

# Talking Avocados

**Using copper sprays to control disease**

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**Canopy Management Strategies**

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**Pepper spot on 'Hass' avocado**

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**Improved Spraying Workshops**

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**Spring 2006**

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# Avocados Australia Limited

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## Talking Avocados

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

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# Chairman's Perspective

As this will be my last column as Chairman of Avocados Australia I would like to take this opportunity to provide a modified SWOT analysis that I presented to the Infocado Summit held in Brisbane in July 2006. I offer a review of the **Strengths, Weaknesses, Opportunities and Challenges** of the Australian avocado industry as I see them in 2006.



## Strengths

With avocados we have a unique product which has no obvious competition in the food basket. It is healthy, modern and has appeal to all potential consumers from babies to the aged and from the home to the best restaurants.

The avocado is an unusual product in that it can be stored on the tree. The benefits of this characteristic are not maximised by the industry. Once harvested the fruit has limited storability so the consumer should always be offered "fresh" fruit. In the hard green state the fruit is quite robust so there are opportunities to utilize central packing facilities.

In Australia we have year round supply available due to the geographic and environmental spread of production areas. This means that avocados should stay on menus throughout the year and there are limited obvious windows of opportunity for imports. The spread of production areas also should ensure we don't face periods of severe shortage due to weather events such as what cyclone "Larry" did to the banana industry.

Despite the spread of production areas the industry has matured into a cohesive industry with an increasing focus, at all levels, on the consumer. As a relatively young industry in Australia we don't have the "we do it this way because that is how grandad did it" syndrome which I believe is hindering the development of some of our sister industries in agriculture in Australia.

## Weaknesses

The low average yields being achieved in Australian orchards and the consequent impact those yields have on the economic sustainability of the individual orchards remains a major weakness in our industry.

The quality of the fruit offered to the consumers has improved in recent years; however, there is still an unacceptably high level of consumer dissatisfaction with avocado fruit quality. The variable correlation between external and internal quality traits, the short shelf life of the fruit and the confusion created in the consumer's mind due to the availability of Hass and green skin varieties, sometimes in the same display, all contribute to a consumer who lacks confidence at point of purchase.

The wide geographic spread of production means, as an industry, we have far too many packers and brands, given that two major buyers account for nearly sixty percent of the sales. This also means that as an industry we have too much capital tied up in packhouses and equipment which is underutilized. The wide range of growing environments means that fruit maturity is quite variable and harvest controls, which can be

used in other international producing areas, have not been appropriate in Australia. The spread of production also makes good communication a challenge and the logistics of accumulating fruit for better marketing strategies difficult. Although we can store the fruit on the tree the scheduling of harvest across and between areas has been limited to date. As the export market becomes a focus for sections of the industry then scheduling of harvest will become a priority.

## Opportunities

Given the uniqueness of avocados there are significant opportunities to increase their appeal as a value proposition for the consumer. The retailers already identify avocados as an important profit line in their stores. If the consumer's perception of the value of avocados in their shopping basket improves then there are real opportunities for both the grower and the retailer to improve returns. There is significant scope for the growers to increase their percentage of the consumer dollar by becoming price makers, as suppliers of a sought after product, rather than price takers in a commodity market.

The opportunities for increasing exports of avocados will, I believe, be limited to higher value niche markets which will be serviced by businesses which must be committed to long term relationships rather than the opportunistic spot marketing which has characterised sections of the Australian export sector in the past.

The food service sector offers real opportunities to increase usage of either fresh or minimally processed, locally produced avocados. Further work needs to be done to develop and commercialise the new technologies which are becoming available. The development of this technology may however expand the opportunities for the import of processed product which will be free of the phytosanitary constraints associated with fresh whole fruit.

## Challenges

A major challenge for the industry continues to be increasing the average yield of orchards to ensure their economic sustainability. With current technologies the better orchards are achieving average yields well in excess of 20 t/ha while the industry average yield is less than 10 t/ha. New management systems will be needed to lift the sustainable yields to above 30t/ha, which is where they will need to be within 10 years.

The "independence" of the Australian grower who takes pride in his own brand and management system may limit the capacity of the industry to make the "smart" decisions which will be needed to increase productivity and increase the proportion of the consumer dollar which is received by the grower. We cannot expect to continue to offer the market 200 plus brands, while the pool of potential buyers continues to shrink, and expect to be price makers rather than price takers.

The Australian market will not remain immune from the effects of globalization of the marketplace. Fresh avocados imported from sources other than New Zealand will mean that Australian fruit will need one or more points of difference to compete. Possible points of difference may include: cost of production, "Australian grown", clean and green, "fresh" and superior quality.

### Chairman's Perspective continued

The interest of the corporate farming sector in our industry will provide all with additional opportunities and challenges. If all involved maintain a focus on providing our consumers, both in Australia and internationally, with a high quality product which they are prepared to pay top dollar for, then there is a future for all who take a business approach to efficient sustainable production.

### Summary

In summary, Australian avocados are a good product which could be great. The consumer wants the product and is prepared to pay a premium for it and if as an industry you work together you have a real opportunity to increase your share of the consumer's dollar spent on food and on avocados. I am confident that the participants in the industry and the industry leadership will make the right decisions as you go forward and the avocado industry will continue to prosper.

I thank all, particularly the AAGF and AAL Boards and committee members and staff, who have contributed to the industry while I have been involved and who made my role as Chairman a rewarding experience. To the many friends I have made amongst the researchers, the marketers, the retailers, the industry support staff, the international industry personnel and particularly the growers around this vast country I thank you for the support, ideas and contributions you have made to the development of the industry.

Maintain the passion for and commitment to a great product and prosperity into the future will be yours.

*Rod Dalton*

Rod Dalton  
Chairman, Avocados Australia



## 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

## Industry Matters

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

### Canberra Meetings

Avocados Australia's Chair, Rod Dalton and CEO, Antony Allen met with the Minister of Agriculture's Office on the 5 September in Canberra. A meeting was also held with the Minister's Parliamentary Secretary Sussan Ley. Issues discussed in both meetings included:

1. The Horticulture Code of Conduct
2. Managed Investment Schemes
3. Market Access to the US
4. Import Applications to Australia

We were pleased with the discussions and look forward to continuing to put avocado grower's issues to the government.

### New Australian Avocado Forecasting System

As part of the drive to collect useful industry data for avocado growers and packhouses, Avocados Australia has initiated a seasonal forecasting module as part of Infocado. Seasonal forecast forms have been emailed and detailed instructions for entering your data have also been sent.

The instructions as well as instructions on collecting reports are available in the Infocado Information Kit which you would have received in the last few weeks. It is important that you submit this form by the end of this month. In future you will be sent this form on the 10th of the month. Each month you will be sent a new form to amend your forecast figures and enter new data for the 15 month period.

The data received from individual packhouses will be checked between the 1st and 7th day of the following month and approved for aggregation. The new Industry Summary Seasonal forecast report will be available from the 8th of each month. It is essential that everyone inputs forecasts even if you will need to adjust your estimate in 3 or 6 months time.

For more information contact Joanna Embry on 07 3391 2344 or [j.embry@avocado.org.au](mailto:j.embry@avocado.org.au)

### Infocado Winners

Nick and Sally Hobbs of Chinoola Orchards were drawn out as the winners of the 5 nights accommodation at Plaza hotels for their regular contributions to Infocado over the last 12 months. As well as Nick and Sally all the Avocados Australia member shirts have been mailed to the businesses who have contributed over the last 12 months to Infocado.

Thank you all for making the new Infocado system work and your assistance in improving our system over the year.

## Industry Matters continued

### Avocados Australia 3rd AGM

The third Avocados Australia AGM was held in Bundaberg, Queensland on the 28 September 2006. The AGM was held at the Quality Hotel Burnett Riverside, Bundaberg.

