supplier's variety is ready to step in, with no gap. As I said, the goal is for Australian avocados to be available for supply programs for twelve months of every year. Let me assure you that, by working in a coordinated way, there are real opportunities for commercial entities to achieve positive outcomes with retailers and wholesalers.

Environment

The second topic for discussion relates to the relationship between farmers and the highly sensitive topic of chemical usage. I need to talk about the environment and potential or real pressures upon farmers. Such pressure comes from many directions Federal to Local Governments, Environment groups, the media, developers bringing suburbs ever closer - the list seems to be endless.

Sometimes issues reported in the local media are blown out of proportion as a slanted view sells many more papers. However, we farmers do have to be socially responsible and carry out our business in a professional manner. We need to understand that any small departure from specified application of chemicals (i.e. a variance to the label) will attract the harshest criticism from all quarters.

There are several ways to ensure environmental responsibility. Some of these are:

Doing an environmental audit of your property, or commissioning an external party to do such an audit

- Ensuring only registered chemicals are used for specified purposes
- Maintaining currency of chemical accreditation through attendance at Chemical Safety Accreditation Courses
- Ensuring familiarity with the APVMA website – Australian Pesticide and Veterinary Medicines Authority: www.apvma.gov.au
- Ensuring awareness of minimum residue levels

In brief, it is most important that:

- You use only chemicals that are registered for the specific job at hand, and
- Your use of chemicals is strictly in accordance with the instructions detailed on the label.



In order to assist avocado growers with this important element of environmental awareness, Avocados Australia is organising workshops with Dr Henry Drew on fruit spotting bug and airblast spraying technology. These commenced in 2007 and will continue this year. I strongly recommend that everyone attends these workshops – details are on page 23.

QA schemes generally include elements mentioned above. But the point is that you alone take responsibility for the safe application of chemicals on your property. I am sure you would know that court proceedings are very costly and you will definitely be out of pocket at the end of the day if litigation occurs.

Finally, I included in my Sunshine Coast column in this issue, a reminder about a local by-law relating to the protection of vegetation. You may like to check out by-laws in your local area, to see if there are any limits that may apply to you and your property. Again, penalties for breaches can be extreme.

Australian – New Zealand conference

On 22, 23, 24 July 2009, the combined Australia/ NZ Avocado Growers Conference will be held in Cairns. It is not too early to mark that in your diary and include it in your plans for next year. The enthusiastic conference planning team is working hard to ensure that this conference will be interesting and enjoyable.

Henry Kwaczynski

Henry Kwaczynski
Chairman, Avocados Australia



So much more than just a market

The Brisbane Produce Market is Queensland's fresh fruit and vegetable hub, trading over 625,000 tonnes of produce each year and ensuring the most efficient and effective marketing and distribution of Queensland's fresh fruit and vegetables.

To find out more about the Brisbane Produce Markets visit www.brisbanemarkets.com.au or phone the free Grower Hotline on 1800 631 002.

Logos: Brisbane Produce Market, Market Fresh, Brisbane Produce Market, Brisbane Produce Market.

Industry Matters

Written, edited and compiled by
Antony Allen CEO of Avocados Australia

Avocado promotions working hard: "Add an Avo"

The 2008 promotion campaign will be the biggest ever seen for the Australian avocado industry. For the first time ever the industry's promotion resources can now deliver a national promotion program will that begins in mid February 2008 and run right through to November 2008. A range of magazines, word of mouth, online, website and TV form the first stage of the avocado promotion campaign, please see the complete 2008-2009 promotional schedule below.

The strategic direction continues to focus heavily on versatility, demonstrated by recipe usage. The primary targeting being female grocery buyer 20-39 years, secondary target female grocery buyer 40-54 years, both media and creative relies strongly on introducing new uses for avocados, supported always by specific recipe usage. The objective of the current campaign is to encourage occasional users to increase purchase frequency, and maintain the purchase frequency of high users.

This phase is being rollout in print advertising, such as Woman's Day, New Idea, Notebook, Cosmopolitan Who Weekly, New Woman, Delicious, Super Food Ideas, Good Taste and health and parenting titles such as Mother & Baby, Practical Parenting, Australian Parents, Out & About Kids, Little Kids and Pregnancy & Birth.

TV will target very successful free to air cooking shows where avocados will feature, with "Add an Avo" ads running during the shows along with a number of pay TV channels.

Word of mouth (WoM) will be expanded the WoM approach provides essential information directly into our target market. WoM has been shown to be a very creditable and effective way of transferring information through out the community.

The tag line is "Add an Avo", focusing on the versatility and usage, demonstrating that you can add an avocado to just about any meal. Health and nutrition closely follows the versatility message. Keep a look out for the "Add an Avo" message. We will keep you posted on each phase over the coming year.

Also during the 2008-2009 year there will be consumer surveys and focus groups to ensure the promotion program is on target and continually focused on a successful message for consumers.

During late 2007 there were a range of consumer focus groups held to ensure that the avocado promotion campaign was on target and using the correct delivery media methods

The result is extremely positive with all media delivery methods very well targeted, virtually all elements work well in stand alone terms:

- TV
- Website
- Recipe Point of Sale Booklet
- Press Ads (with recipe)

The creative device at the basis of the campaign is viewed by target consumers as positive, is attractive and engaging.

The communication of versatility and health is being achieved. Versatility works well because it gives them what they want . . . ideas. But the thing they get excited about is not the message of versatility, it is the recipes.

This is how versatility is demonstrated

We are not delivering a product message, but knowledge, ideas and social fuel.

Consumer focus group comments on the "Add an Avo" campaign:

"I thought it was great, informative and fun"

"I love the colour too. I love the when you open an avocado and see that colour"

"Like the use of the avocado and that they turn into all those different things"

"Because it is so simple it is different from a lot of the other ads. Not many really simple ads"

"Positive, fresh, healthy, simple, informative"

MEDIA/MARKET	Media Plan: February 08 to May 08																
	FEBRUARY				MARCH					APRIL				MAY			
	3	10	17	24	2	9	16	23	30	6	13	20	27	4	11	18	25
TELEVISION																	
PayTV TVC (15 sec)																	
PayTV TVC (30 sec)																	
Channel 10 TVC (30 sec)																	
- Ready Steady Cook (min 15 mentions)																	
MASS/LIFESTYLE MAGAZINES																	
Woman's Day																	
New Idea																	
Notebook																	
Cosmopolitan																	
Who Weekly																	
New Woman																	
New Woman (insert recipe booklet)																	
FOODIE MAGAZINES																	
Delicious																	
Super Food Ideas																	
Good Taste																	
HEALTH, EXPECTANT & MUMS - KIDS U3																	
Mother & Baby																	
Mother & Baby (insert recipe booklet)																	
Practical Parenting																	
WW Aust Parents																	
Pregnancy & Birth																	
Out & About Kids																	
Little Kids																	
New Baby Bounty Bag																	
WORD OF MOUTH + SAMPLING																	
PPC Mum's Group + Sampling																	
Ultimate Media: 93 Fitness centres																	
Ultimate Media: 77 Aquatic centres																	

Industry Matters *continued*

bottom of the issue, but says more transparency is needed at each stage of the fresh produce chain.

He says while consumers are paying more - farmers are still getting the same prices at the farm gate.

“We just want to be able to communicate to consumers that we’re not receiving big chunks of the increase in prices” he said.

“It’s not only about price, it’s about transparency through the entire chain and farmers being able to participate in the market place on just terms.” Source: ABC

ATO winner in MIS case

The Full Federal Court in Perth has ruled in favour of the Australian Taxation Office over deductions claimed by a taxpayer in a managed investment scheme (MIS).

The appeal judgement found that although the MIS project was a legitimate commercial venture the taxpayer entered the scheme for the dominant purpose of obtaining a tax benefit.

Accountant, Gino Lenzo, went to the Federal Court when the Australian Taxation Office (ATO) refused his 1998, 1999 and 2000 deductions for prepaid fees, loan interest and loan insurance against his MIS sandalwood plantation investment in Kununurra in Western Australia.

Mr Lenzo won the first round, but the decision was overturned on appeal.

The court heard that Mr Lenzo had not received any income from the project to date and that no income was forecast until harvest in 2014.

The court found that the structure of the MIS project, especially the round-robin financing and the year-end timing, was designed to maximise and bring forward tax benefits, and had nothing to do with the activity of growing and marketing sandalwood.

It also found that the tax benefits obtained by the investor, compared to his cash outlays, were greater than the Court, at first instance, suggested.

Agricultural economist and valuer, Sam Paton of Sam Paton and Associates, believes the court finding will strengthen the ATO’s resolve to review the whole system of MIS tax support.

“With this case it now appears the ATO is tightening the screws independently of a foreshadowed test case on the whole non-forestry MIS issue,” he said.

Mr Paton believes there is a new mood in government where support for these schemes is being challenged and reviewed, especially given the large sums of money at stake.

“For example, \$800 million was allowed for plantation forestry deductions in the tax year finishing in June 2007 and, when the combination of other peripheral [MIS] schemes are taken into account, they are in excess of \$1.3 billion and rising,” he said.

Agribusiness farm consultant, Andrew Dunbabin, said the genuine

players in the agricultural sector will be relieved by the Full Federal Court judgement in the Lenzo case.

“For some years we’ve all been concerned about the growth of MIS’s which are manufactured products designed to take advantage of the tax laws,” he said.

Andrew Dunbabin said the government should have acted a long time ago to change the rules around managed investment schemes.

“The simplest way of dealing with this is to allow deductions that relate to the length of the project,” he said. Source: ABC

Drought not the biggest factor in food price rises

The National Farmers Federation, in its submission to the ACCC’s inquiry into grocery prices, says drought is not a big factor in rising food prices.

Farmers were receiving only a small portion of retail food prices therefore the ACCC needed to undertake a comprehensive analysis of what was driving prices up, the Federation said.

The Federation has urged the competition watchdog to look closely at market concentration in retailing and processing.

Vice president, Charles Burke, said there appeared to be an increasing gap between farm-gate and retail prices, therefore, the inquiry was a good opportunity to find out exactly what was happening in the supply chain.

“Contrary to popular belief, drought does not always lead to a lift in prices that farmers receive. The factors driving domestic food prices are complex and will vary by commodity,” the Federation said in its submission.

The NFF says producers receive as little as 5% of the price paid by consumers.

“The truth is, farmers only ever receive a small portion of the price paid at the checkout.” Source: FOODweek Online

Facelifts for 220 Woolies stores

Woolworths is creating 220 new store layouts to improve their fresh food offerings.

The changes, to cost an estimated \$4 million for each store, are focussed on improving displays of fruit and vegetables, bakery and other perishable foods.

The huge revamp is understood to be in response to expected changes at Coles under its new chief executive, Ian McLeod. Woolworths has also been under attack from specialty fresh food outlets such as Harris Farm, which now has 20 outlets at major shopping centres in NSW.

The first new-look Woolies, at Sydney’s Rouse Hill, features improved signage and a spacious feel. The refrigerated sections are larger and health foods are given more space.

Industry Matters continued

Rudd withdraws food innovation grants funding

The Rudd Federal Government has withdrawn funding from the Food Innovation Grants Program to fund new policy initiatives to deliver election commitments.

Bill Turner, program manager, has advised industry stakeholders the government continues to recognise that innovation is important to ensure that all Australian industries are productive and profitable and has established a new Department of Innovation, Industry, Science and Research to foster innovation.

Turner said the government recognises the need for a food industry specific innovation program and has created the Regional Food Producers Innovation and Productivity Program to strengthen the food industry in the regions and across the supply chain.

Turner said details of the new program will be available shortly. Source: FOODweek Online

Careers in horticulture - skills for life

SkillsOne Television will premier an exciting new documentary series examining careers in horticulture, Australia's second-largest agricultural industry with gross value at the farm gate of around \$7 billion and with more than 100,000 workers.

Case studies filmed across four states will be broadcast as two 30-minute documentaries at 3pm on the weekend of 22-23 March on the Aurora channel (Fox Channel 183).

SkillsOne and the Agri-Food Industry Skills Council have collaborated on the research and production of the two documentaries. They offer fresh insights into careers in horticulture, its people and workplaces and the endless range and volume of produce, from the food we eat to flowers and the large-scale production of seedlings for farmers and horticulturalists from a variety of geographic locations and backgrounds.

SkillsOne showcases the entrepreneurial horticulturists who have found a niche and in many cases created a family business spanning generations.

One case study features Tony Har, who came to Australia from Hong Kong 30 years ago and began growing Asian vegetables in the Sydney Basin. Today, the Sydney Basin produces the bulk of fresh vegetables consumed by the city's four million residents, where some 2,000 small farms grow 90 per cent of Sydney's perishable vegetables, almost 100 per cent of its Asian greens, 80 per cent of its mushrooms and most of the tomatoes, snow peas, Lebanese cucumbers, herbs, spring onions and shallots.

Like many other growers in the area, Tony took certificate courses in



Minimum Effort Maximum Return

HYDRALADA

Maxi Series

More and more avocado orchardists are realising the benefits of the HYDRALADA® Maxi Series, with increased output for an even better productivity return for their dollar. The Maxi Series reaches working heights of up to 12 metres and with an inbuilt automatic braking system, eliminates creep and over-run on the slopes.

**Built to Australian Standards AS1418-10 & AS2550-10
Compliant with Australian OH&S Workplace Standards**

Optional Features include:

- tandem 4WD • telescopic boom • up to 12m working height
- precision handling • proportional drive system for smooth operation
- excellent traction • automatic braking system • hydraulic slew cage

DEALER AND SERVICE NETWORK THROUGHOUT AUSTRALIA

FAST AND EFFICIENT
- save time and money

VERSATILE
- certified to work on slopes up to 20°

SAFE AND RELIABLE

COST EFFECTIVE
- minimum effort, maximum return

HYDRALADA®
COMPANY

FREEPHONE 1800 124 352 Email: sales@hydralada.co.nz

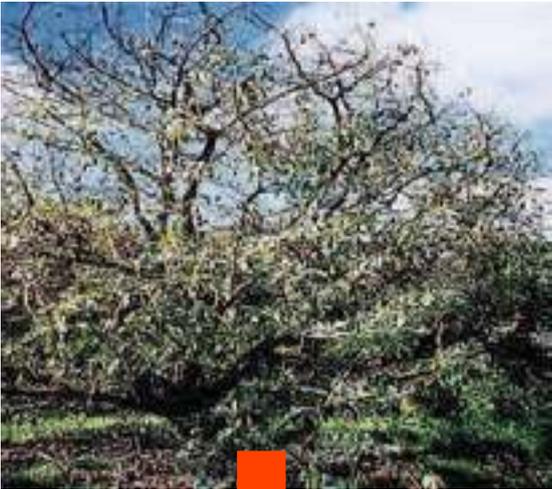
2344 www.gspdesigns.co.nz

TAKE THE GUESS-WORK OUT OF YOUR
ROOT ROT **MANAGEMENT**
MEASURE HOW EFFECTIVE YOUR ROOT ROT
CONTROL PROGRAM IS



SGS IS THE WORLD'S LEADING INSPECTION, VERIFICATION, TESTING AND CERTIFICATION COMPANY

SGS



Take the guess-work out of your root rot management. Measure how effective your root rot control program is.

After the floods of 1974, the Australian avocado industry was decimated by phytophthora root rot. With the current weather pattern in much of the growing areas of Australia, there is potential for similar destruction again.

Since that time many developments have occurred. One of these was the adoption of Phosphorous acid based fungicides.

SGS Agricultural Services has developed a scientific method to measure the quantity of phosphorous acid in the roots of avocado trees.

SGS Australia Pty Ltd

Agricultural Services

General Enquires 1300 765 725

Toowoomba +61 7 4633 0599

e: au.sgs@sgs.com

www.au.sgs.com

WHEN YOU NEED TO BE SURE

SGS

Industry Matters continued

horticulture provided under arrangements with the NSW Government, where teachers visit the farms to deliver the training on site.

Another study explores careers at Withcott Seedlings in Queensland's Lockyer Valley, the major supplier of vegetable seedlings to the east coast of Australia and the Asia Pacific, producing more than 400 million vegetable seedlings each year.

Minister attacks food miles campaign

A 'food miles' campaign in Europe discouraging people from buying Australian food products because of carbon emissions generated by travel costs has been attacked by Federal Agriculture Minister, Tony Burke.

Burke said yesterday he was concerned about the campaign. He said transport costs are a very small portion of greenhouse gas emissions in the primary production value chain, and he is going to do everything he can to spread that message.

"Food miles is a system deliberately designed to deceive," he said. "It does not provide quality consumer information and preys on the fact that a lot of consumers, and good on them, want to make sure that they're doing their bit in trying to reduce carbon emissions.

"The problem with food miles is it takes one tiny corner of a tiny equation and pretends it's the entire answer." Source: FOODweek Online

Aldi introduces national pricing policy

Discount retailer Aldi has introduced national pricing across its 165-store chain.

Aldi will introduce uniform pricing on more than 900 grocery products, excluding fresh vegetables and fruit and regional bakery lines, in all its stores.

The discounter previously priced groceries on a state or regional basis. Other major retailers vary prices to take into account logistics costs, and prices can vary significantly within metropolitan areas depending on competition.

Aldi Group MD, Michael Kloeters, said consumers were tired of paying different prices because of where they lived.

"We want to give shoppers peace of mind that what they purchase in Aldi Bundaberg is the same price in Aldi Ballarat," Kloeters said. Source: FOODweek Online

Ausveg appoints new chairman

David Anderson has been appointed the new chairman of Ausveg.