An industry dinner was held in conjunction with the AGM on the evening of 28 September to farewell Rod Dalton along with the members of the former R&D, Marketing and Export Development Committees, being Tony Whiley, Graeme Thomas, John Dorrian, David Peasley, Alan Blight, the former R&D Chair George Green, Graham Chartres, Gary Poole, and Brian Prosser.

Avocados Australia and the industry thank you all for your hard work and hope that you will all continue to participate in improving the industry's programs in the future.

### Annual Levy Payers Meeting

The avocado industry Annual Levy Payers Meeting was held in Bundaberg, Queensland on Thursday 28 September at 10:30am. John Tyas and Yelli Kruger from HAL outlined the current avocado R&D and marketing levy programs to avocado growers. The avocado Annual Levy Payers Meeting is always held in a regional growing area and will be held in the mid north coast of New South Wales in September 2007, see you there.

### New Zealand AGA: AGM

On 29 July Rod Dalton, Chair of Avocados Australia and Antony Allen, Avocados Australia CEO attended the New Zealand Avocado Growers Association AGM in Tauranga NZ. Antony Allen presented an outline to the meeting the Australian avocados growers promotion program "Add an Avo". He outlined the growth in consumption that had been achieved in Australia over the last 5 years and what the plan for the next 5 years is, whilst maintaining values for growers.

### Farmers warned to watch out for food mile phenomenon

Australian farmers have been warned to take note of a new consumer trend in the United Kingdom. Companies who import Australian beef into Britain and the European Union are wary of the new phrase 'food miles' which could be used to limit imports into that country.

Food miles refers to the growing practice of importers and supermarket chains stacking their shelves with exotic items from around the world.

The criticism is they are chewing through too much aircraft and truck fuel in getting them there, thereby increasing carbon emissions. Retail manager from Global, UK's biggest meat importer and also an importer of Australian beef, Bob Rose, says we need to keep an eye on the food mile phenomenon.

"In the UK at the moment, global warming is a very big issue," Mr Rose said.

"And one of the issues that has raised its head is bringing product

from around the world, and the costs of the carbon emissions to the environment of bringing that product from around the world; would it not be better sourcing locally-produced product?

"It's not been an issue for Australian product to date, but it may be something we have to keep in mind for the future." Source: ABC

### Agricultural investment scheme support premature: WAFF

The Western Australian Farmers Federation (WAFF) says the Western Australian National party's support for agricultural investment schemes is premature.

Managed investment schemes in products like plantation timber, grapes and olives contribute about \$1 billion a year to the Australian economy, but the Federal Government is currently reviewing the tax concessions that make them an attractive investment.

Nationals Leader Brendon Grylls says investment schemes are a good way of channelling city money into country areas.

But WAFF president Trevor De Landgraft says because investors are more concerned about tax breaks than what they actually grow, there's a risk of over-production.

"We already know that in the wine industry, in the olive industry and in the avocado industry that because of the investment base and investors really looking for a tax minimisation, over production occurs and that severely impacts existing farmers in those industries," he said.

Source: ABC

### Australia: Timbercorp and Costa target Chiquita

Agribusiness group Timbercorp Ltd has teamed up with the Costa Group to launch a \$109 million takeover bid for troubled banana grower Chiquita Brands South Pacific Ltd. Timbercorp and Costa, a family-owned farm manager and fresh produce marketer, are launching a new joint venture called Tradefresh to make the bid.

Tradefresh, to be 35 per cent controlled by Timbercorp and 65 per cent by Costa, will also acquire Costa's farm management and fresh fruit and vegetables business for \$94 million. Analysts say the deal offers plenty of benefits to Timbercorp, especially the access to Costa's marketing networks.

Tradefresh is offering 73 cents for each Chiquita share, which represents a 43 per cent premium to the stock's average market price for the 30 days to July 12. Chiquita has advised its shareholders to take no action on the offer until its directors can assess its value. "It's pretty early days," Chiquita managing director Mano Babiolakis told AAP. "We will meet as a board in the next 24 hours or so and we will advise shareholders accordingly from there."

Chiquita had a tough year in 2005/06 capped off in March by Cyclone Larry which wiped out its banana farms in Innisfail and Tully in Queensland. The damage forced the company to issue its third profit

### Industry Matters *continued*

downgrade of the year and it now expects to post earnings before interest and tax (EBIT) of between \$9 million and \$10 million for 2005/06, down from the \$18 million it first forecast. It posted EBIT of \$14.54 million for the 2004/05 year.

Before Larry loomed over the horizon Chiquita already had problems, with bad weather hitting its blueberry farm and rising costs putting pressure on its mushroom business. There have been market rumours of an impending bid for Chiquita by Burns Philp, controlled by Kiwi billionaire Graeme Hart. But the Costa Group now holds about 26 per cent of Chiquita, making it difficult for anyone to launch a counter-bid.

One analyst said that while Tradefresh was offering Chiquita shareholders a healthy premium, the timing of the bid could be seen by some as opportunistic. But Tradefresh chairman Robert Costa said shareholders were being offered a good price. "We believe this offer represents full value for Chiquita shareholders based on the earnings prospects of the company," he said.

Timbercorp said its part in the Tradefresh deal and Chiquita acquisition would cost it about \$71 million, to be funded from existing cash and debt facilities. Timbercorp chief executive Robert Hance said the deal would be a major step forward for the company. "The transaction aligns Timbercorp with an outstanding management team with complementary skills in fresh produce marketing, processing and farm management, and enables Timbercorp to share in future revenues generated by the businesses," he said.

Timbercorp expects the Tradefresh deal to be earnings per share positive in its first year. News of the offer saw Chiquita shares shoot up 12 cents or almost 20 per cent to 73 cents while Timbercorp rose three cents to \$3.61. Source: The Age

### **Australia: MMC buying up Chiquita shares**

Hardly a peep has been heard out of Chiquita Brands since Timbercorp and Geelong's Costa family lodged their \$109 million takeover offer. But while the banana and mushroom producer contemplates its predicament, it appears one of its substantial shareholders hasn't rested on its laurels.

MMC Asset Management indicated on Tuesday it might hold out for an offer higher than Timbercorp's 73c a share. Now it looks like MMC could be building a blocking stake after increasing its holding in Chiquita on Tuesday from just over 6 to almost 8 per cent. MMC portfolio manager Eric Metanomski admitted yesterday that increasing the stake to 10 per cent was a possibility but he was keen to emphasise that he didn't think a blocking stake was necessary. "We would be very surprised if any other shareholders would accept a bid at these levels, so therefore we don't think we need to block the bid," he said.

"We just think the offer is too low for the business - we are showing that by our actions. We have always been of the view . . . that this company is worth well in excess of the price that has been bid for it." Of course,

there's always the potential for a counter-bid to emerge, possibly from Victorian food company Select Harvests or a private equity mob.

Source: SMH

### **Consumer Avocado Competition: Cook Off**

The avocado Cook Off is scheduled for a show down at 9:30am Monday morning. The three finalists are set to "cook it out" for the \$5,000 cash prize for the winner in the ACP test kitchens in Sydney. The three finalists two from Queensland and one from Victoria have been selected from hundreds of entrants to have the best avocado recipes. Now they have to prove it and with an hour time limit.

### **National Fruit Fly Strategy and Priorities Workshop**

Fruit flies are amongst the most destructive horticultural pests' world wide, with some species having the ability to damage almost all commercially grown fruit and fruiting vegetables. In Australia the presence of fruit flies significantly affects access to valuable national and international markets.

Plant Health Australia facilitated a fruit fly workshop which was held in Canberra on 18 August 2006. Avocados Australia Chair Rod Dalton attended the workshop for the avocado industry. The workshop addressed a wide range of issues including the regulatory considerations, operational requirements and research and development needs of fruit fly management in Australia from a strategic perspective taking an overall national viewpoint and taking into account work previously undertaken on this issue since 1991.