Anderson replaces Michael Badcock, who along with CEO John Roach, has reportedly resigned from his position. Earlier this week, both Badcock and Roach said they were likely to be dumped from the positions at a board meeting on March 31.

You're much more than avocado growers to us..



At **Natures Fruit Company** our growers:

- ★ Own the **Company** 100%
- ★ Benefit from the prosperity of the **Company**
- ★ Have their voice on the running of the **Company**
- ★ Help determine the future direction of the **Company**

That's why our avocado growers are not just growers

.. isn't it time you came on board ?



HEAD OFFICE
242a Coonowrin Rd
Glass House Mountains QLD 4518

WEBSITE/EMAIL
www.naturesfruit.com.au
admin@naturesfruit.com.au

FAX/PHONE
Fax: (07) 5493 0911
Phone: (07) 5496 9922

Industry Matters continued

"I am very enthusiastic about the positive work Ausveg does and have a vision for making the vegetable industry more profitable and cohesive," Anderson said.

Anderson has been a director of Ausveg since November 2005 and was elected vice-chairman this year.

"Badcock has been an exceptional contributor to the vegetable industry for decades, both in the operations of a very successful business in Tasmania and in developing Ausveg and industry leadership," Anderson said.

"I would also like to acknowledge the efforts and enthusiasm of Roach who resigned from his position as CEO on Monday 31 March. John made an outstanding contribution to Ausveg and raising the profile of the vegetable industry," Anderson said.

Robert Lawler has been appointed as Acting CEO for Ausveg. Lawler has been with Ausveg for three months in the role of interim CFO. Ausveg will advertise for a permanent CEO shortly. Source: FOODweek Online

Deadline approaching for Hong Kong trade show

The deadline is approaching to reserve a place at Asia's only fresh produce show.

Exhibitors from the world's major producing countries have already signed up for Asia Fruit Logistica, ahead of the deadline which passes in a few days.

Gerald Lamusse, MD of Global Produce Events GmbH, the trade show organiser, said companies and organisations from all five continents had signed up for the September event.

Asia Fruit Logistica takes place alongside the Asiafruit Congress at the Hong Kong Convention and Exhibition Centre on September 10-12 2008.

To reserve a stand people are asked to contact Simenart@gp-events.com, Tel: +662 6700608, or visit the website here.

Lamusse said Hong Kong was the idea location for the three-day trade show and conference event. The Chinese port was a key trading hub with established links into the major markets of North Asia, namely China, Japan, Korea and Taiwan, he said. Source: FOODweek Online

Apple and pear import risks under investigation

Biosecurity Australia is investigating the risks posed by apple imports from the US and China.

ABC reported that industry body Apples and Pears Australia said that while pears are already imported from China, there still needs to be a rigorous assessment of pest and disease threats.

There are also concerns that apples from the US could carry fireblight, the same disease that New Zealand apples have been banned for.

"A lot more consultation with the people who are going to be affected

by the end result, said Apples and Pears Australia chairman Darral Ashton.

"It will be the apple and pear growers of Australia who will suffer if we get an outbreak of fireblight or some pest and disease that we don't have. We've got to bear in mind that these days we average 40 incursions of a plant pest or disease into this country every year, and the chance of something big sneaking in is very high." Source: FOODweek Online

Growers face massive hike in machinery fees

Growers using mobile elevating work platforms will be hit with fees of up to \$20,000 to meet acceptable design standards as part of the Queensland Government's push to abolish the rural exemption from Workplace Health & Safety laws. Horticulture industry body, Growcom says it has deep concerns about the lack of consultation from the Government adding there must be appropriate timeframes and programs to educate those affected.

The amendment will impact farmers across the banana, macadamia, avocado, pawpaw and nut crop industries to name a few. The Regulatory Impact Statement acknowledges that many of the elevating platforms used in the rural industry fail to comply with the relevant Australian Standard. There are in fact some 2,000 platforms that would fail to meet the Standard.

"The costs of upgrading an existing boom-type elevating work platform and achieving design registration could be in the order of \$20,000 per unit", it states. This would concern all platforms which have been modified or re-sold. Growcom Chief Executive Jan Davis says they do not oppose the removal of the exemption, but insists that appropriate education, timing and funding must be made. "The issue we're concerned about is... the fact it was done so quickly and without any consultation, so growers are in a position of breach without sufficient warning and training," Davis says.

"That isn't really acceptable." "Our growers want to do the right thing, but they want to have the opportunity to do the right thing." Davis says there must be a two-year timeframe with similar education and funding opportunities as provided when tractor rollover protection rules were introduced some five years ago. In a submission to the Department of Employment and Industrial Relations, Growcom says the lifting of the exemption "has the potential to have a large impact" on those growers.

It says a dedicated "rural industry standard" for work platforms needs to be developed. The submission also questioned the effectiveness of enforcing enterprises with 30 or more employees to have a dedicated workplace health and safety officer (WHOS) on site. Growcom argues that in an industry with high turnover, the costs of training and retraining a WHSO would be inhibitive. "Will it actually reduce the number of workplace health and safety incidents?" it asks. Source: Blues Country

Australian Roundup

North New South Wales Report

By Tom Silver Avocados Australia Director for the North New South Wales growing area



Though farmers are cursing it, the widespread summer rain across NE NSW has given the 2008 avocado crop an excellent growing season and fruit is sizing up well. The Alstonville area had received half its annual rainfall at the end of February, 500mm more than the same time the previous year. Phytophthora outbreaks are not excessive yet though growers should remain diligent. Some farms are reporting tree death from wet feet as springs pop up or water is unable to run away following heavy rain and subsequent flooding. The relentless rainfall has made spraying difficult, however Insect pressure appears to be manageable and fruit funguses from early reports of the green skin crop are also not as bad as expected.

Growers suffered a severe fruit sunburn incident that can be traced back to one hot Saturday morning following an extended wet overcast period. The temperature reached 38C by 11am but was cooled off by a southerly in the early afternoon; this resulted in fruit burn only on the eastern side of the tree. Most growers are reporting an above average to large 2008 crop.

In the coming weeks NE NSW growers will receive invitation to attend a spray technology workshop presented by Henry Drew. These workshops are extremely beneficial and I encourage all growers to attend.

North Queensland Report

By Jim Kochi, Avocados Australia Director for the North Queensland growing area



Over the past few years my report for North Queensland has been dominated by a weather report of some sort. That is understandable since this is our summer monsoon season and for us and many other horticultural industries this time is a pivotal point in our economy.

On other matters we are looking forward to visits from Simon Newett for an Integrated Pest Management workshop in June and another workshop on Spray Techniques with Dr Henry Drew for those growers who missed out on the previous workshop last year. We have many new orchard owners in the Mareeba area and I invite them to attend these workshops and so should the more established growers.

The Shepard harvest is coming to an end in this area and the quality at this time is just superb. A Shepard eaten now is so good it would make a jellyfish stand to attention. A challenge to dedicated Hass growers. Try one with an open mind and experience the taste and colour.

Back to the weather. Ha, you thought you escaped this time. Well, hopefully I might explain the extent of the phenomenon of rain in the tropics for you. Just imagine how your orchard might cope with these numbers. How would you handle Pc or spotting bug or anthracnose under these conditions on your orchard.

The rainfall figures for Mareeba, Atherton and a small town called

Topaz which is near the Milla Milla area just west of the highest mountain in Queensland Bartle Frere. Also, the Bundaberg detail for a comparison.

	January 08	February 08	March 08 to 19.3.08
Mareeba	196mm	606mm	260mm 152mm on 5/3/08
Atherton	252mm 119mm on 8/1/08	610mm 113mm on 17/2/08	472mm 169mm 5/3/08 138mm 13/3/08
Topaz	484mm	436mm	1156mm 576mm 3-10 /3/08 545mm 12-19/3/08
Bundaberg	178mm	138mm	126mm

If anyone has heard reports of interrupted harvest and supply from North Queensland this season and some minor problems with post harvest diseases perhaps this will help to explain the reason why. It's a credit to the orchard management of the growers under this monsoon trough that we have survived at all. Could your orchard management cope with this pressure?

I thank Marcello Avolio (Avocados Australia member in Mareeba and weather enthusiast) for his assistance and the Bureau of Meterology on this site: www.bom.gov.au/climate/dwo/IDCJDW0400.shtml

Marcello also has a website at www.gorgecreekorchards.com.au

South Queensland Report

By Daryl Boardman Avocados Australia Director for the South Queensland growing area



Rain is something that I have mentioned for some time with the lack of it the topic of conversation. I am glad to be able to report that this has changed in Southern Qld with falls of up to 600mm recorded so far this year in some areas. It's a welcome relief to growers giving dams and underground supplies a well needed top up.

Unfortunately in the Ravensbourne area a number of growers were hit by a storm in January which had hail and has caused considerable damage to orchards affected. Orchards lucky enough to escape any severe storms seem to be carrying a reasonable crop and sizing well due to the better seasonal conditions.

Orchards affected by last season's frost are not holding large crops but the trees have recovered extremely well and should set themselves up for a good crop in 2009.

Southern Qld has had an extremely mild summer and there have been some reports that sunburn has shown up after any hot days that we have experienced. This I guess is due to the fruit being a bit softer than usual with the mild conditions.

Australian Roundup continued

On the 31 January 2008 Simon Newett ran a very good field day at Carol and Eric Erbacher Farm at Blackbutt. The day was very well attended and the information presented was very good. These days are a great opportunity for growers to get together and network with each other. I would like to thank Eric and Carol for providing there farm and facilities for this day as I know how much work goes into the preparation.

Simon will be holding another information day some time in April and it is proposed to be at Greg and Jenny Krenske property near Gatton.

Another event in Southern Queensland is the Hampton High Country Food and Arts Festival on the 18th May 2008. This has been running for a number of years and has proved to be a great day out. Last year, at the produce stall run by the committee, Avocados were sold as whole fruit or a half either on their own or with Salsa and people were given a spoon and serviette.

This was so popular that the committee has decided to have a stand again, selling these and other quick avocado meals for people to try and experience how easy they are to have for a quick meal. Also recipes and other Avocado information will be available.

If anyone is interested in lending a hand during the day or would like more information about the day please give me a call or visit the web site www.hamptonfestival.com

I hope everyone had a great Easter and the season continues to progress well.

Sunshine Coast Report

By Henry Kwaczynski Avocados Australia Director for the Sunshine Coast growing area



In my last report I mentioned the work RAIN, and in this report I could easily use the word again. Is this a return to 'normal' conditions or climate cycle? Some areas, especially around Gympie / Rainbow Beach /Wide Bay area have received close to 1,000mm in this calendar year. This is way beyond the last few years.

This brings me to a very important element of farm management i.e. the control of anthracnose. In these overly wet conditions, I suggest that particular care should be taken in the Sunshine Coast region to control and alleviate anthracnose.

While on the subject of spraying, I would like to promote the spotting bug and airblast spraying technology workshop which is to be delivered by Dr Henry Drew. This workshop will be held in May 2008, in the Glasshouse Mountains region and will be a 'must attend' event. The workshop is part of a 2 year initiative coordinated by Avocados Australia. Keep your eyes open for final details, time and location, see page 23.

March 15 2008 brought a major change to the third tier of government in Queensland, with the amalgamation of the three Sunshine Coast Shires into the Sunshine Coast Regional Council (SCRC). You will all by now be aware of the outcomes, with Council being led by Mayor Bob

Abbott – 'Big Bob for the Big Job', as his election slogan proclaimed.

On the subject of Council, you need to be aware of Maroochy's Local Law 19, which identifies areas where it was mandatory for permission to be gained for the cutting of any trees. Information is available on the Sunshine Coast Regional Council website about this Local Law: www.sunshinecoast.qld.gov.au

It would be advisable for residents outside the old Maroochy area, to check out similar by-laws which may impact on their area. You may be surprised at how much of your property is deemed 'untouchable' by these laws.

As the Sunshine Coast is gearing up for a new season, I am beginning to see fruit which is visibly immature going to markets, in an endeavour to get early high prices. As I have said many times before, this is just shooting ourselves in the foot, and will result in consumer dissatisfaction and backlash and reticence to purchase. This has happened many times in the past. I urge you to do the right thing for yourself and the industry and don't consign immature fruit to the market.

Tri State Report

By Colin Fechner Avocados Australia Director for the Tri State growing area



The main topic of conversation between growers is about the weather and when is it going to rain in the catchment area. In South Australia we are still on 32% allocation. All growers have leased in water from interstate to get some crop for this next season, and are leasing water for carry over for next year.

With the water restrictions, growers are hedging and pruning their larger trees to reduce the amount of water needed to keep the trees alive and get a crop when restrictions are lifted.

After a coolish December, the year finished with a burst of heat during the Christmas New Year period. There were a few days when the temperature reached 47C. The avocados were looking good and were showing a great crop till then, but trees where the sprinklers had been altered, shifted or been reduced in amount of water applied they dropped most of their crop. Most of the growers with smaller holdings of Avocados will not have a crop this year as their water has been used on other crops or just keeping their trees alive for the future.

The AGM will be held in conjunction with the study group organized by Simon Newitt on Thursday May 22 2008 in the Sunraisia area. The AGM location is still to be decided. The main topics to be looked at are irrigation (coping with water restrictions) and nutrition. There will be guest speakers and a field walk. It will start at 9.30am and will last all day, a BBQ lunch will be provided, we hope to see you all there.

continued over:

Australian Roundup continued

Western Australia Report

By Jennie Franceschi Avocados Australia Director for the Western Australia growing area



The 2007/2008 pick and pack season has now concluded in the West. The season has proved to be a short one due to fruit losses as a direct result of exceptional weather conditions during the Christmas period. Temperatures in excess of 40°C in the South West growing region resulted in sunburn damage to the fruit and the general maturity of the fruit was also more forward than in previous years requiring early picking. These factors will result in Western Australia not meeting the forecasted 2007/2008 production figures supplied to Infocado.

Prices were consistently good throughout the season except for a slight lull around the Christmas period and less than expected New Zealand fruit was seen in the marketplace.

The 2008/2009 season still looks like it will be a productive one with excellent flowering and fruit set. However, growers whose trees had not had not been lightened of their fruit load dropped a percentage of the fruit set for next season due to the 2007/2008 extreme weather conditions. As a direct result, production will be lower than the estimated figures and is now estimated at around 1-1.2m tray equivalents for the 2008/2009 season.

On a sad note, I would like to pass on condolences to the Radich family after the tragic loss of Alan Radich in a farming accident involving a tractor. Alan was a Perth metro grower and his death brings the important issue of farm safety to fore and reminds all of us to be vigilant and safe in our work practices.

Alan Blight has recently resigned from his position of Chairman for the Avocado Growers Association of Western Australia. Alan has been in this position for 7 years and has made a valuable contribution to the WA avocado industry during this period. Thank you for your time and effort Alan and welcome to Wayne Franceschi who has taken up the position of Chairman.

Jonathan Cutting has also resigned from his position as Industry Development Officer and the selection committee are currently seeking a replacement to fill his vacant position.

On a final note, I would like to wish the growers on the east coast a safe, productive and successful upcoming season.

Central New South Wales Report

By Chris Nelson, Avocados Australia Director for the Central New South Wales growing area



The Central NSW season has finally drawn to a close, completing the largest ever for the region. Those sending fruit during the summer months were also rewarded with very good returns despite a significant New Zealand crop. Avocados Australia's promotional efforts during the winter months are clearly paying off. The crop for 2008 is slightly down in coastal areas, but looking like a record high

in the cooler highland areas. Whether by sheer good luck or just good management, late season producers are continuing to remain out of phase with the New Zealand biennial production. As a result, next year's returns should again be very positive for the summer production season.

Rainfall during the first 3 months of the year has thankfully been average or in some cases well above average, perhaps signalling respite from the long run of dry years. Orchards are also benefiting from the very mild summer temperatures.

On May 1 2008 Henry Drew's fruit spotting bug spray workshop is planned for the Stuarts Point area. For anyone who was unable to make the trip to Comboyne for last year's workshop, it is an extremely valuable day.

Growers in our area should be aware that the winter production from the north is forecast to be at least 10-15% higher than 2007, and should think strategically about their harvest, to maximise both orchard health and returns. Good luck to all!

Central Queensland Report

by Lachlan Donovan and John Walsh Avocados Australia Director for Central Queensland growing area



So far 2008 has been a very good season with both good dam filling and soaking rain the whole region is looking great. Allocations have all increased significantly with over 80% surface water allocation which is much improved on the 3% we had at the start of the season. Ground water allocations as well have risen by around 20% to also be about the same as the surface allocations. With dam levels where they are at the moment we should be looking at healthy allocations for the coming season, quite a contrast from this time last year.

The Shepard crop has all but finished with an overall lower crop than what was originally forecast but size and quality has been very good. The Hass crop will probably make up for any shortfall as its looking very promising at this stage. Hass from this region coming on to the market in March is probably as early as I have seen it, no doubt all from young trees and the quality/dry matter is there but this is one area we need to make sure we don't give our consumers a bad taste in there mouth.

Thanks to Simon Newett and his team and also Simpson Farms for another successful meeting of the avocado study group over at Dorrian's old farm. Unfortunately with the wet weather we were unable to have a farm walk but maybe next time. We are sorry to hear Dr Fiona Giblin is leaving the avocado project and moving on to greener pastures, she has contributed enormously to the avocado industry and we wish her well in the future.

Orchard Thinning without Stump Removal triggers a *Phellinus* Epidemic

by Ken Pegg, Luke Smith & David Peasley

Serious tree losses were found in an avocado orchard growing adjacent to rainforest and wet sclerophyll forest in northern New South Wales (Figure 1). Thinning of the avocado orchard by stumping trees to ground level had occurred but stumps had not been uprooted. Freshly cut tree stumps had apparently been invaded by *Phellinus noxius*, a fungus which occurs commonly in native forests where it plays an important role as a primary decomposer of wood. The fungus had then spread from these infected stumps to attack the roots and crowns of adjacent avocado trees. It had then moved down the rows of avocado trees through root contact. Repeated attempts to replant avocados in the infested sites had failed.

Trees of all ages are susceptible but older trees may take longer to develop symptoms in the foliage. Symptoms of the disease are similar to those caused by other root rot pathogens: slow tree growth, yellowing and wilting of leaves, defoliation and premature death. Sometimes there is a rapid collapse of a tree, usually with the dead leaves remaining attached. The roots of affected trees are encrusted with soil held together by the brown mycelium of the fungus which later turns black. An external dark coloured fungal sheath is often present at the base of the tree girdling the trunk (Figure 2). White mycelium is present between the bark and sapwood. Fruiting bodies of the fungus may grow from the base of the tree. The fungus can exist on decaying roots in the soil for at least 10 years.

Disease management

- The disease is extremely difficult to control and the pathogen affects many tree species.
- When establishing an orchard in recently cleared forest land, remove all stumps, roots and dead wood and leave fallow for at least 12 months.



Fig.2 Fungal sheath at the base of an infected tree.

- Maintain optimum nutrition, irrigation and Phytophthora control. Trees will be more susceptible when stressed.
- When thinning an orchard remove stumps and as many roots as possible. This will prevent the build up of significant inoculum by the pathogen.
- Rogue out trees with symptoms, roots and all, and burn as soon as possible.
- If tree to tree spread is occurring by root contact down rows, dig isolation trenches or install commercial root barriers around infected trees.
- Do not attempt to replant infested sites as the fungus can survive in root debris for many years.



Fig.1 Vacant rows caused by *Phellinus* root and crown rot.

Australian and New Zealand Avocado Conference

22-24 July 2009

THE PERFECT WINTER ESCAPE!

Quick Summary:

What:

Australian & New Zealand Avocado Growers Conference 2009

When:

22, 23, 24 July 2009

Where:

Cairns Convention Centre

www.cairnsconvention.com.au

The Atherton Tableland in far north of Australia's avocado industry will be region show cased 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 four quadrennial Australian and New Zealand Avocado Growers' Conference, on 22-24 July 2009 at the Cairns Convention Centre, Cairns, Queensland 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 and will be provided over the next few months.



Avocados Australia: have moved

The Avocados Australia's Office has moved.

Our new details are:

Office Address (no mail)

**Level 1
8/63 Annerley Road
Woolloongabba Qld 4102**

Postal Address

**PO Box 8005
Woolloongabba Qld 4102**

Contact Numbers

Phone: 07 3846 6566

Fax: 07 3846 6577



SureFresh™ Carton

We take your mango packaging further

Amcor can take your mango packaging further than ever before. Our entire focus is on creating extra value for our customers – by finding more innovative ways of improving packaging performance and reducing total costs across the supply chain. It's a commitment that is delivering outstanding business results in mango packaging for domestic or export use.

Take the new Amcor SureFresh™ carton for example. Combining superior strength with premium product appearance at point of sale, this high gloss black paper/film laminate carton has best in class base sag resistance and it's 'One Touch' 6 per layer format makes it ideal for retail distribution and in-store presentation.

To find out how we can take your packaging further visit:

www.amcorfibre.com.au



INNOVATING. INTEGRATING. DELIVERING.

VI World Avocado Conference Study Tour Chile

Background/Introduction

In November 2007 a group of 40 Australian avocado growers participated in the Avocados Australia congress study tour preceding the VI World Avocado Congress held in Vina Del Mar, Chile. The tour was conducted over a five day period including visits to avocado export and domestic orchards and packing sheds as well as processing facilities.

Chile – the country

Chile is situated on the western seaboard of South America. It is 4200 km long (between latitudes 17°30' and 56°30'S) and ranges from 90 to 445 km wide. The Chilean mainland covers an area of 756,623 km² (more than 2 million km² including Antarctica and island territories such as Easter Island). Chile is bordered by the Pacific Ocean to the west, Peru to the north, Bolivia to the north-east and Argentina to the east. The landscape is mountainous (no more than 20% of Chile is flat) with more than 20 mountains over 6000m forming the Chilean Andes.

Chile has a population of 16 million people. Around 85% of the population live in urban areas and 6 million in the capital, Santiago.

Climate

The latitude, altitude and closeness to the sea determine the local climates in Chile. Advancing from North to South, the rainfall regime increases and temperatures decrease. The climate in the avocado growing region is a Mediterranean one with warm to hot dry summers and cool wet winters. The avocado growing region stretches from La Serena at 29°53'S in the north (similar latitude to Lismore, NSW) where the annual rainfall is only 78mm, to Melpilla at 33°41'S in the south (similar to Pemberton, WA) where the annual rainfall is about 350mm. The climate at individual orchards depends whether or not it



The raising of beneficial insects for the control of avocado insect pests.

Top right: life cycle of *Cryptolaemus*.

Above: Alejandro Palma (Agricom) showing the raising of mealybugs to feed the *Cryptolaemus*.

Right: the life cycle of the common green lacewing (*Chrysoperla*) which preys on mites and thrips

is situated in a valley that is open or closed to the ocean. Valley's that are open to the sea experience cooler temperatures and fog from the cold Humboldt ocean current whereas closed valleys are warmer and drier in summer but colder in winter.

As an example, the orchard we visited at 350m ASL near Pomaire between Santiago and the coast is in the Maipo Valley which is open to the ocean 35 km away. It has an annual rainfall of 350mm, an average annual maximum of 23°C and an average minimum temperature of 9°C.

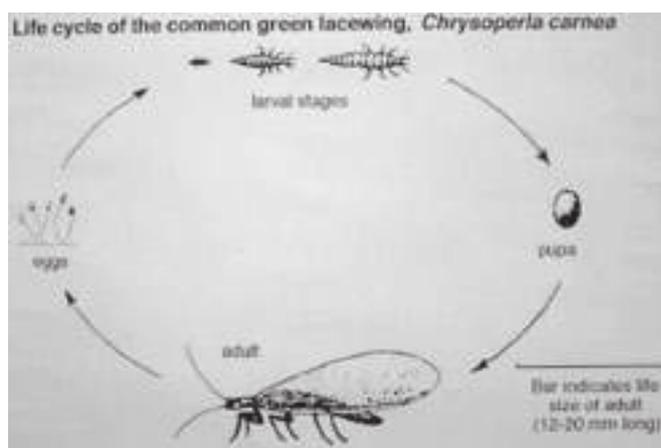
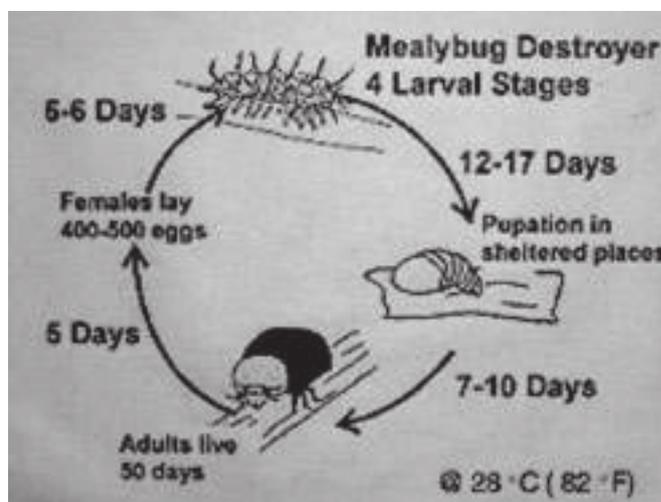
Economy & labour costs

At the time of the tour the exchange rate was 450 Chilean pesos to AUD\$1.00. The minimum wage is equivalent to AUD\$322/month (AUD\$2/hour) based on the above exchange rate, plus 7% paid to the health scheme and 10% paid to a pension fund. Growers however will pay double this for good labour.

BHP Billiton is the biggest tax payer in Chile through its copper mining activities.

The Fruit Industry

The Chilean fruit industry is made up of 7,800 fresh fruit growers with holdings larger than 5ha. The average production unit for fruit production is between 80 and 100 hectares although more efficient



VI World Avocado Conference continued

growers can make a profit from as little as 30ha.

There are 35 different fruits exported from Chile by 518 exporting companies exporting 2.4 million tonnes annually worldwide. Table grapes are the number one exported fruit (802,193 tonnes exported in 06/07) followed by apples (793,235 tonnes in 06/07) and then avocados (168,261 tonnes in 06/07). Other fruit exported includes nectarines, peaches, plums, cherries and kiwifruit.

The Chilean Avocado Industry

Last season's (06/07) avocado crop in Chile was estimated at 200,000 tonnes of fruit - 55% of this was exported. Hass avocados make up 99% of production and only Hass are exported. The 07/08 crop is expected to be around 130,000 tonnes with the reduction due to serious damage experienced from the freeze in July 2007.

Costs of Production and Marketing

Chile is the number one exporter of avocados in the Southern hemisphere and number two in the world. Production costs were quoted for a 200 ha export orchard as: US\$5500/ha (variable) and US\$1500/ha (fixed). The orchard was producing on average 15 tonnes/ha/year and receiving US\$0.60/kg therefore leaving a profit of US\$2,000/ha. The recent upward movement in the value of the Chilean peso has had a negative impact on return to growers. Over the last 5 years the peso has appreciated from US\$1 = 691 pesos to US\$1 = 522 pesos. This is mainly due to the increased value of copper.

Orchard establishment

More than 75% of the avocado trees grown in Chile are Hass. Bacon is grown in cooler regions because they are more frost tolerant than Hass. Edranol, Zutano and Bacon are also used as pollinisers (at a rate of 5 to 11%) and honey bees are introduced to the orchards to assist with pollination.

Trees in older orchards were mainly grown on Mexican seedling rootstocks, however these rootstocks have a low tolerance to chlorine (2.5 meq/L). Chlorine and salt in the water is an issue for irrigators.



This photo illustrates the close planting, pronounced mounds, drip irrigation and upright shape of the trees

Props for fruit laden branches – weak branches are thought to be the result of boron deficiency. It is difficult to address boron deficiency in Chile because of the high levels of soil calcium which tie up boron

VI World Avocado Conference continued

More recent orchards use West Indian rootstocks that can tolerate chlorine levels up to 6.0 meq/L.

Chilean growers have progressively been moving towards higher density plantings. Orchards planted during the early 1990's were predominately planted at densities of 227 trees/ha. In the mid 1990's they started planting at 416 trees/ha, 555 trees/ha during the late 1990's and then 832 trees/ha in the early 2000's. They are now planting as high as 1,111 trees/ha, but one must bear in mind that their climate is much cooler on average than Australia's main growing regions and so growth is much less vigorous.

Trees are planted on hillsides to avoid frost damage, with trees mainly planted on pronounced mounds to increase soil depth. The mounds run down the hillside for better water and air drainage. Rainfall is so low and the soil high in clay so erosion is rarely a problem. The high densities, steepness of their orchards and the height up the hillsides to where they plant is quite amazing but unlike in Australian orchards they don't have to do broad scale spraying therefore don't need to get tractors and sprayers up these mountainsides.



Phytophthora –like symptoms in Chile are sometimes caused by asphyxiation as a result of heavy wet clay soils.

Canopy management

In high density plantings (described above) one of the major challenges faced by growers is to prevent crowding and minimise tree height for harvesting operations.

Advantages of close spacings are their efficient use of light and higher production (t/ha) in early years. Smaller trees are also easier to harvest. The disadvantages of high density plantings include higher costs of planting and difficulties maintaining appropriate tree sizes to avoid crowding.

The Chileans have realised the need to develop a system of canopy management for high density plantings on hillsides. Strategies being implemented to manage high density plantings on hillsides include:

1. Promoting a central leader:

There is conjecture as to whether avocados can be grown as a single leader. Trees (particularly of Hass variety) often have several major branches. The Chileans are trying to maintain a pyramid structure where the centre leader and laterals are established in the nursery, however in the field, trees are pruned at a height of around 2m. This pruning can encourage lateral shoots and create a multi-branched tree.

2. Cincturing/scoring:

One of the canopy management tools being implemented by growers in Chile is a form of cincturing. Cincturing involves the complete severance of the phloem on a limb or trunk of a tree and has been used in many horticultural crops to increase flowering and fruiting. When successfully carried out the wound will produce callus tissue and eventually heal, thereby restoring normal function of the limb or tree. Typically in the past, cincturing had involved removal of a strip of bark up to 1cm wide. However, this can be too severe resulting in a decline in tree health and subsequent yield. Scoring which involves a single knife cut around the branch to sever the phloem is being used in Chile. 1 to 2 branches in the second year are scored during autumn to encourage early fruiting therefore reducing tree size. Some growers are using a "spiral scoring" technique where the groove cut in the branch winds down the branch.

3. Plant growth regulators:

Sunny®, Cultar® and NAA® are being used to control tree size and increase cropping in these high density orchards. Both soil and foliar applications of Sunny® and Cultar® are being tested. NAA® is applied to pruned branches to control regrowth.

4. Other systems observed:

Prune one face/side of the tree every year after harvest at a height of 70% of the distance between the rows. It is important to allow enough light for flower induction in March. This system of pruning where 1/3 of the canopy is juvenile also assists in the management of salinity.

Irrigation

In Chile because of the Mediterranean climate and lack of adequate

VI World Avocado Conference
continued

rainfall between August and May, irrigation is essential. Greatest irrigation demand is during December and January.

Most of the irrigation water in Central Chile comes from snow melt rivers and bores. Growers must join a Co-op if they want access to water, and they pay an annual fee for the running of the co-op. Water rights are not part of land property, and are traded separately. There is a high cost of pumping water due to steep sloping orchards and electricity shortages in Chile which has meant there has had to be

electricity imported from neighbouring countries.

The very low rainfall and the steep slopes demand very well designed irrigation systems. One of the irrigation systems observed was a pulse system using trickle tape and anti-leak devices, the latter being essential because up to 20 'pulses' are applied per day. Water requirements are monitored by a range of devices including tensiometers, lysimeters and dendrometers. Dendrometers measure the diurnal fluctuation of the girth of the trunk, limbs and even fruit growth.

Key points when using pulse irrigation include:

- tailoring the number of pulses to the demand (e.g. one pulse every hour in the morning and late afternoon but 2 to 3 pulses per hour in the middle of the day);
- irrigating during the day (when the tree is using water);
- having an 'anti-leak' system

Pests and diseases

Insects

The main pests in Chile are avocado red mite, greenhouse thrips, scale and mealy bug.

Many growers use biological control agents. One of the orchards we visited has its own insectory where beneficial insects are multiplied for release in the field to control mealybugs, mites, thrips and scales.



Avocados grown on the steep hillsides

WORK SMARTER
Visit the Tree ONCE!
JOB'S DONE!

Multi Award Winning including Queensland and Australian Farm Invention of the Year

See a tree being injected in just 25 seconds! Try doing that with any syringe...

Visit www.treeinjectors.com

PHONE/FAX: 07 5449 1190 • EMAIL: info@treeinjectors.com

SIDEWINDER is developed and manufactured in Australia and used in 30 countries around the world!

VI World Avocado Conference continued

Mineral oils are used if pest levels get very high and cannot be controlled by beneficial insects. Some orchards have EurepGap accreditation and can only apply maximum of 2 sprays per year. Native vegetation is planted in gullies to increase biodiversity and natural predators.

Diseases

Chile has few disease problems. The incidence of postharvest diseases and rots is low due to the dry climate. The occurrence of root rot is much less severe than in Australia. Researchers claim that a lot of what is thought to be Phytophthora root rot is in fact asphyxiation (lack of oxygen for the roots) due to the heavy soils and need to apply extra water to leach chlorine and salt. However, their older orchards are mostly grafted to the Phytophthora susceptible Mexicola rootstock which will be a problem if root rot becomes more widespread.

Avocado Processing

Avocado processing has a significant presence in Chile. Both oil and pulp are produced. These products are sold both domestically and on the export market and facilities range from small family owned operations through to large corporate processing facilities. Pulp and guacamole are a big part of the Chilean “fast food” market, a significant ingredient in the famous “completo” burgers. The small family owned processing plant visited by the tour group produced both oil and pulp/guacamole commenting that in their operation pulp production is more profitable than oil production. They pay 300 pesos (AUD \$0.67) per kg for avocados. Their oil is exported to Germany, Canada and France (as well as sold locally). Oil sells at 4000 pesos (AUD\$9.00) for a half litre bottle. The family commented on the opportunities that are available to make biofuels from the pip, skin and residues.

Export Packhouses

Chilean export packhouses are ‘state of the art’ facilities. The tour group visited one such packhouse owned by Agricom and situated near Polpaico. The shed visited by the tour group packed 32,000t (5.8m 5.5kg trays) in 06/07. Their record is 800 bins per day. It costs Agricom US\$3.20 per tray (11.2kg) to pack the fruit.



Agricom’s state of the art export packing shed in Polpaico region
– packed 32,000 tonnes of avocados in 06/07

Exports have driven the Chilean avocado industry to reach economies of scale where the family grower can have his fruit packed and exported at an affordable cost. This would not have been achievable for many small to medium sized farms operating alone or in small cooperatives.