The emphasis was on determining the most viable, cost effective and sustainable national approach to fruit fly management for the longer term in the context of continuing to meet market access requirements in the short to medium term while capturing the opportunities for future market development for the affected Australian plant industries.

### **Australia Endures Driest August Since 1900**

On this first day of spring there is little surprise at news Australia has endured its driest August since records began in 1900.

Preliminary figures show a national average rainfall of just 6.87 millimetres for August. Overall, an average of 43.9 millimetres of rain fell across Australia during the winter. Senior climatologist at the Bureau of Meteorology, Dr Andrew Watkins, says it has been decades since rain was so scarce.

"Australia-wide we only averaged about 6.2 millimetres for the month, so a very dry month," he said. "Our previous driest Augusts were in 1914 and unfortunately 1982 is also a comparison - it had about 7.5 millimetres." The other problem has been with the soil moisture being very low, and hence that tends to encourage frosts unfortunately."

*Industry Matters*  
continued

### **French Agricultural Subsidies**

One of the world's most influential negotiators on agricultural trade has visited Australia. The French Agriculture Minister Dominique Bussereau is spending four days examining non-subsidised agriculture.

France is claimed to have the highest levels of subsidies on agriculture, with half their farmers income coming in subsidies. The French Agriculture and Fisheries Minister Dominique Bussereau certainly received a strong taste of regional Australia on day one of his regional visit. He saw Australia's newest saleyards at Forbes in central-western New South Wales and asked about animal rights issues and the National Livestock Identification System. He then visited two wineries and sampled an amount of Australia product, and saw one of Australia's largest dairies at Gooloogong.

The reason for the visit is to try and kick start trade negotiations following the failed Doha round. The Federal Agriculture Minister Peter McGauran says he's trying to show his French counterpart how non-subsidised agriculture can work effectively in regional Australia. Dominique Bussereau says they don't see the financial assistance to farmers as a subsidy.

He says paying farming to stay in agriculture is important for the social structure of regional parts of his country. Mr Bussereau says the United States must come back to the table with more compromises

before trade negotiations can recommence, and says Australia already imports a large number of products into France, including wine. If we want more access to France, then we may have to free up more markets in Australia for French products. Source: ABC

### **Avocados Australia welcomes New Chairman**

Avocados Australia has a new Chairman for the first time in 11 years. Mr Henry Kwaczynski, an avocado grower of 18 years from the Sunshine Coast, has been voted into the Chair of the national peak industry body for avocados.

Mr Kwaczynski has been a member of the Board for 10 years. He is also Chair of the Sunshine Coast Avocado Growers' Association and a Director of Sunfresh, a national grower marketing co-operative.

Mr Kwaczynski succeeds Mr Rod Dalton who had been Chair for the previous 11 years. Mr Dalton had seen the organisation through many changes, including representing growers during the formation of Horticulture Australia, enabling avocado growers to become direct members of Avocados Australia and the move to a full time office for the organisation.

Henry Kwaczynski and Rod Dalton after Henry's election to the Chair of Avocados Australia.

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### Industry Matters continued

#### Freshcare goes Green

The Freshcare Environmental Code of Practice is here!

The new 'Freshcare Environmental Code of Practice' provides an auditable standard for Australian growers to demonstrate responsible on-farm environmental management.

Following closely on the release of the national Guidelines for Environmental Assurance in Australian Horticulture, Freshcare's Environmental Code of Practice provides the ideal tool for growers to demonstrate how they are linking production targets to their care for the environment. As a key partner in the Horticulture For Tomorrow Project, the launch of the Freshcare Environmental Code delivers a breakthrough additional service to industry.

"The development of the Environmental Code maintains the Freshcare philosophy of delivering practical and affordable solutions to community demands on the production of food items," said Mrs Vicky Kippin-O'Connor, grower and Chair of the Freshcare Board.

"The Freshcare 'Food Safety Code' changed the face of Australian horticultural food safety programs when launched in July 2000 and has since been adopted by over 3500 Australian growers. The launch of the innovative 'Environmental Code' is also expected to re-shape the way growers and other stakeholders develop on-farm environmental management programs."

"The Freshcare Program already provides industry with an independent certification service to demonstrate food safety and quality standards are maintained on-farm. Addition of the Environmental Code expands the range of certification services offered."

"Our 'Food Safety Code' and 'Environmental Code' can be used separately but they are also designed for seamless integration, so a single audit can cover both programs without any duplication of documentation and record keeping."

"We are already working on further modules to cover farm safety/worker welfare and bio-security for the program. These will also build on the existing structure and be integrated with the one system-one audit approach desired by growers," explained Mrs Kippin-O'Connor.

"The launch of the Environmental Code is an exciting milestone for the industry and for the Freshcare organisation" said Ms Jenny Mercer, wholesaling representative and director of the Freshcare Board. "The Code provides the basis for Freshcare to be strategically recognised by international benchmark systems such as the EurepGAP program, required for market access to European customers".

"Freshcare is looking to the challenges of future industry growth and sustainability and the need to develop innovative and efficient on-farm assurance programs for growers to meet consumer and customer needs" said Ms Mercer.

Clare Hamilton-Bate, Freshcare's National Program Manager explained that grower focus groups from Queensland, Western Australia and Tasmania participated in the Horticulture For Tomorrow Project

sponsored by the Commonwealth Government.

"Growers attended training, and next used the environmental assurance guidelines to identify and document good environmental practices on farm. They were then audited against the provisional Freshcare Environmental Code," outlined Mrs Hamilton-Bate.

"The trial audits allowed us to refine the Environmental Code and compare the cost of compliance against other environmental certification options. Certification to the Freshcare Environmental Code is not only more cost effective and more practical than other options, the Freshcare Environmental Code is also specifically designed to add value for growers with food safety programs already in place" she explained.

"The Freshcare Environmental Code of Practices identifies those practices growers need to follow to demonstrate responsible on-farm management in areas such as chemical usage, fertilisers and soil additives, water, land and soil, biodiversity, waste, air and energy."

"With environmental management, as with food safety, it is important that, as an industry owned organisation, Freshcare maintains the initiative of self-regulation in compliance with community and government standards," said Mrs Kippin-O'Connor.

#### New Horticulture Environment Strategy

Australia's horticultural industries have a new strategy for the environment.

The Horticulture Natural Resource Management (NRM) Strategy was launched today by the Parliamentary Secretary for Agriculture, Sussan Ley, at a function in Victoria's Yarra Valley. "The launch of this NRM strategy is an important landmark for industry," Ms Ley said.

"The strategy is a statement from the horticulture industry that it is willing to take ownership of natural resource management issues and find solutions that benefit the industry and the broader community. "As the second biggest component of the agricultural sector the horticulture industry has a significant contribution to make to natural resource management in this country.

"The industry has to prove to communities and to markets that it is as 'clean and green' as it claims and it has to manage significant pressure to maintain access to resources as well," Ms Ley said. It has been developed with assistance from the Sustainable Industries Initiative component of the Australian Government's National Landcare Program, and forms part of the Horticulture for Tomorrow initiative.

"The strategy also positions industry to manage emerging issues like the impact of climate change and the threat imposed by disease and pests," Ms Ley said.

More information: [www.horticulturefortomorrow.com.au](http://www.horticulturefortomorrow.com.au)

Source: Rural Press

*Industry Matters*  
*continued*

## 2006 Avocados Australia Election Results

I am please to advise you that the election process for the 2006 Avocados Australia Limited has been completed for the following Growing Areas.

- Central Queensland Growing Area
- Tri State Growing Area
- Western Australia Growing Area
- South Queensland Growing Area

The Election has resulted in the following Directors for each of the Growing Areas:

- Central Queensland Growing Area: Mr John Walsh
- Tri State Growing Area: Mr Colin Fechner
- Western Australia Growing Area: Mrs Jennifer Franceschi

As only one nomination was received for each of the above Growing Areas and in accordance with Avocados Australia Limited Constitution - Rule 12.7(f) each of the above will be appointed to the Avocados Australia Limited Board for a term of not more than three years from the close of the 2006 AGM.