VI World Avocado Congress

At the congress held between the 12th and 16th November papers were presented on the following topics:

Genetic Resources

- Propagation and rootstocks
- Varieties
- Biotechnologies

Pests & Diseases

- Pests
- Diseases

Culture Management

- Nutrition
- Irrigation
- Ecophysiology
- Flowering and fruit development
- Management

Post Harvest and Processing

- Postharvest
- Processing

Marketing

- Producers and countries & associations
- Market subjects
- Advertising and promotional strategies

For copies of the abstracts and full papers (where available) go to www.avocadosource.com click on “Featured Titles” and then “World Avocado Congress VI – Chile – 2007.”

To present your produce attractively contact

Label Press

Manufacturers of:

Self adhesive fruit and polystyrene labels,
gummed back, non-tearable and plain tickets
or tags on rolls or sheets.

Printed to your requirements. Genuine honest quotes.

No trick pricing - No hidden costs.

Ph 1800 773 207

98 Cobalt Street, Carole Park Qld 4300

Spotting Bug and Airblast Workshops

HAL Project No. AV06001

Improving spraying & management of spotting bugs in avocados.

Spotting bugs are a major ongoing issue for the avocado industry in Queensland and New South Wales. The project, run by Dr Henry Drew, has developed a series of eleven full-day workshops held over two years to update avocado growers in spotting bug management opportunities and improved spray application techniques.

The last four workshops are being held in avocado growing areas in New South Wales and Queensland. Seven workshops were held in 2007 in Peats Ridge NSW, Comboyne NSW, Blackbutt QLD, Bundaberg QLD, Walkamin QLD, Pemberton WA and Perth WA.

The workshops are held on-farm and involve identification of spotting bugs and their damage, hotspot management, hands on calibration of an airblast sprayer, spray assessment using water sensitive papers and calibration calculations. The workshops are open to growers and farm managers but restricted to 20 participants per workshop. **First-come, first-served.**

The aim will be to help participants implement a system of monitoring spotting bug risks and spraying appropriately and effectively. Each participant will receive a concise workshop manual containing colour

photographs of spotting bugs, and their damage, and information on hotspot management and sprayer calibration. The concepts of Dilute and Concentrate spraying, and calculation of new pesticide label mixing rates, will be highlighted. All attendees will be offered a free desktop computer assessment of their own sprayer setup and these assessments will be updated free-of-charge for 12 months.

Four more workshops are now planned. All workshops start at 9.00am sharp and finish at 4.00pm.

Alstonville region: Tuesday 29 April 2008

Stuarts Point region: Thursday 1 May 2008

Sunshine Coast region: Monday 19 May 2008

Atherton region: TBA (possibly late June)

Please forward your registration to Maree Tyrrell at Avocados Australia as soon as possible by phone 07 3846 6566, fax 07 3846 6577 or by email admin@avocado.org.au

MECHANICAL

Orchard Pruning



SMERDON ENTERPRISES

- ◆ Pruning
- ◆ Macadamias
- ◆ Avocados
- ◆ Custard Apples



- ◆ Two machines available
- ◆ Vertical hedging to 9 metres
- ◆ Flat topping to 5.3 metres
- ◆ Skirting
- ◆ Cuts 3.5 metres per pass
- ◆ Experienced operators

Kerry Smerdon 0438 930 268




2295 Old Gympie Road, Glasshouse Mountains Queensland 4518
 Ahrs: 07 5493 0268 Fax: 07 5493 0924 Email: kerryros@bigpond.com

Regional Study Groups feature expert guest presenters

by Peter Rigden & Simon Newet

The first 12 month's program of meetings for the 9 regional study groups is almost complete and a key feature of the meetings have been the guest presenters who have included: Dr Roberto Marques (DPI&F), Gary Creighton (NSW DPI), Graeme Thomas (GLT Consulting), Dr Fiona Giblin and Ken Pegg (DPI&F), Dr Pam Pittaway (Soil and Environmental Scientist, Chrysalis Landscaping Consultants), Scott Wallace & Graham Cripps (Growcom Water for Profit), Alec McCarthy and Jonathan Cutting (Dept of Agriculture & Food WA), Nick Hobbs (Tristate grower), Lisa Martin (EE Muir & Sons), Paul Bidwell (WA grower) and Jan Toerien (grower and consultant).

The North Queensland, Central Queensland, Sunshine Coast and Central Coast NSW groups all elected to have *Phytophthora* as the subject for a meeting. Always one of the key factors limiting productivity and profitability, the extremely wet summer in many avocado areas meant that this topic has had extra relevance.

At the Central Queensland Lynwood Farm meeting, Simon Newett gave an overview of *Phytophthora* and its effect on avocados and he also detailed the 7 integrated *Phytophthora* control measures that make up the "Pegg Wheel" - site selection and drainage, rootstocks, nursery hygiene, orchard quarantine, management of nutrition and irrigation, soil health and fungicides. Dr Fiona Giblin and Ken Pegg outlined their current research work assessing *Phytophthora* resistant rootstocks and developing improved methods of phosphorous acid application, they also took the opportunity to obtain valuable feedback from the growers regarding the proposed new phosphorous acid label for trunk applications. In addition Ken Pegg briefed the group on how salinity, soil temperature and soil oxygen content affects the development of *Phytophthora*.

Irrigation, also a popular subject, was chosen by the West Moreton, Mid North Coast NSW, Tristate and Central Queensland groups. In view of the drought conditions at the time of the meetings the subject was approached in the context of irrigating with limited water, with the emphasis on the essential elements for effective irrigation.



Ken Pegg has outlined his recommendations for *Phytophthora* control at two meetings

At the West Moreton meeting, on the Kereczko's farm near Hampton, Simon Newett gave a presentation that included the aspects of the avocado tree's botany which affect its water requirements, the effect of water availability on fruit quality, size and yield, water quality requirements and deciding how much water to apply. He also discussed options for keeping trees alive with very low water allocations. Graeme Thomas in his presentation drove home how important it is for an avocado orchard to be irrigated correctly if the orchard is to be run profitably and that yields for Australian orchards currently average only 7 tonnes per hectare whereas 20 plus tonnes per hectare is considered achievable for most orchards if the irrigation is managed correctly. He explained the phenological cycle of the avocado outlining the key times for irrigation and emphasised that water stress has a long term effect on the vascular system of the avocado resulting in blocked xylem vessels reducing the efficiency of nutrient and water movement within the tree for up to 2 years after the stress period has occurred!

At the Central Queensland meeting on Timbercorp's Ooloo Farm, Jan Torien explained that trees produce stress hormones when under water stress and how this results in fruit abscission and ring neck (partial abscission). He also explained the use of dendrometers to monitor water stress on trees, their use in scheduling irrigation and how they could be used in combination with soil moisture monitoring to detect problems other than water stress in the tree.

At the Tristate meeting local grower Nick Hobbs gave a very detailed and interesting outline of his experiences changing to drip and pulse irrigation, including how he monitors soil moisture and schedules the irrigation incorporating the Bureau of Meteorology's 'SILO'



Guest speakers Dr Fiona Giblin and Ken Pegg with Maryborough grower Frank Ekin (left)



Graeme Thomas explains to growers the importance of good irrigation practices to realise the full yield potential of avocado

Regional Study Groups continued

forecasts to find out when very hot and windy conditions are likely to be encountered and his strategies to minimise tree stress on extremely hot days.

At two of the meetings in NSW Gary Creighton gave a very comprehensive presentation on “Avocado water relations” which included the response of yield to irrigation, monitoring growth cycles, irrigation water quality, managing with limited water, climate change, water metering, water budgets for avocado, effective rainfall, scheduling methods and equipment, the concept of Readily Available Water (RAW), measuring crop water use and interpreting soil based water measurements. He also brought along a wide range of soil moisture monitoring equipment and briefed growers on their relative pros and cons.

NSW Coast group selected “Preparing for the harvest season” as the subject for their first meeting. Dr Roberto Marques outlined his work on the pre-harvest factors that affect fruit quality and outlined the role that calcium nutrition, dienes (natural anti-fungal compounds produced by the tree) and rootstocks have in the management of post harvest fruit quality. Also reviewed at the meeting were the principles of harvesting and handling of avocados including the “Do’s and Don’ts”, storage temperature guide and the identification and minimisation of reject fruit.

The Tristate and West Moreton Group chose nutrition as a topic for their meetings and Simon Newett presented an overview of avocado nutrition to both groups. At the Tristate meeting Lisa Martin gave an overview of local soil sample results and the work she has done on sap testing of avocado to assess nutritional requirements. The West Moreton meeting placed an emphasis on the use of composts and Dr Pam Pittaway, a soil and environmental scientist who specialises in compost research gave a very detailed talk to the group on “Understanding composting & mulching” which covered common misconceptions about compost, the differences between a compost and a mulch, the basic requirements for making a compost, the difference between composting and stockpiling, the importance of knowing the nutrient content of a compost and the “Do’s and Don’ts” of composting.

At the West Australia meeting Simon Newett presented on “Biennial (alternate) bearing in avocados”, Jonathan Cutting on “Avocado flowering – why so complicated” and Alec McCarthy on “Managing pollination in avocado orchards”. The final presenter in what was a very full meeting was Paul Bidwell, the host of the meeting, who gave a detailed talk on how closely he monitors his trees and the prevailing conditions in his orchard using electronic probes, tensiometers, air and soil temperatures, solar intensity (sunlight), rainfall, humidity, wind, evaporation and sap flow and how he then uses his computer to collate and interpret the data in relation to all these factors on tree behaviour and performance including flowering and fruit set. His diligence in monitoring have helped contribute to the 40 tonne/ha yields he has achieved.

An important and popular aspect of the meetings is the “networking” opportunity with other growers and guest presenters that attendees are able to take advantage of during morning tea, lunch and on the farm walk. This provides a chance outside of the presentations to get fresh



Growers examine some of Paul Bidwell’s monitoring equipment

ideas about common problems and possible solutions.

Another feature of the study group project is that of “grower ownership”. Each group has a grower in the “group coordinator” role to keep the meetings “grower centric” and at the end of each meeting a short session is held when growers have the opportunity to propose and vote for subjects for the next meeting. This ensures the project stays focused on what growers in each area feel are the most important issues, is kept relevant to their needs and delivers the information in an appropriate format.

Normally meetings start with morning tea at 10:30am, followed by presentations till lunch then a farm walk in the afternoon, finishing by about 3:30pm.

Detailed and illustrated minutes have been prepared and mailed out to growers following each workshop.

Here are some quotes from growers who have attended workshops:

- “Very good – *this is what has been lacking in the area for some time.*”
- “*Getting together is always worthwhile. It gives us all the opportunity to discuss ideas together and learn from each other. Having DPI&F specialists on hand gives us the opportunity to discuss ideas. Thank you.*”
- “*Being so new to the industry, it was good talking to other growers about how they do things and how they are trying new methods. Thanks.*”
- “*You always think before leaving home you won’t find out anything new....but always do! Great informative day and look forward to the next one.*”
- “*Very well prepared workshop, covered topics well.*”
- “*I thought the grower involvement in discussions was excellent...*”
- “*Good to target info relevant to this locality...*”

Regional Study Groups continued

The meetings planned for Autumn 2008 are listed in following table.

Group	Topic	Tentative date
Sunshine Coast	Canopy management, selective limb removal and mechanical pruning	April 2008
Nth NSW/ Gold Coast hinterland	Phytophthora root rot	Autumn 2008
Tristate	Fertigation, micronutrients, leaf and soil standards and mulching	Autumn 2008
NQ	Integrated Pest Management pest identification, monitoring and management.	Early June 2008
West Moreton	Joint marketing, fruit quality & Freshcare	No later than the 1st week in June
WA Metro/ SouthWest	Irrigation of sandy and heavier soils, soil moisture monitoring and types of sprinkler and drip.	June 2008
Bundaberg	Phenology of avocado and its use in orchard management	August 2008.
NSW Mid North Coast	Avocado crop nutrition - timing and crop quality and foliar applied nutrients	Autumn 2008
NSW Central Coast	Maximising yield	Autumn 2008

NOTE: Now that the first year of workshops is completed we will be sending invitations and minutes only to growers that we have listed on our database (essentially people who have already attended meetings and others that have sent us their contact details). If you have not yet been to a study group meeting and wish attend future meetings simply provide us with your contact details and we will place your name on our invitation and minutes mailing list. For any questions about the workshops or to register please contact Simon Newett on 07 5444 9619, or Peter Rigden 07 5444 9617 or simon.newett@dpi.qld.gov.au.

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, HAL, WA Dept of Agriculture & Food and NSW DPI.

WARNING

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" or "Compass Labels" 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



Our great range of benefits and services include:

- Strong investment record with proven long term performance*
- No commissions or hidden costs, low fees - a non-profit industry fund
- Portability – members can take their AustSafe account with them from job to job
- Employer contributions can be paid monthly or quarterly
- Free Member and Employer Seminars
- Need any help in getting all your Super together?
- Discounted banking products through Members Equity
- Complying fund for member choice

Superannuation Fund of Choice for Regional Australia

Call our National Business Development Manager **Wayne Hulin** on **0407 749 470** or **07 3210 1808**

Call us today on **1300 131 293** or visit us at www.austsafe.com.au



Information provided is General Advice only and does not take into account any individual's objectives, financial situation or needs. You may wish to seek your own professional financial advice. Before acquiring an AustSafe Super Product, a PDS should be obtained. *Based on the Balanced Plan returns compared to SuperRatings Survey over 5 years to 30/6/07. Past performance is not indicative of future performance.

Clonal Propagation of Avocado Rootstocks – Progress Report III

by **Tony Whaley**

Sunshine Horticultural Services Pty Ltd
Nambour QLD

Research has continued on propagation techniques to develop vegetatively cloned rootstocks which have shown promise for use by the Australian avocado industry. The most recent rootstocks of interest that have been evaluated for clonal propagation are 'SHS-R 02' (a local Guatemalan line showing significant tolerance to Phytophthora root rot), 'SHSR-04' (a local "escape" Mexican x Guatemalan hybrid showing significant tolerance to Phytophthora root rot) and 'Gema', 'SS3-1' and 'Maoz3' which are all documented West Indian lines with Phytophthora root rot resistance that were imported from Spain. Using the above rootstocks clonal propagation experiments evaluating the effect of temperature and KIBA concentrations have been carried out. The basic micro-propagation procedure used has been described by Ernst (1999). KIBA and temperature treatments were similar to those previously applied and were:

1. KIBA (potassium salt of Indole butyric acid) concentrations of 0.4, 0.6, 0.8, 1.0 and 1.2% were used following removal from the etiolation chamber. KIBA was applied as Clonex® to a scarified length of stem at the base of the etiolated growth.
2. Two temperature treatments were imposed on the material being evaluated: 1) ambient - a mean temperature of 21°C and 2) an artificially induced temperature – a mean of 27°C.

KIBA at 0.8% was the most successful concentration for promoting rooting on the material used in the clonal process. Below this

concentration rooting was less than 23% while above 1% KIBA the incidence of callus build-up was detrimental to root development. As previously reported both the speed and success of rooting was greatest when the experimental lines were held at 27 C for 8 weeks post-etiolation (Table 1). Of the four rootstocks used in the experiment the most successful was the SHSR -04 line (100%) possibly reflecting its part Mexican race genes. Commercially acceptable rooting rates were also achieved with Gema (93%), SS3-1 (78%) and Maoz3 (80%) however, rooting of SHS-R 02 (53%) again was difficult and below commercial acceptance (Table 1).

Table 1 Effect of temperature and KIBA concentration on the percentage rooting of avocado rootstock lines following etiolation in a dark chamber. Values in columns with different letters are significantly different ($P \leq 0.05$).

While the rooting result of SHS-R 02 was disappointing, in preliminary field testing this line is showing particularly high uniformity as a seedling line in tolerance against Phytophthora root rot (K.G. Pegg 2008, personal communication). When grown under "clean" soil conditions and grafted to 'Hass' tree form is relatively uniform with robust trees producing good commercial crops of fruit (long-term yield performance has not been completed). This rootstock has great potential use for those growers not wishing to invest in clonal material.

References

Ernst, A.A. (1999). Micro cloning: a multiple cloning technique for avocados using micro containers. *Revista Chapingo Serie Horticultura Núm. Especial V*, 217-220.

Rootstock	percentage rooting after 8 weeks			
	21°C		27°C	
	0.8% KIBA	0.4% KIBA	0.8% KIBA	0.4% KIBA
SHS-R 04	83a	18a	100a	22a
SHS-R 02	27c	13a	53c	11b
Gema	58b	16a	93ab	19a
SS3-1	42bc	6b	78b	20a
Maoz3	33c	2b	80b	5b

Changes in dry matter and oil content of avocados from several production regions in Queensland

by Peter Hofman¹
Cecilia Requejo-Jackman²
Shane Olsson²
Barbara Stubbings¹
and Allan Woolf²

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

Background

Avocado oil has been commercially extracted for many years. Most extraction procedures destroy many of the “health” characteristics of the oil, rendering it useful mainly for industrial and pharmaceutical purposes. However, the development of an “extra virgin” or “cold pressed” oil industry has resulted in an oil retaining many of the “health promoting” characteristics of the avocado fruit.

High quality cold-pressed avocado oil was first produced on a commercial scale in New Zealand (NZ) in 2000. Production expanded into Australia in 2004. Extraction in Australia concentrated initially on ‘Hass’ using NZ experience as a guide to commercial best practice. More detailed information on Australian ‘Hass’ oil yields and the effect of maturity and production location were required to fine-tune practices for Australian conditions.