The South Queensland Growing Area election has resulted in the following successful candidate:

- South Queensland Growing Area: Mr Daryl Boardman

The new elected South Queensland Growing Area Director completes the term of the previous retiring Director, which is 2 years from the close of the 2006 AGM.

The Avocados Australia Board for the 2006-2007 year is:

<i>Mr Lachlan Donovan</i>	<i>Mr John Walsh</i>
<i>Mr Daryl Boardman</i>	<i>Mr Peter Molenaar</i>
<i>Mr Henry Kwaczynski</i>	<i>Mr Jim Kochi</i>
<i>Mr Chris Nelson</i>	<i>Mr Colin Fechner</i>
<i>Mrs Jennie Franceschi</i>	

I thank the nominees for there continued commitment to the Australian avocado industry and look forward to working with them over the coming years and thank you for your support of your Industry Association.

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# Australian Roundup

## North New South Wales Report

By Peter Molenaar, Avocados Australia Director for the North New South Wales Growing Area



Harvesting is well under way in all areas. The presence of sooty blotch, sunburn and smaller fruit is a complaint from most growing areas. Many growers, as a result, are harvesting well below their estimates. Having said that there is always an exception, the newer inland areas are harvesting good quality and better sized fruit.

All growing areas received some unexpected late winter/early spring rain. August was shaping up to being one of our drier August recordings. As it turned out readings of between 75mm and 175mm were recorded. A great boost to our subsoil moisture levels!

Happy harvesting and may we have a good fruit set for 2007.

## South Queensland Report

By Rod Dalton, Avocados Australia Director for the South Queensland Growing Area.



As this will be my last report I would like to take this opportunity to thank all the growers in the area who have supported me in the AAGF and Avocados Australia over the years. Whether it was by attending meetings and field days or by being prepared to comment on issues and provide me with feedback, it was all appreciated.

At this time there are three nominations for the position Director for South Queensland and the democratic process will have made the decision by the time this column gets to print. I am confident any of the candidates will be able to make a positive contribution to the ongoing development of the industry and it is good to see that there has needed to be an election process so that the growers in the region make the decision on who will represent them for the next two years.

I must however remind all growers that Directors are responsible to and for the national industry. Although they represent a region and should represent the interests of that region in debate, they are obliged to consider the best interests of the industry, based on all the available information, when making decisions. This has been of benefit to the avocado industry as the move to the Avocados Australia structure away from the old federation model has meant that Directors now clearly understand their roles and responsibilities and must make decisions in the national interest rather than based on parochial grounds, which tended to happen in the past. Conflicts of interest are always a potential issue on Boards such as Avocados Australia. The Directors have been well aware of the risks and "Conflicts of Interest" is always an agenda item for each meeting, so that the issue is not overlooked.

Thankyou again for your support and I trust the weather soon returns to a more favourable pattern and the drought breaks with high though non-damaging rainfall events.

## Central New South Wales Report

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



After an extremely dry autumn, much of our coast is enjoying very good rains during winter and early spring. This has come just in time for putting orchards in a great position for flowering. Apart from one or two severe frosts the area has experienced a mild winter.

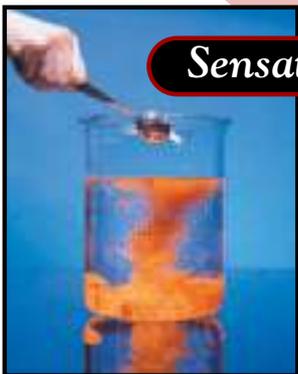
After the Infocado workshop held in July in Brisbane, Antony and Joanna travelled south to Macksville in August to spread the word and encourage a few of the last packhouses to join the project. Although these are early days, Infocado has the potential to provide great benefits to the industry in terms of many aspects supply management.

This harvest has so far been excellent for our growers, with strong demand for the fruit throughout the season. I believe that the implementation of the new 5 year advertising and promotional campaign has contributed greatly to the increased market for avocados throughout the winter and spring. Clearly the increased Bundaberg volumes have flowed well, not only due to the northern losses from cyclone Larry, but also Avocado Australia's decision to shift its targeted promotions to women's and food industry magazines.

As I write this there is intense debate going on in Federal parliament on the Horticultural Code of Conduct. If growers ever need to be reminded of how spineless some of their elected representatives can be, they should see how the Federal Government's is attempting to 'weasel out' of its 2004 election pledge to mandate a Code of Conduct for horticulture. Hopefully by the time you read this, the massive efforts of all State and Federal farm lobby groups would have been successful and we can look forward to fully accountable transactions in our markets.

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## North Queensland Report

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



As I was watching the ABC Landline programme last Sunday I was struck by the weather reports at the end and I realise that I have absolutely no interest in the rainfall figures in Abba River or Zuytdorp and therefore I presume that those of you who do not have an interest in the Atherton Tableland probably feel the same way about my ramblings about the weather up here in the last 6 months. I do apologise if this is so and I seek your understanding. Discussing the weather is a safe subject for farmers because it is something we have absolutely no control over.

We accept what is given. This is how it has always been and we have been conditioned by the generations past and our own experience to accept the weather we are given. After all, who can we complain to?

So too, we must be conditioned to accept most of the other things sent to us. Things like "Code of Conduct in Horticulture", "Managed Investment Funds", "Environmental Assurance in Australian Agriculture", "Quality Assurance" and the myriad of other things sent to control the way we do business. I say most farmers accept these things because there is so little debate of these matters by actual farmers at a level where their opinions can be heard. Avocados Australia has debated these points on our behalf very strongly but there has been little action from individual growers to the politicians who support these actions. Consequently, the proponents of these ideas consider there is no objection at the ground level to match the objection put by the industry offices. There are people we can complain to and we can expect to be heard and occasionally we can expect a decision to go in favour of the grower.

In my role as a representative of avocado growers in North Queensland I have been involved in many meetings resulting from Cyclone Larry. I dutifully attended these meetings and the follow up general meetings arranged to advise growers about assistance packages and the changes to assistance packages and assessments of damage. It was disappointing to be at these meetings with only a small handful of growers to present our requirements. Every industry, including avocado, had minimal growers attending. One government official reflected quietly "is there really a problem here"? I also wonder are the real problems yet to present themselves?

Our best attendance of avocado growers was at a QDPI sponsored meeting to discuss orchard management post cyclone and even then attendance was less than half of the farms. Simon Newett and Terry Campbell, Irene Kernot and a supporting cast of QDPI staff discussed a great list of problems by the Cyclone and offered their best advice based on knowledge and some "best advice" based on the basic science. We do extend our thanks to QDPI and all the officers who came to assist us. Antony Allen Avocados Australia CEO also attended this meeting to assist us making a more professional presentation of our problems and requirements.

We are now in flowering mode for Shepard and Hass and we are expecting to see what sort of set we are to get and how the trees will handle this flowering stress after all the stress of severe wind damage and heavy rains. In mid October we will know what sort of crop to expect next year and how our orchards will handle the coming hot months of October to December.

On a personal note, I would like to express my appreciation to Rod Dalton (a mate since Gatton College days) who has represented all avocado growers with great enthusiasm and diligence in his time as President of AAGF and Chairman of Avocados Australia. Rod has always had a flair for agri-politics and sometimes "aggro-politics" and his dedication to this cause and to our cause will be a great loss to our industry. Rod, best wishes in your new endeavours and may the coming weather be kinder to you than it has been in these past years.

## Central Queensland Report

By Lachlan Donovan and Ron Simpson,  
Avocados Australia Directors  
for the Central Queensland Growing Area



The spring has sprung, not that we have had any real winter, but we have had good rain and the trees look brilliant. Best of all is we have finished harvesting, there is nothing quite like the relief when that last tray or bin has gone off to market/packhouse.

This season has been very good to Central Queensland with a big crop of fruit all round and thankfully no climatic disasters which has effected our friends in North Queensland, Tri-States and Western Australia. These disasters have had a positive effect on price with significant amounts less of fruit available on the market than what could have been, but saying that the prices over Autumn and Winter were still down compared to last year simply because of the huge amount of fruit that was sold. The other thing to consider is that there was very little other fruit to compete against, no Bananas and very little other tropical fruit, this gave avocados an advantage as the greengrocers and the chains were able to really push our product. The question begs to be asked "how would the season have gone if all that other fruit was put on the market?" I guess in the coming years we will find out and really come to value the increased spend we will have on marketing, research and development.

I would really like to thank Rod Dalton and Ron Simpson for their time on the Avocados Australia Board and their experience and political astuteness will truly be missed. We are all looking forward to working with John Walsh and the newly elected director from South Queensland Daryl Boardman, new blood, new ideas the only way is forward.



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## Letters to the Editor

### Managed Investment Schemes (MISs)

The letter from George Ipsen of West Pemberton Avocados (WPA) in the Winter edition of Talking Avocados gives a good critique of MIS in the Avocado industry, in this case Timbercorp. I completely agree with George Ipsen.

WPA seeks Federal Government intervention, but considering the Government's progress with the Mandatory Horticultural Code of Conduct and the efforts of those who oppose it, I have little optimism that the MIS legislation will be changed by the Federal Government quickly.

To seek redress to the MISs through the Avocados Australia is reasonable, with, up until recently, its staff of one. Timbercorp entered the avocado industry because Avocados Australia was one of the best industry bodies in horticulture. It is to the advantage of the avocado industry to have Timbercorp supporting Avocados Australia, and it would be disastrous if Timbercorp decided not to support levy activities. So, maybe Timbercorp should have a representative on the Avocados Australia board.

We have seen insurance companies amalgamate and make money, retail companies, banks, mining and oil companies and many others amalgamate and make money. This is part of the capitalist system. Reports from the banks and HAL tell us clearly that small growers are vulnerable. Our overseas competitors and Timbercorp have learnt this, but the Australian avocado growers and WPA have not.

West Pemberton Avocados has 65 Hectares, at 20 tonnes/ha. This is 1300 tonnes of Avocados, or 250,000 trays. That is WPA is a small concern relative to our international competitors with pack houses producing several million trays. Chile exports 110,000 tonnes of avocados and Australia produces under 45,000 tonnes. Should Chile direct 10% of its exports to Australia, our industry would be torpedoed below the water line. Avocados Australia and HAL have won for Australian growers the highest return in the world, that is, Australia is an attractive market for foreign producers.

There is an answer for Australian avocado growers. Take note of one of Timbercorp's observations "the industry is segmented, uncoordinated and inconsistent." Further, we should ask ourselves why Timbercorp, starting with no knowledge of nor investment in avocados, has now become a challenge to our industry? Timbercorp has clearly told us what is amiss in our industry, indeed, industry leaders have been telling us this for years, that is – we are segmented, uncoordinated and inconsistent. Along with Avocados Australia working successfully for our industry we also have Natures Fruit Company (NFC), seeking to unite, coordinate and offer consistency.

West Pemberton Avocados (WPA) and other growers who feel threatened by the Timbercorp presence should consider joining forces with the critical mass of Natures Fruit Company.

Growers the size of WPA should consider the following points:

- Natures Fruit Company (NFC) is grower owned and has survived for 18 or so years and many changes in the industry and its own management.
- NFC has data on every market in Australia for every week for the whole year for lots of years. That is good objective data, collectable only by big players.
- NFC produces a pack out by size and grade (Avotrack) with costings for every consignment, i.e. the transparency that the markets and agents fear, and the like of which your neighbouring grower never produces. Again, this is good objective data.
- NFC successfully addresses the two marketing mantra – consistency of quality and consistency of supply. That is, NFC is addressing Timbercorp's assessment of the industry as "segmented, uncoordinated and inconsistent."
- NFC, by organising field days, encouraging industry experts and experts from other industries addresses the problem of upto 40% fruit in the market being below standard and 40% of the cause rests with growers.
- NFC provides the best opportunity for the future of our industry, now marketing upto 600.000 trays (approx 15% of the market) as against those of the Timbercorp's Bundaberg of 800.000 trays, (25% of the market) the target for both groups is likely to be a million plus.

MISs are not the whole problem. Fosters used to be a local brewer now it is Australia's biggest wine brander intending to source their grapes on the futures market: the lesson is outside players can change an industry massively.

It is not simply a question of "a level playing field" the game is played off the field! **The game is with the market not against other growers.** It is not a question of "being happy to compete" it is a question of *promoting demand* though Avocados Australia, HAL and NFC along with control supply through organisations such as NFC and Timbercorp and other potential million tray players.

In conclusion, WPA, as a valuable and thoughtful grower, should modify its individualist contribution to the industry by business and marketing associations with other similar sized growers or by supporting the most successful grower/industry based marketing group, NFC. This is what the industry needs as it addresses Timbercorp's observation that the avocado industry is "segmented, uncoordinated and inconsistent."

F. E kim

# Improved Spraying Workshops

**NEW PROJECT 2006-2008**

**HAL Project No. AVO6001**

## **Improving spraying in avocados and management of spotting bugs.**

Spotting bugs are a major ongoing issue for the avocado industry in Queensland and New South Wales. The project will develop a series of full-day workshops to be held over two years to educate avocado growers in improved spray application and spotting bug management techniques.

The workshops will be held in the main avocado growing areas of New South Wales, Queensland and Western Australia. The two workshops conducted in Western Australia will concentrate on spray application only. Final venues would be decided in consultation with Avocados Australia but could include Gosford, Nambucca, Coffs Harbour, Alstonville, Nambour, Blackbutt, Bundaberg, Atherton, Mareeba, Manjimup and Bunbury.

The workshops will be 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 will be open to growers and farm managers but restricted to 20 participants per workshop. First-come, first-served.

The aim will be to help participants move away from calendar spraying to a system of monitoring spotting bug risks and spraying appropriately. Each participant will receive a concise workshop manual containing colour photographs of spotting bugs and damage and information on hotspot management and sprayer calibration. The concepts of Dilute and Concentrate spraying, and calculation of mixing rates, will be highlighted.

Morning and afternoon tea and lunch will be provided at each workshop. 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.

Please contact Dr. Henry Drew to express your interest in attending a workshop. A booking fee of \$30.00 per person payable to Avocados Australia should be made ONCE a venue and date for an individual workshop has been fixed.

**Dr. Henry Drew**

Tel 07 5445 0032 Fax 07 5445 0940

Email [hjdrew@ozemail.com.au](mailto:hjdrew@ozemail.com.au)

# Quality & Productivity – taking a Supply Chain approach

**By Joanna Embry**

*Avocados Australia*

It is recognized that a wide variety of factors affecting avocado fruit quality, productivity and supply chain efficiency are interrelated. For this reason, a new program has been initiated by Avocados Australia and HAL with the overall goal of improving productivity as well as out-turn quality. This program is being guided by a Supply Chain reference committee, consisting of industry members including Lachlan Donovan, Gary Poole and Ros Smerdon.

As part of the program, a suite of projects will be commissioned over the next few of years. The first of these is aimed at assessing the level of consumer satisfaction with the end product. Although various reports have indicated that internal quality of avocados lead to a significant proportion of consumer dissatisfaction there are currently no objective assessments of the current levels of fruit defects at point of purchase or consumption.

The first step in this process, therefore is to determine what constitutes internal flesh damage and what level is acceptable to consumers. Given that maturity levels are known to have a significant affect on internal quality, the company HortResearch has been commissioned to conduct a critical review of maturity standards, technologies for assessing maturity and the relationship between maturity and eating quality. The results from this review will be available by the end of October and will feed into the rest of the program.