It has been difficult to respond to strong pressure from Australian growers to process ‘Shepard’, ‘Wurtz’, ‘Sharwil’ and ‘Reed’ in the absence of information on yields and oil quality. These lower production volume cultivars might have potential for blending if they had high concentrations of specific “health” compounds.

Development of a viable commercial avocado oil industry provides an alternative use for externally low quality, small, or reject fruit. This has both direct and indirect benefits to avocado growers:

- a financial return for “reject fruit”,
- more significantly the indirect benefit of a positive impact on fresh fruit prices (estimated to be worth NZ\$4M p.a. to the NZ growers in 2002), which improves grower profitability, and
- “co-marketing” benefits in terms of greater awareness of consumers about the nutritional and health benefits of both avocado fruit and its extracted oil.

Over the last three years a project team from HortResearch and the Queensland Department of Primary Industries and Fisheries (DPI&F) have been looking at the variability in dry matter (DM) and oil content of ‘Hass’ avocado from the main production regions in Queensland. (The other production regions in Australia were not included in this study, either because of budget limitations or because they were considered to be fairly similar to the main Queensland regions.) This project aimed to fill some of the knowledge gaps to assist in the commercial success of an avocado oil component to the Australian avocado industry.

The project was funded by HortResearch and Horticulture Australia Ltd., with in-kind contributions from the DPI&F and Olivado Ltd.

This article reports the effects of Queensland production region, maturity and cultivar on fruit percentage dry matter and oil content. A future article will comment in more detail on the relationship between dry matter and oil content.

Methods

Fruit were sampled from selected commercial growers in the major production regions of Queensland and New Zealand over the last three seasons. 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 DM was determined at the DPI&F Maroochy Research Station, Nambour within 24 hours of harvest. The dried samples were then sent to HortResearch at the Mount Albert Research Centre, Auckland, New Zealand, for oil yield analysis. The maximum potential oil yield was determined by solvent extraction.

The research in Australia focused on the two most important cultivars ‘Hass’ and ‘Shepard’. However, some research was also carried out on several minor cultivars.

Results

Figure 1 illustrates the changes in dry matter and oil content from several growers within each region, and across several regions and years. There were significant differences between the regions. The average dry matter Atherton Tablelands, Bundaberg and Coastal southeast Queensland (SEQ) were similar; however, the dry matter Blackall and Crows Nest were significantly higher than those from the other three regions. This reflects the preference for Atherton Tablelands, Bundaberg and Coastal SEQ growers to access the early-season market, and Blackall and Crows Nest, the later market. There was also significant variation among growers within each region, as would be expected because of the effects of climatic/soil/cultural differences on fruit dry matter accumulation.

In all instances, dry matter increased during the early harvests (Figure 1). In most cases, dry matter continued to increase with later harvests, but this was not a universal trend. Although the relatively limited

Changes in dry matter and oil content of avocados from several production regions in Queensland continued

number of harvests limits our reporting confidence, it appears that the maximum dry matter level achieved is generally around 30%, with the exception of the Blackall region, where levels as high as 40% were observed.

For the Atherton Tablelands, the commercial harvest season is relatively short because of the desire to access the early market. In 2004, the fruit from the warmer site (Walkamin) had higher dry matter than those from the cooler sites (Atherton, Tolga and Kairi). Grower differences were not so obvious in 2005 because of similar climatic conditions between the sites (no samples from Walkamin).

In the Bundaberg region, fruit from the more coastal site (Bundaberg) had a higher dry matter at the same harvest date than those from the more inland sites (South Kolan and Childers). Dry matter differences were less obvious in coastal southeast Queensland because of the relatively minor microclimatic differences. For Blackall, there was no consistent orchard effect on dry matter between the two years, while in the Crows Nest region, Crows Nest 2 had consistently lower dry matter than Crows Nest 1, probably because of differences in cultural practices.

Table 1 indicates the date at which the early-season sample was taken (in most cases within one week of the start of commercial harvest at that orchard), and the predicted dates at which each region would reach 21% dry matter (the current commercial minimum

maturity level in Australia), The dry matter prediction is based on the average results across the sampled orchards within each region using regression analysis. In some instances these predicted dates are indicative only and based on extrapolation of relatively limited data (especially for Blackall and Crows Nest). The results were fairly consistent between the two years. There was only 12-15 days' difference within each year between the regions in reaching 21% dry matter. This is supported by the results of project AV06025, where the dry matter of fruit from the cooler areas of the Atherton Tablelands, and Bundaberg, coastal southeast Queensland, Blackall and Crows Nest ranged from only 19.5 to 22.5% dry matter when harvested between 9 and 18 April, 2007 (data not yet published). The small dry matter difference between the Atherton Tablelands and Crows Nest regions was somewhat surprising, given there was an almost four-month gap between the start of commercial harvests in these regions (Table 1). The main reasons for the later start of harvest in the cooler regions are the desire to access the later market, and the low fruit weight in April/May from the cooler regions (observations from project AV06025), despite the fruit having reached approximately 21% dry matter.

For the Atherton Tablelands and Bundaberg regions, the dry matter of the early season sample was sometimes below the recommended minimum 21% dry matter (Table 1, Figure 1). The early season sample was generally taken just before the start of commercial harvest for each grower.

Avocado Growers



Searching for an alternative to your packing and marketing requirements? Questioning your charges, returns, fees and lack of transparency?

Sunnyspot Packhouse offers a packing and marketing service that aims to achieve the highest returns for your business through:

- Very competitive packing and freight rates
- High quality and packing standards.
- QA to service all major wholesale markets and chain stores in Australia.
- Modern approach to packing and marketing with good old fashioned, personalised service.
- Fruit pick-up and drop off points from Ravensbourne to Kingaroy, Bundaberg to Northern NSW and every where in-between.
- Custom packing and marketing for individual needs is available if you have your own brand or market that you would like use.
- Market reports regularly throughout the season.
- Stable and experienced management.

To find out how Sunnyspot can get you a higher Nett \$ return per bin/kg, call Daryl or Sally Boardman to discuss this seasons packing and marketing requirements.



Ph 07 4697 8000 Mob 0427 151 033 www.sunnyspotfarm.com

Changes in dry matter and oil content of avocados from several production regions in Queensland continued

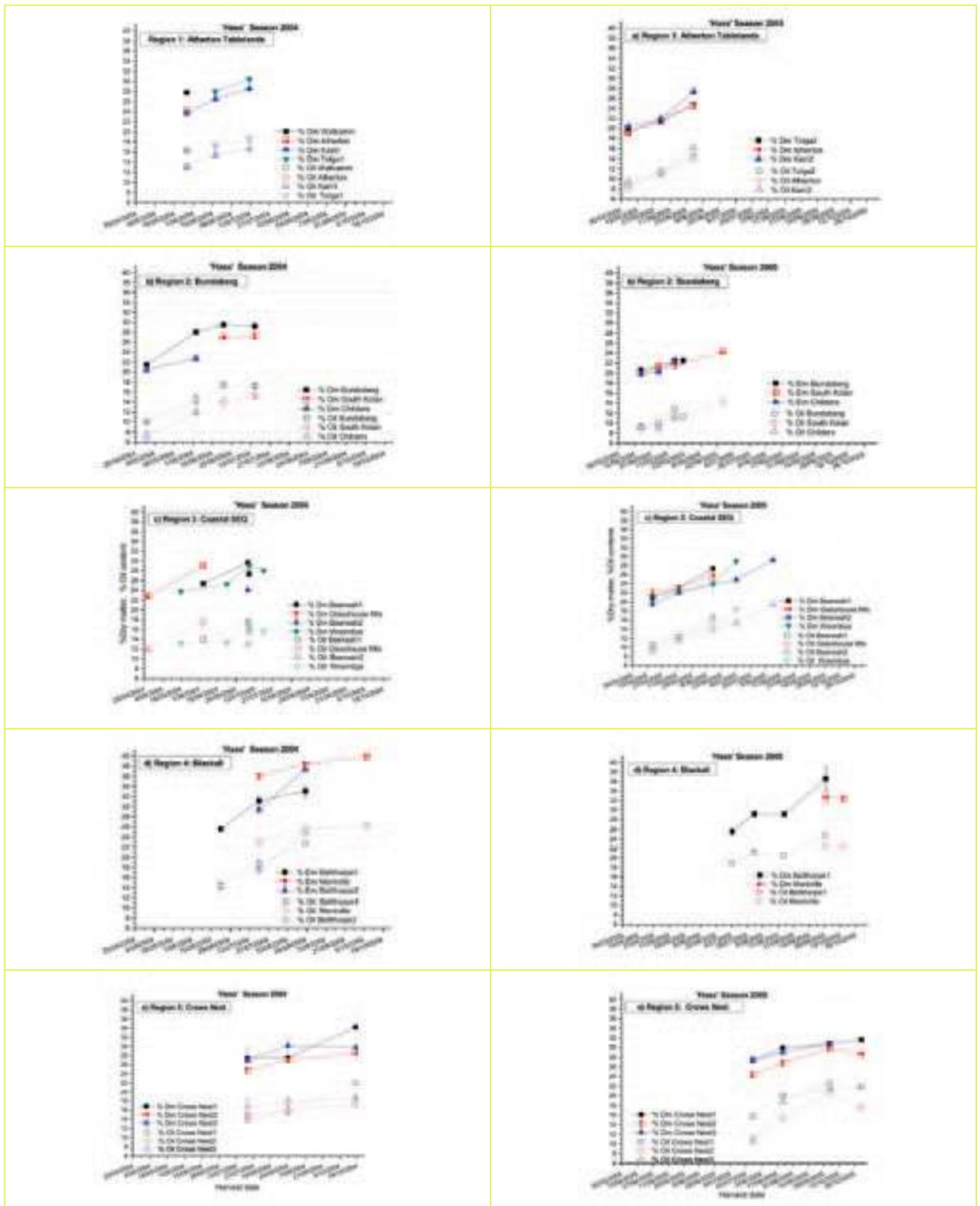


Figure 1. Percentage dry matter and oil content (percentage wet basis) of Australian 'Hass' avocados harvested from the five main producing regions in Queensland in 2004 and 2005. (Coastal SEQ = coastal south east Queensland). Values are the means of three replicates of 20 fruit. Vertical bars = standard error of mean.

Changes in dry matter and oil content of avocados from several production regions in Queensland continued

Table 1 Australian 'Hass' avocados harvested from several regions in 2004 and 2005: The projected date at which fruit reached 21% dry matter (averaged across the 3-5 growers per region, and extrapolated where required), the date of the first sample (approximately equivalent to the start of commercial harvest on the sampled orchards), and the dry matter (DM) range at the first sampling (close to the start of commercial harvest) (Coastal SEQ = coastal south east Queensland).

	Region				
	Atherton	Bundaberg	Coastal SEQ	Blackall	Crows Nest
Projected date at 21% DM					
2004	10 Apr.*	20 Apr.	5 Apr.*	25 Apr.*	25 Apr.*
2005	20 Apr.	30 Apr.	20 Apr.	-	2 June*
Date of the first sample (early harvest)					
2004		4 May	22 Apr.	22 June	20 July
2005	6 Apr.	13 Apr.	15 Apr.	6 July	27 July
% Dry matter range of the first sample					
2004		20.5- 21	23- 25	25.5- 36	24- 27.5
2005	19-20.5	20- 20.5	19.5- 22	25- 33	24.5- 27

*Predicted by extrapolation of the regression line

Oil is the main component of dry matter and thus oil content followed very similar patterns to those of dry matter (see Figure 1), including a small change or a reduction in the late season samples in some instances.

On average, oil content was 11.4% units less than dry matter (average over all regions, seasons and time in season), with a range across all growers, regions and years of 10.8 to 12.3% units.

'Shepard' is an early cultivar, growing only in the Atherton and Bundaberg regions. The commercial harvesting season is relatively short because of the preference to access the early market. Figure 2 shows the changes in dry matter and oil content of the 'Shepard' samples from these two production districts. As expected, early harvest fruit had significantly lower dry matter than those from later harvests. The data show there were few consistent differences among growers within the Atherton region, while fruit from the Bundaberg orchard often had higher dry matter than those from the Kolan orchards.

The date when 21% dry matter (minimum commercial harvest) was reached was similar between the two years for the Bundaberg region (Table 2). The estimated date for the Atherton Tablelands was different between years, but the estimate for 2004 was based only on two harvests. Frequently, the dry matter of the early harvest sample in both regions was below the 21% commercial minimum maturity standard.

CHEMJET

AUSTRALIAN MADE

TREE INJECTOR



- Easy to see new **RED** handle.
- Simpler assembly system.
- New Nylon Body.
- Volume measurement markings of 5, 10, 15 & 20ml.
- New 20mm tapered tip.



ChemJet

For cost efficient injections of Phosphonates, Pesticides, Fungicides, Fertilizers & Trace Elements

16 Kendall Street Bongaree Qld 4507

Ph **07 3408 0388**

Fax **07 3408 3963**

Email chemjet@powerup.com.au

www.chemjet.com.au

Changes in dry matter and oil content of avocados from several production regions in Queensland continued

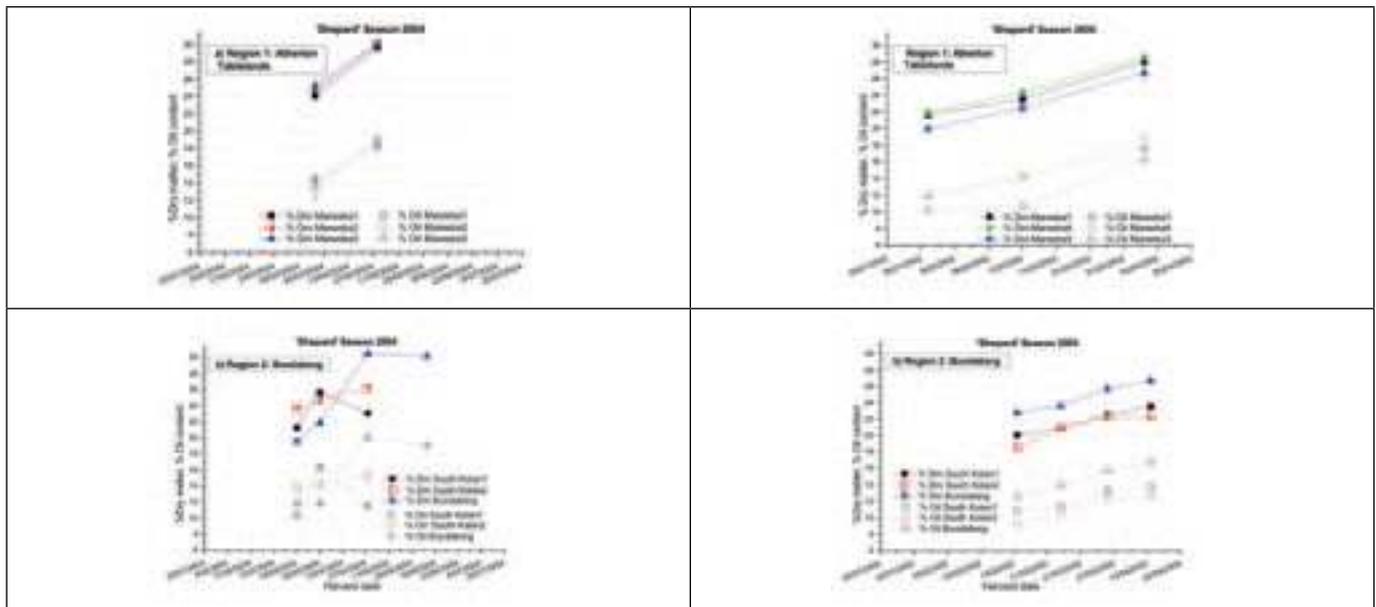


Figure 2. Percentage dry matter and oil content of Australian ‘Shepard’ avocados harvested from the main producing regions in Queensland in 2004 and 2005. (Coastal SEQ = coastal south east Queensland). Values are the means of three replicates of 20 fruit. Vertical bars = standard error of mean.

Table 2. Australian ‘Shepard’ avocados harvested from the two main producing regions during 2004 and 2005: The projected date at which fruit reached 21% dry matter (averaged across the three growers per region), the date of the first sample (approximately equivalent to the start of commercial harvest on the sampled orchards), and the dry matter (DM) at the first sampling (close to the start of commercial harvest).

	Region	
	Atherton T.	Bundaberg
Season	Date at 21% DM	
2004	4 Mar.1	7 Mar.
2005	1 Feb.	6 Mar.
	Date of first sample (early harvest)	
2004		16 Mar.
2005	2 Feb.	2 Mar.
	% Dry matter of the first sample	
2004		19.5-23.8%
2005	20-22%	18.8-23.3%

¹Projected from only two harvest dates

Some assessments were made for the other minor cultivars. Similar accumulation patterns in dry matter and oil content were noted. The difference between average percentage dry matter and oil content was between 9.5% and 10.2% for all minor varieties tested.

Conclusions

- In the early production regions, there is a strong incentive to start harvesting at the minimum maturity standard (21% dry matter). The starting time can be a very fine balance between the early market and the dry matter content, and the evidence suggests that in some instances the average dry matter at harvest was less than 21%. Given the large variability in dry matter between individual fruit (3-5% either side of the average dry matter), it is likely that at least half the early-harvested fruit would have been below 21%.
- There was a strong relationship between dry matter and oil content across all the regions tested. (This will be discussed in more detail in a subsequent article).
- Early-harvested fruit have lower oil content. Australia has a lower maturity standard (21%) than New Zealand (24%). A significant proportion of Australian avocado production is aimed at the early domestic market, and is grown under warmer conditions than found in most avocado-producing areas in New Zealand. These factors result in a significant proportion of the crop being harvested at a lower oil content, and generally not achieving the high oil contents observed under New Zealand conditions. These differences could have a significant impact on the viability of an oil processing operation in Australia.