Future projects will include sensory research to benchmark consumer acceptability of quality attributes specifically related to internal flesh quality, followed by instore monitoring to determine the level of fruit in the marketplace that falls below these levels of acceptability.

To develop a complete picture of productivity as well as out turn quality within the industry, however, concurrent activities will also be undertaken to determine current productivity levels on farm. In addition, supply chain maps will be developed to identify critical points in the chain which affect productivity and/or quality. Once overlaid with an audit of available best practice information, gaps in information requiring further research can be identified as can opportunities to improve adoption of best practice information already available.

If you would like more information about the program please contact Joanna Embry at Avocados Australia ph: 07 3391 2344

*This project is being funded by Australian avocado grower levies which are matched by the Australian Government through HAL.*

# Pepper spot on 'Hass' avocado fruit

**Dr Fiona Giblin**  
(fiona.giblin@dpi.qld.gov.au)

As part of a PhD project, Fiona Giblin has been researching the incidence of pepper spot formation in avocado orchards. This PhD was awarded by the University of Queensland with Graduations in July 2006. The project was funded by the CRC for Tropical Plant Protection (UQ), Avocados Australia Limited, Horticulture Australia Limited and the Department of Primary Industries and Fisheries (QLD). For the duration of her PhD studies, Fiona also worked with the Fruit Pathology team at Indooroopilly, DPI&F. Since mid 2004, Fiona has been employed full time as a Plant Pathologist for the avocado project.

The following article is an excerpt from the Abstract of the PhD thesis, "Avocado fruit responses to *Colletotrichum gloeosporioides*" and presents the major findings of the work and highlights the complexities of plant-pathogen interactions.

The aim of this study was to investigate the occurrence of a new symptom called pepper spot on avocado and mango fruits caused by *Colletotrichum gloeosporioides*. A total of 400 *C. gloeosporioides* isolates were collected for molecular diversity and pathogenicity studies. Of these, 250 were from cv. Hass avocado fruit and 150 were from cv. Kensington Pride mango fruit. Of the isolates from avocado fruit, half were from anthracnose lesions on mature, ripening fruit and half were from pepper spot lesions on mature, green fruit. Avocado isolates were collected from five different orchards in eastern Australia (Bangalow, Cudgen, Duranbah, Green Pigeon, Mt Tamborine). Of the mango isolates, half were from anthracnose lesions on mature, ripening fruit and half were from the tear stain (similar to pepper spot) symptom on mature green fruit. Mango isolates were collected from three orchards in eastern Australia, two of which corresponded with orchards from which avocado isolates were collected (Bangalow and Green Pigeon) and one which was located a significant distance (Ayr, North Queensland) from all other farms.

- It was confirmed that ***C. gloeosporioides* causes pepper spot on avocado fruit**. Although mango fruit were not inoculated with *C. gloeosporioides*, the fungus was consistently isolated from excised tear stain spots.
- Through DNA amplification fingerprinting of the *C. gloeosporioides* isolates, it was determined that **fungus populations from avocado were highly variable**. Culture studies also found that some avocado isolates from both pepper spot and anthracnose symptoms were able to produce the sexual stage of the fungus, *Glomerella cingulata*.
- **Fungal populations from mango were comparatively uniform** and did not produce the sexual stage in culture.

This study supported reports that mango isolates are not found on other crops and usually are virulent only on mango. Isolates from avocado were genetically distinct from mango isolates and there were no genetically identical strains found on both fruit types, concluding that there is **limited threat of avocado isolates infecting**

mango, and vice versa. Although this study did not include mango inoculations, it was shown that **mango isolates were only weakly pathogenic** on avocado and were in a distinct genetic population. It was suggested that the mango fungal population has most likely coevolved with the fruit, and may initially have had a geographic distribution limited to the centres of diversity of mango.

On the basis of DNA amplification fingerprinting studies, it was concluded that particular symptoms of each fruit type (avocado or mango) were not associated with different pathogen genotypes.

- **The preharvest avocado pepper spot symptom was not caused by distinct strains of *C. gloeosporioides* compared to those causing postharvest avocado anthracnose.**
- Similarly, the preharvest mango tear stain symptom was not caused by distinct strains of *C. gloeosporioides* compared to those causing postharvest mango anthracnose.

Using DNA fingerprints of isolates collected from a range of sites, it was possible to analyse patterns of isolates within and between orchards and crops. Cluster analysis grouped the majority of isolates according to geographic origin. However, **even though the mango isolates from Ayr in northern Queensland were geographically isolated, there was no obvious population clade distinct from the remaining mango isolates from northern NSW**. There were genetically identical populations of isolates within mango trees and mango orchards.

Investigations were carried out to see whether there was a relationship between DNA polymorphism and variation in pathogenicity (ability to cause disease on a given host) and aggressiveness (relative capacity to cause disease on a given host genotype) in the pathogen populations. Eighty *C. gloeosporioides* isolates were selected on the basis of geographic location, host, symptom type and specific location within an orchard (e.g. collected from adjacent avocado and mango trees).



Plate 2:  
Pepper spot symptoms on 'Hass' avocado fruit



Plate 3:  
Pepper spot symptoms on avocado pedicel

## Pepper spot on 'Hass' avocado fruit continued

These isolates were screened for host specificity and pathogenicity as well as comparative aggressiveness by inoculating onto detached mature 'Hass' fruit and detached seedless 'Fuerte' fruit (referred to as "cocktail" avocados), leaf petioles of young grafted nursery trees, as well as 'Hass' avocado fruit and pedicels still attached to the tree.

On detached, ripening avocado fruit in the laboratory:

- there were **no significant differences between the capacity of avocado anthracnose and avocado pepper spot isolates to cause anthracnose**, nor were there significant differences between the capacity of mango anthracnose and mango pepper spot isolates to cause anthracnose on avocado.
- there was a **clear distinction in disease causing ability on detached fruit between mango isolates** and avocado isolates, with disease incidence being lower after inoculation with mango isolates even under these artificial conditions.
- **some of the mango isolates were not pathogenic at all** and many produced only a slight blackened stain on the fruit surface without further necrosis into the tissue. Of the mango isolates causing anthracnose, there were variations in aggressiveness for individual isolates.

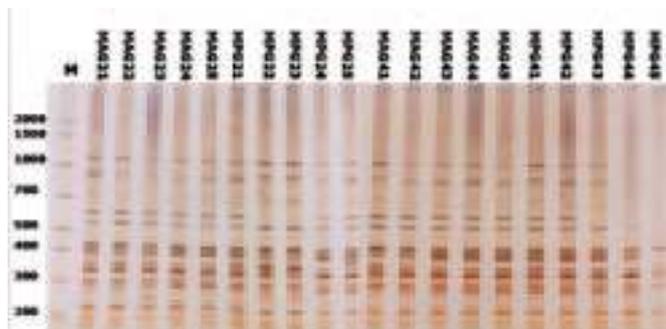


Plate 4: DNA Amplification Fingerprinting shows genetic similarity between mango isolates of *C. gloeosporioides* from anthracnose (lanes 1-5, 11-15) and pepper spot (lanes 6-10, 16-20) symptoms from Green Pigeon, NSW. M represents the molecular weight marker.

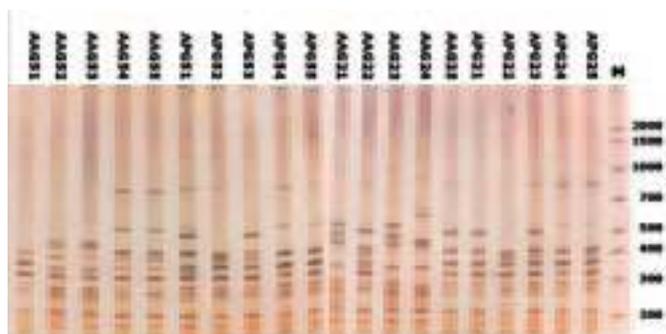


Plate 5: DNA Amplification Fingerprinting shows genetic variability between avocado isolates of *C. gloeosporioides* from anthracnose (lanes 1-5, 11-15) and pepper spot (lanes 6-10, 16-20) symptoms from Green Pigeon, NSW. M represents the molecular weight marker.