Thanks

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

Using Phosphonates Effectively to Control Phytophthora Root Rot in Avocados

by Graeme Thomas,
GLT Horticultural Services
Hodgsonvale, Queensland

Very recently the industry has supported the application for a permit seeking to apply new rates of phosphonate for foliar spraying.

These rates are found following this article.

The development of phosphonate products to control Phytophthora root rot in avocados commenced in the late 1970s. The first phosphonate-based product registered for use in Australia was Aliette© which was foliar-sprayed onto diseased trees. However, it was soon discovered that a much simpler chemical called phosphorous acid (H_3PO_3) was more effective in restoring health of diseased trees when measured amounts were injected directly into tree trunks. Due to the acidic nature of phosphorous acid significant damage occurred around injection sites so a safer formulation of potassium phosphonate was developed and is now commercially available from several companies who market the product in Australia. The knowledge that has accumulated since this time, both on tree physiology and its relationship with movement of the fungicide within the tree is significant. However, it is disappointing that many avocado growers do not correctly apply current technology in the management of root rot today.

Efficient and cost-effective Phytophthora control using phosphonate fungicides is based on understanding and working with the phenology or growth phases of the tree (Fig. 1). When potassium phosphonate is applied to trees it enters the tissues and becomes completely systemic moving within the vascular system to all parts of the tree. However, the quantity found in various organs will depend on the stage of growth at the time of application. This is due to different parts of the tree having stronger or weaker access to resources. For example, small, fast-growing fruit has the highest priority for available nutrients, shoots and leaves the second highest while roots have the lowest priority. If young fruit are developing on the tree at the time of treatment (during October early November in Fig. 1) most phosphonate applied will move

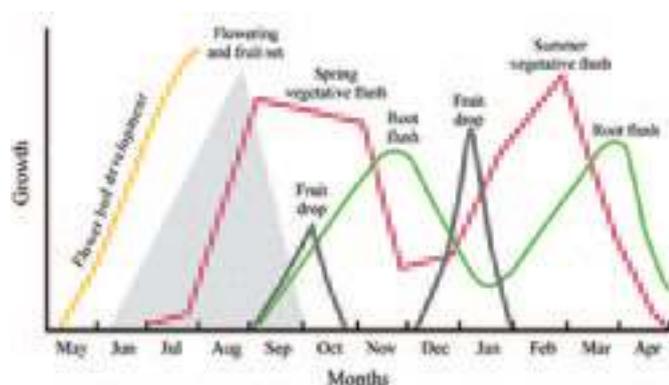


Fig. 1 A phenology model for avocado growth illustrating the interaction between different growth phases within the tree.

to these fruit with very little reaching the roots. Indeed research has shown that fruit may have phosphonate concentrations in excess of 280 mg.kg⁻¹ while roots only finish with 7-10 mg.kg⁻¹. Since we are controlling a root disease, the fungicide needs to be applied when the tree is diverting most of its resources to roots.

As can be seen, there are two distinct times when avocado trees will move phosphonates to roots. These being after the spring and summer shoot flushes. If phosphonates are applied outside these times, a significant percentage will be translocated to the non-target organs. When making an application after the spring flush, there will be reduced competition from leaves. However, in many regions the summer flush follows on very quickly and will compete more strongly for the phosphonate so the amount making it through to the roots may be quite low. Experience supported by phosphonate root analysis has shown the best results are from applications after the summer flush, when competition from other organs is basically non-existent. Recent research by QDPI has shown that elevating the phosphonate levels in the roots prior to a new root flush can reduce final root volume. It is therefore advised to wait for root development to complete prior to applying phosphonates. In most regions and with most varieties, this is late autumn to early winter (May to June).

It should also be remembered that even though phosphorous acid is systemic, moving from roots and leaves to other organs, it does **NOT** move laterally around the tree. This should be remembered when injecting. Many growers are now using concentrated product to reduce the number of injection points. This is truly a false economy as you are overdosing a small area of roots and leaving large areas of roots untreated. Always distribute the injection sites evenly around the tree. To do this effectively, the best practise is to dilute the current 600g. / litre product back to 200g. / litre phosphorous acid. This situation has been clearly demonstrated with phosphorous acid levels in the roots under a single tree varying from 5mg. / kg. to over 200mg./kg.

When phosphonates were first registered as a foliar spray application results were inconsistent. As research continued, it was found that spray volumes were critical. Low volume applications were not lifting root phosphonate levels to the same degree as high volume applications. It has since been found that it is essential to get thorough coverage not only to the leaves, but to branches and trunk as well. In mature orchards the volume needs to be as high as 3000 litres/ha. Younger orchards with smaller trees will require less.

Root Phosphorous Acid Levels

Prior to the development of the test measuring avocado root phosphorous acid concentrations (SGS, Toowoomba, QLD), recommended applications were based on tree response to treatment. There were many unknown variables that made results less predictable. Integrating root phosphonate analysis with application strategies increased confidence in protecting trees and controlling Phytophthora root rot in the orchard. Recommendations are based on maintaining a concentration in excess of 25 mg.kg⁻¹ of phosphorous acid in roots

Using Phosphonates Effectively to Control Phytophthora Root Rot in Avocados continued

to manage the disease. *Phytophthora cinnamomi* will attack avocado roots any time soil temperatures are higher than 15 C providing there is sufficient moisture present to support growth. Hence, there will be times during the year when root protection is required but applications of phosphorous acid will not reach roots in sufficient concentration due to the competition from growth by other plant organs. This includes the critical flowering time when significant stress is imposed on trees and healthy roots are required.

To achieve continuity of root protection for the longer term an elevated concentration of root phosphorous acid is required. Monitoring root concentrations following phosphonate applications has demonstrated that this is best built during the late autumn and early winter months.

Rate Changes

Foliar Sprays

Very recently the industry has supported the application for a permit seeking to apply new rates of phosphonate for foliar spraying. These rates will be published when the permit is granted.

Research commenced in the late 1990s to develop improved foliar phosphonate technology. Recently a permit was been granted for the avocado industry to use new application rates. When using phosphonates, care should be taken to ensure that you are using the correct rate for that formulation as different concentrations are manufactured and sold. The following table is a guide:

Formulation	Concentration/100 litres of spray solution
400 g/litre phosphorous acid	1250 ml
600 g/litre phosphorous acid	830 ml
625 g/litre phosphorous acid	800 ml

Comments:

- Do not add wetters, stickers or other pesticides.
- Thoroughly wet leaves and branches. Apply 2000 – 3000 L/ha-1. Lower volumes produce a poor result.
- Spray when summer leaf and root flush is complete and no later than 6 weeks prior to flowering.
- Spray every 2 – 4 weeks until critical root phosphonate levels are reached.
- Avoid using copper hydroxide fungicides (copper oxychloride and cupric oxide formulations are the safest to use with foliar phosphonate sprays) and allow 10 days between phosphonate and copper application. On occasions severe defoliation has resulted when this has not been observed.
- Ensure the pH of the final tank mix is 7.2. To achieve this, buffer with potassium hydroxide if necessary.
- Sprays are only effective when applied to trees not showing root rot symptoms, i.e. those with good foliage cover for uptake.

Other Management Factors

Fungicide management is only one factor in the control of *Phytophthora* root rot. The integrated management technique as best described in the “Principles of *Phytophthora* root rot management” must also be incorporated in your management program.

In mature trees, the key factors are:

- Irrigation management – water consumption of diseased trees is dramatically reduced compared with healthy ones in the same block. Where diseased trees are present in an otherwise healthy block reduce water application by installing lower volume sprinkler heads.
- Nutrition –strategic use of gypsum while avoiding application of large quantities of fertilisers containing ammonia.
- Use good mulches, which allow “breathing” while maintaining uniform soil moisture within the root zone. Waterlogging of soils will accelerate the development of the disease.

ANVAS ACCREDITED NURSERIES

ANVAS accredited trees can be purchased from the following nurseries:

Anderson’s Nursery Graham & Vivienne Anderson Duranbah Road Duranbah NSW Ph: 02 6677 7229	Avocado Coast Nursery Greg Hopper Schulz Road, Woombye Qld Ph: 07 5442 2424	Birdwood Nursery Peter and Sandra Young 71-83 Blackall Range Rd Nambour Qld Ph: 07 5442 1611	Turkinje Nursery Peter & Pam Lavers 100 Henry Hannam Drive Walkamin Qld Ph: 0419 781 723
---	---	--	--

Permit to allow emergency use of a Registered AGVET Chemical Product

Permit No -PER10722

This permit is issued to the Permit Holder in response to an application granted by the APVMA under section 112 of the Agvet Codes of the jurisdictions set out below. This permit allows a person, as stipulated below, to use the product in the manner specified in this permit in the designated jurisdictions. This permit also allows any person to claim that the product can be used in the manner specified in this permit.

**This permit is in force from
10 April 2008 to
30 September 2009.**

Permit Holder:

LIQUID FERTILISER PTY LTD T/A AGRICHEM
2-4 CHETWYND ST
LOGANHOLME QLD 4129

Persons who can use the product under this permit:

Persons generally.

CONDITIONS OF USE:

Products to be used:

All registered products containing either:

400 g/L, 600 g/L, 620 g/L or 625 g/L PHOSPHOROUS ACID as their only active constituent.

Directions for Use:

Crop	Disease	Rate
Avocado	Root rot (Phytophthora cinnamomi)	400 g/L products Apply 1250 mL/100L
		600 g/L products Apply 825 mL/100L
		620 g/L & 625 g/L products Apply 800 mL/100L

Critical Use Comments:

DO NOT apply more than 5 applications per year with a minimum re-treatment interval of 3 weeks between applications.

Apply as a foliar spray by knapsack or air-blast sprayer.

Apply high volume spray to the point of run-off (i.e. 2000-3000 L/ha for mature trees).

Withholding Period:

Not required when used as directed.

Jurisdiction:

ALL States

Additional Conditions:

This Permit provides for the use of a product in a manner other than specified on the approved label of the product. Unless otherwise stated in this permit, the use of the product must be in accordance with instructions on its label.

Persons who wish to prepare for use and/or use products for the purposes specified in this permit must read, or have read to them, the details and conditions of this permit.

RESIDUES:

To allow produce from treated plants to be supplied or otherwise made available for human consumption, the APVMA has established a temporary Maximum Residue Limit of 500 mg/kg for phosphorous acid in avocado. This limit applies only to produce marketed and consumed in Australia. Therefore, if treated produce is to be exported, due account should be taken of the residue definition and residue limits/import tolerances of importing countries and that any residues must not exceed those requirements of the importing country.

Issued by

Delegated Officer

Principles of Phytophthora root rot management in established orchards

By Ken Pegg and Fiona Giblin

Horticulture and Forestry Science, QDPI&F

Email: ken.pegg@dpi.qld.gov.au

The duration of free water in the soil is the most important environmental factor in the development of Phytophthora root rot (Figure 1).

In 1974, a year of abnormally high rainfall, the avocado industry witnessed the collapse of over 50% of all avocado trees in eastern Australia as a result of root rot caused by *Phytophthora cinnamomi*. Already in 2008 we have had a number of extreme rainfall events. However, the situation since 1974 has changed somewhat; phosphonates are now available to help manage the disease.

Avocado root rot has always been associated with poorly drained soils or short term flooding and the disease was originally referred to as melanorhiza and was thought to be due to water injury. We now know that the presence of free water in the soil is critical for the dissemination of zoospores of *Phytophthora* and the infection of avocado feeder roots (Figure 2).

The primary symptom of *Phytophthora* infection is a rot of the feeder roots. Secondary symptoms (canopy decline, death of branches and whole tree) follow root damage. Secondary symptoms can be chronic or acute. Chronic symptoms include leaf chlorosis and abscission and death of primary leaf-bearing branches. With acute symptoms leaves wilt and turn brown and the trees die suddenly with leaves attached. Acute symptoms usually occur following a combination of prolonged soil flooding plus the presence of *Phytophthora*. Short periods of soil saturation have little impact on tree health unless *P. cinnamomi* is also present. With chronic disease, outward symptoms depend on the balance between feeder root death and feeder root replacement. This balance will be influenced by environmental factors such as temperature, sunlight and wind, all of which interact to affect the transpiration rate and the water demand on the tree.

With avocado the interaction between soil temperature and soil moisture will largely determine the severity of *Phytophthora* root rot.



Figure 1: Pooling of water in pig wallows leads to a *Phytophthora* epidemic in a Queensland rainforest (above and right)

Soil Temperature

P. cinnamomi grows slowly below 15°C and above 30°C. The optimum temperatures for infection are in the low 20°Cs.

The avocado tree grows well between 21°C and 33°C. At higher temperatures (>28°C) the tree can regenerate new roots and limit the damage caused by infection to the feeder roots.

When temperatures fall below 22°C feeder root growth and replacement slow down considerably, but *P. cinnamomi* is still very active and the infection of new roots will far exceed the production of new roots and root rot will be severe. These lower temperatures occur in eastern Australia in late autumn/early winter when soils can remain saturated for a considerable time following prolonged late summer rains.

Soil Moisture and Oxygen

Avocado roots and *P. cinnamomi* require oxygen but in the soil situation it is difficult to separate the effects of aeration and soil moisture.

A well aerated avocado soil will contain up to 16% oxygen. A saturated, poorly drained soil will have an oxygen content of 1-5%, a level which will damage or kill roots. *P. cinnamomi* requires an oxygen level of 2.5-16% to produce zoospores.



Principles of *Phytophthora* root rot management in established orchards continued



Figure 2: *Phytophthora* zoospore production and release

Phytophthora root rot should not be confused with root death caused by anaerobic conditions (anoxia). Within a few hours of flooding, soil microorganisms and roots use up most of the oxygen present in the soil, and chemicals such as carbon dioxide, nitrite and hydrogen sulphide accumulate. These chemicals, besides reducing *Phytophthora* activity, cause severe root damage.

In the absence of *P. cinnamomi*, if the soil is well drained and does not remain saturated for long (<2 days), a new flush of roots will regenerate which will replace the killed roots. However, the combination of short term flooding plus *P. cinnamomi* can cause severe root rot. This is because high soil moisture allows zoospores of the pathogen to be disseminated and infect the feeder roots.

Phytophthora Population and Phosphonates

A healthy avocado tree produces a mass of vigorous, rapidly growing feeder roots which are an ideal 'food source' for *Phytophthora*. Such trees will have a higher population density of the pathogen in their root zone than a declining tree which has a reduced number of feeder roots.

Phosphonate applications do not eradicate this *Phytophthora* population or eliminate infection of feeder roots. They have little direct effect on the soil population of *Phytophthora*. This means that phosphonate treatments must be ongoing for the life of the orchard. Phosphonates operate in conjunction with physiological processes in the plant to increase the resistance of roots to infection. Phosphonate levels in roots must be maintained at or above critical levels (25-40mg/kg) during periods of high *Phytophthora* pressure.

Control

The above factors, as well as several others affecting root rot, are complex and interrelated. There is no single solution to maintaining a healthy feeder root system and a number of different approaches must be used in an integrated manner.

• Soil Selection

Select soils which have rapid internal drainage, good aeration and be of sufficient depth to cope with extreme rainfall events such as cyclonic downpours, where up to 600mm of rain may fall in a few days. Avoid soils where surface water or water-filled pores are maintained in the root zone. In high risk areas improve drainage by using mounds and sub-surface drains.

• Nursery Trees

Plant disease-free nursery trees which have been approved by the Avocado Nursery Voluntary Accreditation Scheme (ANVAS). These nurseries prevent *P. cinnamomi* from infecting nursery trees by heat treatment (49-500C) of seed which has fallen to the ground, heat treatment of potting mix with steam (1000C for 30 mins) or with aerated steam (600C for 30 mins), use of clean water from bores or deep wells (or disinfect surface water with 0.5ppm chlorine or 20ppm copper sulphate) and good nursery hygiene.

• Plant resistant rootstocks

As the avocado originated in Central America and *P. cinnamomi* possibly in New Guinea, the host and pathogen do not have an evolutionary history and root rot is referred to as a new encounter disease. Conventional resistance is usually not available to this type of resistance. However, some rootstocks are more tolerant than others but infection still occurs. They can only be grown in infested soils if remedial treatments are applied (see Talking Avocados Volume 18 No. 1). Clones of recommended rootstocks are more resistant than seedlings. Avoid clonal or seedling rootstocks where scion overgrowth occurs (Figure 3). In such trees the graft union reduces carbohydrate flow to the roots and root growth and resistance to *Phytophthora* are reduced.

As part of Tony Whiley's genetic improvement project we are continuing to recover, clone and test rootstocks from isolated surviving trees growing in poorly drained or flood prone soils where trees have been subjected to long term *Phytophthora* pressure (Figure 4). In Australia avocado trees were first sold from the Kamerunga State Nursery in 1914. Avocado root rot was first recognised by J.H. Simmonds



Figure 3: Trees with a scion overgrowth have reduced tolerance to *Phytophthora* root rot

in 1949, but pineapple root and heart rot which are caused by the same pathogen, were described by H. Tryon in 1887. This means that avocado seedling populations have been exposed to the pathogen for almost 100 years and rootstocks with greater tolerance to *Phytophthora* are likely to exist. Such rootstocks may have tolerance to poor soil aeration as well as *Phytophthora* root rot. Out of this selection program we have already identified one clonal rootstock

Principles of Phytophthora root rot management in established orchards *continued*

with significant root rot tolerance, and a seedling rootstock population which shows a consistent tolerance response to *P. cinnamomi* (Figure 5).

• Irrigate carefully

Soil moisture monitoring devices such as tensiometers or multi-sensor capacitance probe systems should be used to maintain soil water content below the saturation point but at an adequate level for good plant growth. Use high quality water as roots are more susceptible to root rot when stressed by salinity. Also roots infected by *Phytophthora* lose their ability to exclude salt and leaves develop necrotic margins.

• Mulches

Increase the organic matter content of the soil to enhance biological suppression of *P. cinnamomi*, and thus promote root health and tree performance. *Phytophthora* is a relatively poor saprophytic coloniser and has difficulty in surviving in soils rich in organic matter which supports an active and diverse microflora. Mulching under trees also stabilises soil temperatures and minimises soil moisture loss. Select a coarse mulch with a C:N ratio of 25:1-100:1 and avoid mulches such as sawdust (C:N ratio of 400-500:1) which cause severe nitrogen draw-down. Suitable materials include chipped avocado prunings, wheat and barley straw, sorghum and corn stubble, sugar cane tops, and composted or aged hardwood chips. Avoid mulching materials with a low C:N ratio (e.g. poultry manure 7:1) which promote excessive tree vigour and reduce soil carbon levels and thus the energy source for soil health and sustainability. Filter press (mill mud) (23:1) and peanut husks (12:1) also contribute a significant amount of nitrogen which increases vegetative vigour. Do not over-mulch as thick mulches can be too moisture retentive and thus exacerbate the root rot problem. Keep mulch away from the trunk to prevent canker development.

• Calcium

Apply gypsum under the canopy of each tree at 0.5–1.0 kg/m². Reapply when the material is no longer visible on the soil surface. Gypsum supplies calcium, which promotes root growth, increases disease resistance in avocado roots and acts as a mild fungicide by



Figure 4: 'Hass' on a cloned rootstock which was propagated from an avocado tree surviving in a heavily *Phytophthora* infested site prone to waterlogging

suppressing the formation of *Phytophthora* spores. Use lime if pH correction is required.

• Soil Nutrition

Ideally, tree nutrition should be closely monitored with leaf analysis. Phosphorus, calcium and boron are particularly important for root growth and satisfactory levels of these elements must be maintained. Avoid large amounts of fertilizer or animal manures which may be high in ammonia and salts as these are toxic to feeder roots.

• Fungicides

Fungicides must be used with the other recommended practices. These systemic fungicides can be applied to the soil, injected into trees or used as foliar and bark sprays. Fungicide treatments do not eradicate the pathogen or eliminate disease and must be ongoing for the life of the orchard.

Many growers are reluctant to inject phosphonates because of the wounding that results from multiple and regular injections. However injections do minimise wastage and environmental contamination and give maximum persistence. Whether injected or sprayed, optimum timing of phosphonate applications requires knowledge of tree phenological activity to ensure the chemical is carried down into the roots

Further Reading

Drenth A. and Guest D.I. 2004. Principles of *Phytophthora* disease management. In: *Diversity and management of Phytophthora in Southeast Asia*. Drenth A. and Guest D.I. (eds): ACIAR, Canberra, pp. 154-160.

Menge J.A. and Nemeč S. 1997. Citrus: *Phytophthora* root rot. In: *Soilborne diseases of tropical crops*. Hillocks R.J. and Waller J.M (eds): CAB International, Wallingford, UK, pp. 186-226.

Menge J.A. and Ploetz R.C. 2003. Diseases of avocado. In: *Diseases of tropical fruit crops*. Ploetz R.C. (ed.): CAB International, Wallingford, UK, pp. 35-71.

Pegg K.G., Coates L.M., Korsten L. and Harding R.M. 2002. Foliar, fruit and soilborne diseases. In: *The Avocado: Botany, Production and Uses*. Whitley A.W., Schaffer B. and Wolstenholme B.N. (eds): CAB International, Wallingford, UK, pp. 299-338.



Figure 5: 'Hass' on selected seedling rootstock (left) showing tolerance to *Phytophthora* root rot

PMA Fresh Summit: Part Two

Part Two PMA Fresh Summit continues a series on this event and the benefits Fresh Summit has to offer to the Australian avocado supply chain. The series will continue to be showcased in future editions of *Talking Avocados*.

Avocados Australia is organising a grower tour to visit PMA Fresh Summit in late October 2008, please contact Avocados Australia if you are interested in participating.

Market Trends

PMA undertakes research into market trends impacting the fresh produce industry. Research on produce preferences shows that shoppers no longer shop just for a product but an experience - and research shows they are willing to pay more for the experience if it meets their expectations.

Meeting customer expectations - taste experiences

Research undertaken by PMA indicates that US consumers are looking for new flavours and increasingly they are turning to fruit and vegetables. In the US, Asian and Hispanic influence are adding a new dimension to the food experience.

Research has also shown that in the dining out sector, taste is paramount; when it comes to the reason for ordering a fresh produce item 87% pick taste followed by 62% who pick nutrition.

One of the strong messages for the fresh produce industry is importance to maintain the taste integrity of produce and provide consistent flavour sensations so that consumer keeps coming back for more. It is not about getting perfect looking produce to market before anyone else.

The blending of retail and food service

Complementary research undertaken by PMA has also shown that almost four in ten consumers have liked a product item so much when dining out that they have sought it out when shopping. Hence food service sector is now being considered a major driver in retail sales and retailers are looking at trends in the food service sector to anticipate future growth areas in their produce business.

Meeting customer expectations - value

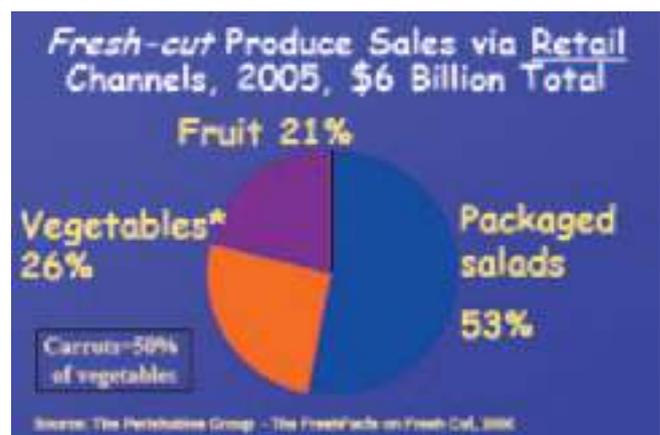
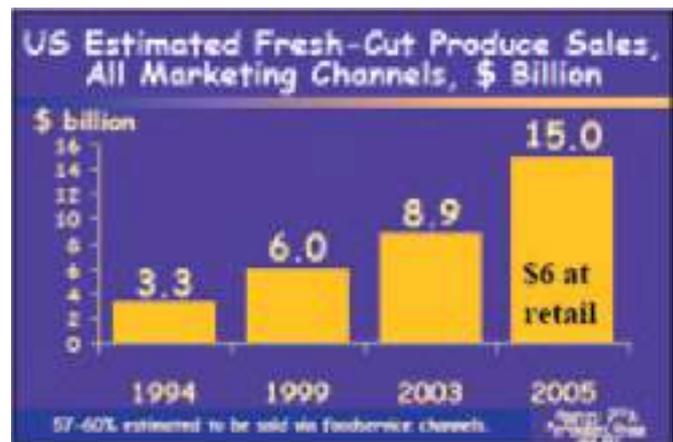
Consumers in the US are increasingly looking for products that offer value, particularly in relation to

- Increased flavour life
- Extended shelf life
- Increased health benefits
- Increased convenience (such as fresh cuts)

This is being achieved through improvements in food technology including ripening and packaging innovations.

Meeting customer expectations - packaging and convenience

The prevalence of consumer ready packs of fruit and vegetable and the demand for semi-processed product, such as fresh cut vegetable and salads, is significant in the US. As a result, packaging issues were keenly discussed at the 2006 Fresh Summit.



(source: Cook, R., UCLA, 2007)

Prepackaged product promotes supply chain efficiency, assists in meeting consumer's demand for convenience and perception that prepackaged foods are safer. Indications are that this trend will continue and there will be a significant increase in the amount of packaging used within the industry. Paralleling this is a move to

PMA Fresh Summit: Part Two continued

biodegradable and organic packaging to meet consumer concerns about the environment.

Meeting customer expectations - new and differentiated product

Consumers are also constantly looking for new and different products. Although commercial scale is critical to remain competitive, PMA research indicates that the ability to provide a differentiated product is one of the key indicators in regard to business success in the industry.

Meeting customer expectations:- social responsibility movement

Increasingly consumers in the US want to know that food they consume is grown using sustainable management practices and those in the supply chain are acting in a socially responsible manner. This has seen a rise in demand for food that is:

- Locally produced
- Produced under sustainable or organic production methods
- Certified “fair trade” – where there is a guarantee that farmers from third world countries are receiving a fair price for their crops
- Presented in environmentally friendly packaging eg. corn based biodegradable packaging

Chipotle®, a modern Mexican themed fast food chain with 530 outlets in the US, is one of the fastest growing businesses in the sector. It is also one of the one of the largest users of avocados in California to meet its requirement for guacamole. It has successfully positioned itself in the market as a quality and ethical fast food option targeting affluent young people in the 15-30 year demographic. Its menu states:

“We believe in treating all with respect; the farmers and ranchers, the animals and the land, and our suppliers who bring it all together for us.

We take pride in knowing where our food comes from. We look back along the supply chain and spend time on farms and ranches, and at the end facilities where our food is grown, raised and prepared.

We believe in using meats from animals that are raised naturally, without hormones or antibiotics and are fed a vegetarian diet. Naturally raised meats are in some of our restaurants. We’re working hard to find more suppliers so we can expand to many more locations.

Our food is the best we can find – for now. We are constantly searching to make it even better.”

The company then invites patrons to ‘speak their mind’ at www.chipotle.com

Growing demand for organic product

‘Organics’ was also a hot topic at PMA with growth in the sector predominantly being driven by consumer concern for the environment

rather than health consciousness.

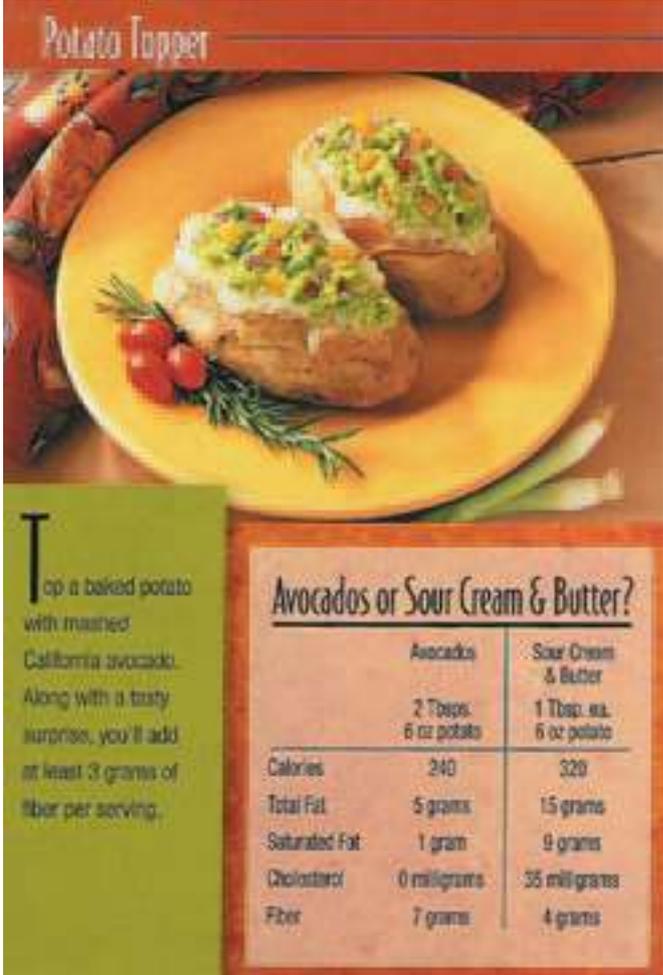
In 2006, the organics sector was valued at US \$17 billion (2.7% of retail sales). Fruit and vegetables continue to be the largest category in the sector, representing 41% of sales (US\$5.8 billion). Within the fruit and vegetable sector the number one selling item is packaged salads and the fastest growing category is fresh cuts.

The overall organic sector is expected to grow to US\$70 billion by 2020 or 10% of retail sales.

Organic production of Californian avocados increased by 575 acres between 2004 and 2005 to reach 2,575 acres or 24 million pounds. In 2006 organic fruit accounted for 4.1% of the Californian crop. According to industry sources, demand for organic avocados has increased 20-25% each year for the last decade. (source: The Packer, Oct 23, 2006).

Food service for avocados

The avocado dip category in the US is valued at US \$60 million and continues to grow by 10% per year (based on 2002/03 AC Nielsen data). The growth is contributed in part to the perception by consumers that sour cream based products are unhealthy. The Californian Avocado Commission has reinforced this perception by using promotions to compare the health benefits of avocado based dip products over sour



Potato Topper

Top a baked potato with mashed California avocado. Along with a tasty surprise, you'll add at least 3 grams of fiber per serving.

	Avocados	Sour Cream & Butter
	2 Tbsp. 6 oz potato	1 Tbsp. ea. 6 oz potato
Calories	240	320
Total Fat	5 grams	15 grams
Saturated Fat	1 gram	9 grams
Cholesterol	0 milligrams	35 milligrams
Fiber	7 grams	4 grams

PMA Fresh Summit: Part Two continued

cream, cream cheese and mayonnaise based products.

Diversification in this sector is significant with a range of flavour offerings to meet consumer demand. These include spicy, pico, salsa style and organic.

Other avocado products sold into the food service sector include frozen guacamole. (various flavours and textures in a range of pack sizes and packaging offering portion control), frozen halves (peeled and seeded) and avocado sauce.

Considerable resources are committed by business and industry to influence the purchasing behaviour in the food service sector. The size and sophistication of US food service market dictates that the development and placement of product offerings, supporting services and the related flow of product and supply information is more developed than in the Australian industry. This provides the opportunity for the Australian industry to learn skills and gain an insight into future trends in the industry. PMA offer market research services to businesses looking to enter this sector of the market and each year holds a Foodservice Conference and Exposition.

Marketing communication trends

Marketing issues were highlighted throughout the Summit, including pulse marketing, microbranding strategies and use of internet

technologies to reach the consumer. These techniques are being used successfully in the US produce sector and have the scope to be applied more broadly in the Australian market.

Growth of China as a dominant force in produce industry as producer and consumer

China is the world's largest fruit and vegetable producer. It has 17.1% of global fruit production (increasing at 8.3% per annum) and 49% of global vegetable production (increasing at 9.1% per annum) (source: PMA presentations and FAO). Growth in the sector is expected to continue underpinned by China's substantial labour cost advantage. Food safety issues continue to impact China's export trade and currently the fruit and vegetable value chains are inefficient and problematic, but things are improving.

There are however still opportunities to import fruit and vegetables into the Chinese market. These opportunities are driven by increases in income and urbanization, growth in organized retail and increases in domestic prices. In regard to avocados, there is no sizable commercial production of avocados in China and the fruit is not well accepted by the local market. Market demand continues to be driven by foreigners living or traveling in the country. There are opportunities to promote the nutrition value of avocados to increase product usage however to date educational / promotional campaigns have not occurred (source: FAO: Avocado Production in China - Liu Kangde and Zhou Jiannan, 2000).

The Californian avocado industry is seeking access to the Chinese market and there are currently discussions occurring between the U.S. and China on phytosanitary issues.

Food Safety

Food safety was one of the main topics at PMA Fresh Summit 2006. In mid 2006, an outbreak of E. coli in spinach in the US resulted in the death of three people and this event has had significant impact on how supply chains in all sectors of the industry are now managing food safety risks.

New Technologies

SmartFresh®

The SmartFresh® Quality System for fruits and vegetables maintains the fresh quality of produce during routine storage and shipping. SmartFresh® technology protects fruits and vegetables from the effects of ethylene after harvest. Ethylene causes produce to grow and ripen, but also to eventually soften and over-ripen. Typically introduced right after harvest, the SmartFresh® Quality System utilizes 1-MCP (1-Methylcyclopropene). This is a simple molecule similar to ethylene that protects produce from the ripening effects of ethylene. Once protected by 1-MCP, the effects of ethylene are delayed so produce maintains its peak freshness and quality. 1-MCP is introduced into the air of produce conditioning rooms.

For more information visit: www.smartfresh.com

Avocado Bagel Spread

Spread mashed California avocado and fresh herbs (cilantro, garlic or basil) on a bagel instead. Top with a splash of fresh lemon juice and start the day a better way!

	Avocado: 2 Tbsp. 2 oz bagel	Cream Cheese 2 Tbsp. 2 oz bagel
Calories	210	250
Total Fat	6 grams	11 grams
Saturated Fat	1 gram	6 grams
Cholesterol	0 milligrams	30 milligrams
Fiber	4 grams	1 gram

*PMA Fresh Summit: Part Two
continued*

NatureSeal®

One of the new food coating technologies manufactured by Mantrose-Hauser (USA), a leader in edible coatings for the pharmaceutical, confectionary and agricultural industries. NatureSeal® makes it possible to serve sliced fruit and vegetables without the risk of browning. The product is being used in commercial applications for avocados in the USA.