- of the avocado isolates, levels of aggressiveness varied for individual isolates, although the **outstandingly aggressive isolates** based on mean lesion diameter were from pepper spot symptoms.
- when isolates were grouped according to the farm of origin, there were some significant differences in aggressiveness but isolates could not be distinguished by this characteristic.

**The main outcome of this experiment was that pepper spot isolates were as capable as anthracnose isolates of causing anthracnose in detached, ripening fruit.**

In the glasshouse and field:

- **pepper spots were formed on unripe avocado fruit and pedicels on the tree in the field at all stages of maturity.**
  - pepper spots developed on petioles of nursery avocado trees, but not their leaves.
  - most isolates were pathogenic at the high inoculum levels (5x10<sup>6</sup> conidia/mL) used in the experiments but they varied in their relative aggressiveness.
  - when all isolates were grouped according to symptom of origin, **significant differences were demonstrated between avocado anthracnose and avocado pepper spot isolates on petioles in the glasshouse and on unripe fruit in the field.**
  - **mango isolates were only weakly pathogenic on avocado and some were not pathogenic at all**, and there were no significant differences in aggressiveness on avocado between mango anthracnose and mango pepper spot (tear stain) isolates.
- When isolates were grouped according to the farm of origin, there were some significant differences.
- Avocado isolates (both pepper spot and anthracnose) from Green Pigeon showed low pathogenicity equivalent to the mango isolates in the glasshouse, but when inoculated in the field, were comparable to the rest of the avocado isolates.



Plate 6: Assessing pepper spot symptoms in the glasshouse

### Pepper spot on 'Hass' avocado fruit continued

- There were more and less pathogenic strains present in the pathogen populations from both mango fruit and avocado fruit but neither were restricted to anthracnose or pepper spot groupings.
- Generally, **of the most aggressive isolates, a higher percentage was from avocado pepper spot.**
- When pathogenicity of individual isolates was compared with genetic clustering on the dendrograms, there were no correlations i.e. highly aggressive isolates did not group together.

**Factors affecting infection by *C. gloeosporioides* and the development of pepper spot in the field were explored.** Rootstocks, nitrogen fertilisation levels, inoculum concentrations, fruit maturity, season and fruit pH, were some of the influences studied. It was found that **many factors influencing disease on avocado**

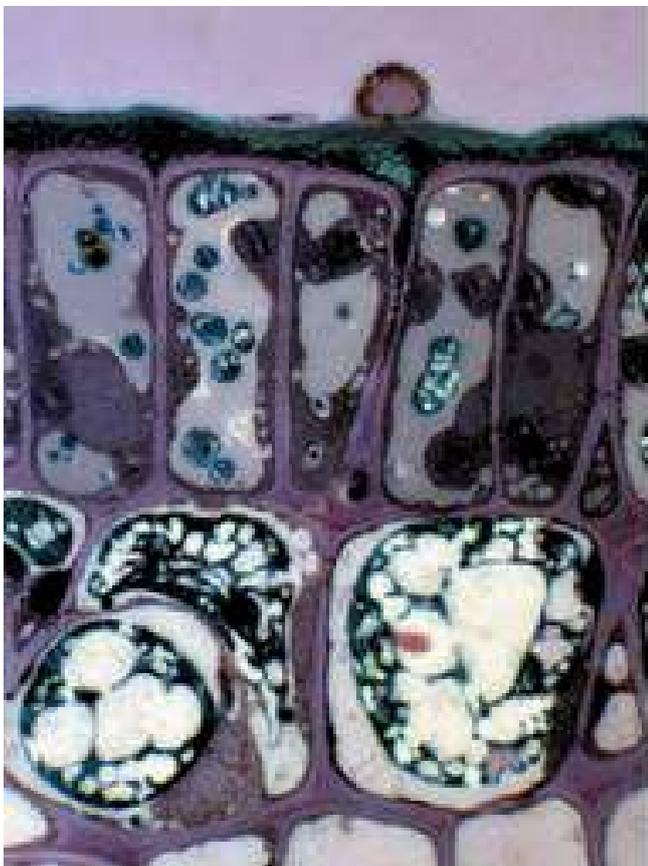


Plate 7: Microscopic view of conidium (top left) and appressorium (top centre) of fungus, *C. gloeosporioides* penetrating the surface of avocado fruit

**trees tended to have the same impact for both pepper spot and anthracnose disease incidence.** Avocado fruit were inoculated with pepper spot isolates of *C. gloeosporioides* throughout the growing season from soon after fruit set until full fruit maturity to assess disease incidence during changing annual seasons (spring through to winter). Growing season and fruit maturity had some effect on pepper spot infection with the **incidence of pepper spot infection increasing during the summer months.** Disease incidence and severity also increased when fruit were inoculated with an increasing fungal spore concentration. This concurred with previous studies of avocado fruit inoculations by Coates (1991) and Alahakoon *et al.* (1994a).

When comparing rates of nitrogen fertilisation with pepper spot incidence, it was interesting to find that, opposite to findings on studies of anthracnose (Willingham 2003), **pepper spot actually decreased with higher nitrogen levels.** Rootstocks have been shown to affect anthracnose disease severity (Willingham 2003) and similar patterns were found for pepper spot incidence in these experiments. **Mineral concentrations** were measured in leaves of 'Hass' on several different rootstocks with and without inoculation with *C. gloeosporioides* spores but results were inconclusive. Measurements of **pH** were made from avocado skin samples throughout the growing season and it was found that, while pH increases in fruit skin over time, there was no additional effect due to inoculation with *C. gloeosporioides*. The effect of pepper spot infection of fruit on subsequent postharvest anthracnose infection could not be conclusively determined and more work is required to determine whether pepper spot formation triggers any resistance to quiescent infections and/or anthracnose lesion formation. Sectioning of samples of avocado skin inoculated with the fungus allowed observation of infection using TEM and light microscopy. It was possible to monitor germination of the conidium and appressorium germination followed by penetration of the fungus into the wax layer and cuticle of fruit 1-7 days after inoculation. Any evidence of further penetration into cells beneath the cuticle was not observed.

This study has provided important information about avocado and mango *C. gloeosporioides* populations and their behaviour on avocado fruit. It has also raised interesting questions about the relationship between avocado fruit and the fungus. The formation of the pepper spot symptom is a hypersensitive-like response and demonstrates that avocado is capable of an active host defence response in addition to the usual quiescent infection by *C. gloeosporioides*.



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# Using copper sprays to control diseases

**Sandra Hardy**

NSW Department of Primary Industries  
and Keith Fallow

Nipro Pty Ltd

Warm humid and wet conditions favour a range of fungal diseases. In Australia most disease control programs rely on regular copper sprays to protect the foliage and fruit from infection. Successful disease control depends on both an even distribution and good retention of the copper on all plant and fruit surfaces.

## How copper works

Copper sprays are protectant fungicides that must be applied evenly to the plant or fruit surface before the disease develops to prevent infection. Copper is not a systemic chemical and cannot be carried internally through the plant to kill the pathogen. Once the copper is applied it sticks only where it hits and does not spread to a large extent across the fruit or leaf surface.