For more information visit: www.natureseal.com

Xtend bag technology (modified atmosphere packaging)

The Xtend® bag technology creates a produce specific modified atmosphere / modified humidity environment allowing a balance between O₂ and Co₂, without the addition of ethylene gas, creating the conditions for uniform fruit ripening. Condensation is reduced by achieving proper humidity levels within the bag allowing excess moisture to escape. This allows the shelf life to be extended whilst maintaining the internal and external quality of the avocado. Afterwards ripening can occur by triggering the fruit with a change in temperature.

The technology reduces dehydration and weight loss which in turn preserves firmness and reduces shrink.

Developed by StePac in the USA, the technology is used by Prime Produce International an avocado packer and shipper in Los Angeles.

Prime Produce claims that this new technology costs 25% less than current industry methods used in the USA

www.primeripe.com or www.stepac.com/xtend.asp

ripeSense®

ripeSense® is the world's first intelligent sensor label that changes colour to indicate the ripeness of fruit. In 2004, ripeSense was named one of Time Magazine's 36 best inventions.

The ripeSense® sensor works by reacting to the aromas released by the fruit as it ripens. The sensor is initially red and graduates to orange and finally yellow. By matching the colour of the sensor, consumers can accurately determine the ripeness of fruit. The technology has been used commercially in pear since 2005.

In 2006, ripeSense for avocados was still in the laboratory phase of product development.

The company however believes that the target for this technology in the avocado sector is the occasional or new user, providing confidence in product selection. The avocados would be packed in a 2 piece clamshell or flow wrap.

For more information visit www.ripesense.com

Acoustic Firmness Sensor (AFS)

This technology underpins the Calavo ProRipe VIP (verified Internal Pressure) program. AFS is one of the latest non destructive measurement technologies to assess avocado ripeness. AFS sensors listen to the acoustic responses of the avocado using sound waves. In this way AFS measures the vibration patterns of the entire piece of fruit. The signals are analysed to determine the internal pressure of the fruit as a whole. Consequently Calavo claim that you get avocados that are completely and uniformly ripe in every box. This allows Calavo to more accurately match fruit ripeness with logistical demands and customer requirements ensuring its shipments of fruit across the US arrive in peak condition.

For more information visit www.calavo.com



High Pressure Technology

High Pressure Processing (HPP) also known as ultra-high-pressure or hydrostatic processing is one of the leading technologies for processing fresh avocado pulp, guacamole and salsa in the USA. Combined with appropriate packaging technology, HPP has the ability to extend the shelf life of avocado pulp from a few days to 30 to 40 days (with refrigeration) without preservatives or the use of citric acid. This form

PMA Fresh Summit: Part Two continued

of cold pasteurization significantly reduce pathogen levels and at the same time retains colour, texture and flavour profile of the fresh product.

Two of the companies pioneering this technology is the avocado sector is Avomex www.avoclassic.com and Calavo www.calavo.com in the USA.

Industry Issues

Food safety

In 2006, an outbreak of E. coli on baby spinach leaves resulted in 199 illnesses and 3 deaths in the US. The outbreak had an immediate impact on sales of spinach with restaurants and retailers removing spinach from their offering. The industry response was well coordinated.

Since the outbreak however, the US produce industry has had a strong focus on food safety and how food safety risks are managed in the industry.

The PMA understands the importance that the consuming public has confidence, not only spinach, but in all produce lines. As a result there has been a focus on the industry and individual businesses across the supply chain developing appropriate responses to such events. This includes:

- Improved food hygiene procedures
- Crisis management procedures
- Recall procedures
- Industry alert services

PMA have been assisting their members with access to appropriate support to assist with the implementation of these management strategies in their businesses and industry sector.

Supply Chain technology: electronic systems and traceability

In the US there has been limited uptake of GS1 standards in the produce industry, although other fresh food industry is beginning to adopt the standard. GS1 standards are used in over 103 countries (including Australia) and in over 26 different industries (including the food industry) by more than 1.3 million companies.

Industry leaders see the transition to this standard as critical for the development of the industry, as buyers want one set of standards for reporting, systems and efficiency. The GS1 Standards support various data capture technologies (barcodes, radio frequency identification (RFID) and reduced space symbology (RSS)) and enable efficient traceability practices, data synchronization and e-commerce leading to improved supply chain efficiencies.

Radio Frequency Identification (RFID).

This technology is a hands-free technology that uses a combination of radio transmitter and a reader to receive radio frequency energy used to convey information on that item.

Reduced Space Symbology (RSS).

Although this technology is not new, there is a push within the US produce industry to adopt this technology. It is seen as a way to improve productivity and efficiency and better serve the customer.

RSS barcodes have the ability to store significant amounts of data and because of their size can be affixed to items that have limited space for a barcode ie. individual pieces of fruit.

It is expected that a combination of RFID and RSS technology will eventually be used in produce supply chains, where RFID technology will be used at the carton and pallet level and RSS or RFID tags will be used at an item level. (source: PMA presentation 2006)

As in Australia, there are many companies offering produce tracability, inventory and financial management solutions for businesses in the sector. The follow were among those that exhibited at the 2006 fresh Summit:

- e-Produce: www.eproduce.biz
- Ciber Inc.: www.ciber.com
- FQ Code: www.fqcode.com
- Silver Creek Software: www.silvercreek.com

*LAMB HASS, *GWEN, REED, SHARWILL, FUERTE, BACON, RINCON, RYAN, WURTZ & HASS

trees, container grown to order, in aerated steam
pasteurized soiless potting mix, grafted onto

ZUTANO, VELVICK, *ASHDOT and
*DEGANIA rootstocks. *royalty protected

Sunraysia Nurseries have been growing quality nursery trees
at very competitive prices for 55 years.

Order now for Summer, Autumn or Spring 08 planting and for 09.
Trees can be sent into all states of Australia except Tasmania.

Growing for You since 1952



Ph 03 5024 8502 • Fax 03 5024 8551

sales@sunraysianurseries.com.au

www.sunraysianurseries.com.au

Member of ANFIC (Australian Nurserymen's Fruit Improvement Company)

News from around the world

Mark Affleck honoured for 20 years at the helm of CAC

The California Avocado Commission board of directors honoured commission President Mark Affleck at its March meeting on the very day marking his 20 year anniversary as chief executive officer. The surprise ceremony featured 17 speakers, including board members, past board chairmen, commission employees and leaders who have worked with Mr. Affleck as he piloted the California avocado industry through a series of challenges and two decades of increased grower value.

CAC Chairman Rick Shade, who has been on the board for nearly half of Mr. Affleck's tenure, lauded him for his extraordinary vision and decision- making ability.

"Many issues have come up through the years that could have easily become crises for our industry," Mr. Shade said in an April 1 press release. "But under Mark's leadership they were dealt with early and swiftly, ending up as mere blips on the radar."

Tom Bellamore, senior vice president and corporate counsel of the commission, who has worked with Mr. Affleck for 14 years, referred to him as "a supreme strategist who is also my coach, my mentor and my fellow swordsman."

Mr. Bellamore recalled that after Mr. Affleck took office in 1988, the California avocado crop value doubled within a few years, and then

followed with 14 consecutive years valued at \$300 million or more. In the 2003-04 crop-year, even after Mexico and Chile had entered the avocado market, doubling the category volume total from just three years prior, the California avocado crop value "defied gravity" and reached over \$380 million. Sacramento attorney George Soares, who wrote the original law that created the commission nearly three decades ago, praised Mr. Affleck for managing change, which he called "fundamental" for success in agriculture.

"With Mark Affleck's leadership, the commission has always and consistently found a way to manage change and stay at the forefront of issues," Mr. Soares said. "Mark is a supreme leader."

The commission's pursuit of a discounted water program for agriculture was cited as just one example of Mr. Affleck's visionary leadership and ability to anticipate the future. Now, 14 years after negotiations, the program has realized over \$300 million in grower savings.

Mr. Affleck also pioneered information technology, instituting cutting-edge communication systems, category-management programs and on-line marketing when the Internet was in its infancy. In 2003, his vision for unifying all players in the Hass avocado category produced the Hass Avocado Board and later his creation of avoHQ.com, the first Intranet shared by competing industries in produce history.

As Mr. Affleck's 20th anniversary ceremony progressed, speakers repeatedly referred to his role as mentor/coach and his passion for the industry. Mr. Shade ended the tribute by citing one of Mr. Affleck's more




Marketing is Our Business

We market.....

AVOCADO	MANGO	CUSTARD	STONEFRUIT	LYCHEE	CITRUS	LIMES
						
		APPLE				

To name just a few....



is a Grower Marketing Organisation that has been in business for over **10** years.

- Proven and successful marketing for domestic and export markets.
 - Enjoy the benefits of working within a **Grower group**.
 - Packing available in approved packhouses.

Call us to discuss ways we can help you to maximise return on your investment.
We will come to you!

SUNFRESH MARKETING CO-OP LIMITED
28 Palmwoods-Montville Road, Palmwoods, QLD
Telephone Number (07) 5478 8999
Fax Number (07) 5478 8131

*News from around the world
continued*

powerful adages: "Don't be what your were, don't be what you are, be what you've never been."

With the commission on the eve of its new, ground-breaking "Hand Grown In California" ad campaign, Mr. Affleck is following his own advice, leading the commission once again on a path toward success, the release stated. Source: The Produce News

US Avocado production recovers

Despite fire and drought, California avocado farmers could still sell more fruit this season than they did the previous year. The California Avocado Commission forecasts a 45 percent production increase. Some avocado trees suffered damage in wildfires last fall, and water shortages have removed other trees from production. But the commission says the remaining trees show recovery from the damaging freeze that reduced the previous season's avocado crop. Source: California Farm Bureau Federation

Avocados from Israel: small volumes, high prices and excellent quality

The avocado season in Israel is coming to an end. Next week, the last large volumes are expected to arrive and within two or three weeks the season will be completely over. This year, the available volumes of Israeli avocados were relatively small. Frost caused a lot of damage and fewer avocados were suitable for export. In spite of the lower volume, growers and exporters look back on a good season. The prices were high and this compensated the smaller volumes. Rumors are going around that next season the harvest will also be smaller, because the trees seem to be affected by frost again. In April or May the damage can be assessed. Source: Fresh Plaza

Chile focusing on blueberries and Hass avocados

Chile exports fruit and vegetables to 70 countries around the world. In the 2006/2007 season, fruit exports reached \$2.47 billion, or roughly a quarter of all global food exports. In addition to grapes (Chile is the world's leading producer) and other traditional products like apples, plums and kiwis, Chilean producers exhibiting at this year's FRUIT LOGISTICA are focusing on promoting two products: blueberries and Hass avocados.

Some European consumers are slightly perplexed by this variety of avocado, with its blackish, wrinkled skin. But the creamy interior of the fruit, with its large amounts of unsaturated fats, goes perfectly with everything from hotdogs, to sushi and even ice cream. Exports rose from nearly 90,000 tonnes in the 2003/2004 growing season to 165,000 tonnes in 2006/2007 out of a total production of 220,000 tonnes.

The leading buyer remains the USA, but the European market share has grown from 4 to 26% in four years to its current level of 42,000 tonnes. "Of course our producers use FRUIT LOGISTICA to meet their customers. But it's also an excellent opportunity to familiarise companies, who don't yet export, with European market structures", says Birgit Uthmann, an economic consultant for the ProChile export promotion association. Source: Messe Berlin

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 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) |

Payment Options

Grower Membership of Avocados Australia is \$110 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 \$110.00 made payable to Avocados Australia Ltd.

Please charge \$110.00 to my credit card. Details are listed below.

Credit card (please circle):

Bankcard 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 or call on **07 3846 6566**



News from Around the World continued

Sensors from New Zealand measure avocado ripeness

The ripeSense indicator is designed to measure the ripeness of avocados. Speaking at this year's FRUIT LOGISTICA, Cameron McInness, CEO of New Zealand-based ripeSense Limited, explains: "This is a new product. In the past, our sensors were only capable of measuring the ripeness of pears". The colour metric sensor label attached to the product packaging reacts to the aromas released by fruit as it ripens.

The sensor gradually changes from red (unripe), to orange (firm) and yellow when the fruit is juicy and ripe enough to eat. This eliminates the potential damage caused by squeezing the fruit to determine the level of ripeness. According to McInness, the new labels for avocados were developed in cooperation with scientists from Hort Research. Another new sensor currently in use indicates the ripeness of kiwis, melons and mangos. Source: Messe Berlin

Mexican avocado production, exports soar

When Arturo Mendoza's plot of corn could no longer sustain his family, he joined the stream of illegal immigrants heading toward the U.S. from rural Mexico. During lunch breaks at a California furniture factory, Mendoza would catch himself thinking of home as he wolfed down his typical meal: tortas with chicken and chunks of avocado. Little did he know that the creamy, green fruit would be his salvation.

Exports of avocados from the state of Michoacán, the top source of the fruit, have risen fivefold since 2004. Mendoza and many other Mexican farmers have found that exporting the crop is lucrative enough under the North American Free Trade Agreement that they don't need to migrate north to earn a living. Known here as "green gold," the avocado has taken on political importance as President Felipe Calderon faces renewed criticism of NAFTA's role in undermining the livelihoods of farmers.

The once-exotic fruit, meanwhile, has become a mainstream diet item on the U.S. side of the border. It is estimated that American sports fans consumed about 25,000 tons of avocado as they watched the Super Bowl with bowls of guacamole at the ready, the biggest day for avocado consumption all year. And in a final twist of globalization, industry officials say it is transplanted Mexicans in the U.S. who are fueling that booming avocado consumption and keeping export prices high back in their homeland.

"What we grow here is corn, but corn doesn't pay the bills. The government says it supports us, but what they give is laughable," said Mendoza, now back home in Mexico and general manager of a sprawling, 500-acre avocado plantation. "With the avocado, it is different. Those who work at that have something left for their families." This rugged section of western Michoacán is Avocado Country, bustling with roadside stands selling bushels of the fruit. On a side street in Uruapan, someone has painted a mural of pre-Columbian figures brandishing avocado halves like shields.

After a bruising fight as part of the NAFTA debate, the U.S. has

News from Around the World
continued

gradually let avocados enter its market. U.S. officials said the Mexican avocado presented health risks, forcing Mexico to implement a system of preventing disease caused by fruit flies and other pests. The final barriers fell last year when Mexican avocados could enter California, the top U.S. producer and consumer.

Although three-quarters of Mexico's avocados remain for domestic consumption, farmers have gravitated to the high prices offered in the U.S. wholesale market, now about \$1 per pound, about 50 percent higher than what they can get in Mexico.

Michoacán exported about 200,000 tons of avocados last year, bringing in about \$500 million. More than 5,200 orchards in Michoacán are certified to export the fruit, up from only 61 just a decade ago. The 2007 market was especially lucrative for Mexico because cold snaps in California and Chile damaged the crops of its main rivals.

The avocado boom comes at a time of discontent after NAFTA forced Mexico to remove its final barriers on corn and other key crops as of Jan. 1. Opposition lawmakers are urging Calderon to renegotiate the treaty, but he and U.S. officials have dismissed that idea. After running a surplus just after NAFTA's implementation in 1994, Mexico has consistently faced agriculture trade deficits with the U.S. that top \$1 billion annually. In his New Year's address, Calderon cited avocado exports as one bit of proof that NAFTA, "in general, has been beneficial for Mexicans." He also pointed to boosts for a resurgent auto industry

while other proponents say Mexicans now enjoy lower prices on many consumer goods.

The Mexican avocado industry faces challenges, including keeping pace with a wave of producers who want to enter the export market. Also, agriculture officials worry that farmers are burning down forests in Michoacán to expand their avocado-producing land.

And Mexican producers are sparring in court with their California counterparts, who delayed shipments of avocados last year for additional health inspections. Mexican officials claim the delays were meant to give their products a bad name. Jose Luis Obregon, managing director of the California-based Hass Avocado Board, the trade group that promotes the most popular type of avocado, says there is a direct correlation between a U.S. state's avocado consumption and its Mexican population.

California leads the way, but its consumers have eaten locally grown avocados because the Mexican variety was shut out until last year. Chicago ranks fourth in wholesale purchases of Mexican avocados, about 1,600 tons this season. Obregon noted that overall and per-capita avocado consumption in the U.S. has doubled in the past seven years as the population of people of Mexican descent has increased.

"The new generation, they are born and raised on avocados," he said.
Source: The Wenatchee World

Elevating Work Platform

AFRON PA

For pruning, thinning and harvesting all fruit trees.

It allows the worker to shift himself from one location to another, up or down in seconds, by a touch of a lever through controls provided at the platform.

AFRON PA
Available in 3.5, 4, 5, 6 and 6.5 metre platform heights. Built to Australian Standards AS1418Pt. 10 and AS2550Pt. 10 and Workcover State code or practice.







LYCO INNOVATIONS PTY LTD
501-503 Dowling Street, Ballarat, VIC, 3355
Tel (03) 5342 6868 Fax (03) 5339 6550 email: info@lyco.com.au

www.lyco.com.au

NEW IMPROVED

SUNNY[®]

Optimising marketable yield in avocados



**Now registered
for application to
hanging fruit.
Suitable for use
in all states.**



SUMITOMO CHEMICAL

SUNNY is the registered trade mark of AQUAMARINE B.V.