It is no coincidence that copper is most effective on those diseases that need free water present to develop. On the plant surface, when there is water present (from rain, dew or irrigation) exudates from the plant or spores form weak acids which lowers the pH of the water. The solubility of these copper products increases as the pH drops; slowly dissolving to release a small and constant supply of cupric ions ( $\text{Cu}^{+2}$ ) as long as the water remains. Only one copper formulation (cuprous oxide) also releases cuprous ( $\text{Cu}^{+1}$ ) ions - which also have fungicidal and bactericidal activity.<sup>6</sup> These copper ions are picked up by spores or bacteria that come in contact with this surface water - travelling through the cell walls to eventually disrupt cellular enzyme activity.

Over time the coverage of copper over the plant or fruit surface deteriorates due to fruit growth, rubbing against other plant parts, and the action of rain and wind. The surface area of fruit can increase substantially from fruit set to harvest (about 14 times for lemons<sup>3</sup>) whereas the surface area of fully expanded leaves only increases slightly. In areas of high rainfall or wet conditions copper fungicides would tend to offer a shorter period of protection than if conditions were dry. Depending on the retention characteristics of the copper formulation applied re-application of the protective copper layer may be needed in certain areas, such as those on the Central and North coast areas of NSW and coastal Queensland or where overhead irrigation is used.

## Copper formulations

There are five basic types of copper compounds: copper oxychloride, copper hydroxide, tribasic copper sulphate (green and blue coppers), copper ammonium complexes (dark blue liquid coppers) and cuprous oxide (red copper). In the past most copper products were wettable powders and contained around 50% copper (active ingredient, a.i.). However today's formulations contain from 8% to 75% copper and application rates varying accordingly. Products are formulated as either wettable powders, wettable granules, liquid flowable suspensions

or aqueous liquids. Copper products may also contain small amounts of other impurities (lead, cadmium etc) however some cheaper products may contain higher levels.

## Particle size and retention

Research has demonstrated the efficacy of a copper fungicide can be considerably improved by reducing the particle size.<sup>6</sup> The smaller the particle size the greater the number of particles per gram and therefore the greater the fungicidal or bacterial activity. With smaller particles coverage is improved and there is significantly more surface area available per gram of product to release copper ions when moisture is present (Figure 1).

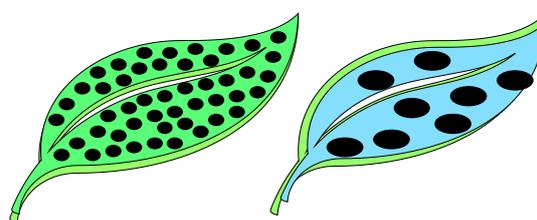
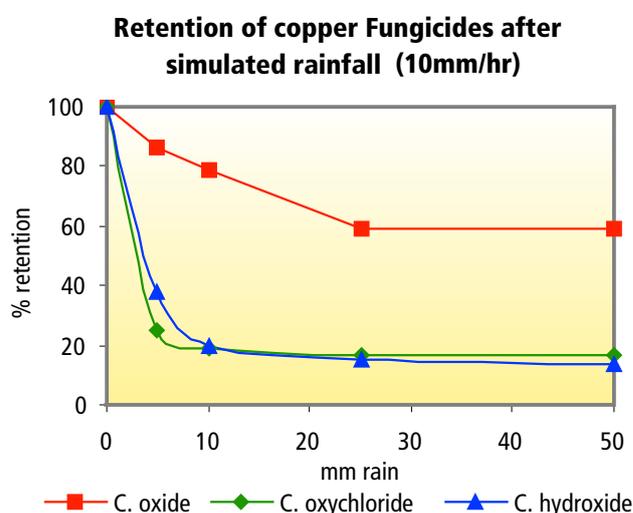


Figure 1: Better coverage with smaller particle sizes.

Graph 1 illustrates the superior retention characteristics of smaller particle sizes. The median particle size of the copper oxychloride and copper hydroxide product was around 3 microns and for the cuprous oxide product around 1 micron.



Graph 1: Retention after simulated rainfall for 3 copper formulations (Centrilab, Holland)

The main factors influencing product retention on plants are:

- rainfall (from direct rainfall dislodgement or from rain solubilization);
- wind events (particles over 3-4 microns can be blown off plant surfaces) and
- physical dislodgement of the copper particles due to
  - plant surface growth underneath deposits (e.g. fruit growth and expansion).
  - loss from rubbing against other plant parts

### Using copper sprays to control diseases continued

Smaller particles resist dislodgement better as they are lighter and have a larger surface area relative to their weight (hence a greater area of contact with the plant surface) and this results in an increase in the total force of adhesion. The high initial losses experienced from weathering arise from a rapid and complete loss of large particles, while the remaining residue consists of small particles<sup>6</sup> Formulations with smaller particles produce improvements in disease control through better coverage, rain-fastness, and longevity of the product and release of copper ions on the plant surface.

After many years researching disease control with copper fungicides in citrus crops, Professor Pete Timmer<sup>1,5</sup> of the University of Florida concluded that:

- whether it is a liquid, liquid flowable or dry formulation there is little difference in the level of control per unit of metallic copper;
- the most important factor affecting product effectiveness is the particle size of the formulation and how well it sticks (rain-fast) to the plant surface;
- products with a smaller particle size tend to have better coverage, rain fastness and longevity;
- more frequent applications of copper at lower rates are more effective than the same amount of copper applied in fewer applications.

### The impact of water pH

Most copper products are formulated to be almost insoluble in water at pH 7.0. As the pH of water decreases the solubility of the copper fungicides increases and more copper ions are released. If the water used is too acidic (below pH 6.0–7.0 - depending on the copper formulation) an excessive amounts of copper ions could be produced which may cause damage to fruit and foliage. Formulations vary in solubility - hydroxides are more soluble than oxychlorides which are more soluble than tribasic copper sulphates and cuprous oxide. Less soluble formulations are usually more persistent.

### Damage from copper sprays

If too many copper ions are released at one time damage to the fruit and foliage can result. This can happen if the spray solution is too acidic (i.e. below pH 6.0–7.0), by some aqueous liquid copper formulations<sup>4,5</sup>, by copper formulations that have high amounts of soluble copper or by formulations that are very soluble and release too many copper ions.

Some copper based fungicides may cause a small reduction in plant vigour. This reduction is caused by too many copper ions passing into the leaf and or by other impurities in the product. Copper salts such as copper chloride (used in the production of copper hydroxide and oxychloride), if not completely oxidised during manufacturing, can remain (up to 2%) in some low quality copper formulations. This copper salt rapidly dissolves and could increase copper ions to excess



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## Using copper sprays to control diseases continued

Product name	Active ingredient	g cu/kg	Distributor	Median Particle Size (microns)
Kocide Blue	Copper Hydroxide	350	Dupont	2.5
Kocide WP	Copper Hydroxide	500	Dupont	3.1
Blue Shield	Copper Hydroxide	500	Bayer Cropscience	2.5
Oxydul	Copper Oxychloride	520	Nufarm	3.1
Coppox	Copper Oxychloride	500	Melpat International	1.8
Cuprofix	Tribasic Copper Sulphate	200	Nufarm	3.0
Tribase Blue*	Tribasic Copper Sulphate	190	Nufarm	0.7
Norshield WG	Cuprous oxide	750	Nipro	1.0
Liqui-cop**	Copper ammonium acetate	80	Ekko	

\* Liquid flowable suspensions    \*\* Aqueous liquid

Table 1: Some Australian copper formulations and particle sizes. (This information has been taken from company technical brochures)

levels as soon as the product is added to the spray tank. Other heavy metal impurities such as lead and cadmium have also been implicated in increased levels of blemish. This partially explains some of the crop safety differences between copper formulations – low quality copper formulations with higher levels of impurities may check growth and cause more fruit blemish.

Copper binds strongly with organic matter and clay particles and so is generally immobile in soils. Recent research undertaken by the European Copper Task Force suggests that application of more than 8 kg/ha elemental copper per hectare per year could have effect on some of the soil microflora. Therefore it is advisable to choose a formulation and rate that minimises the amount of elemental copper applied with each spray.

It is also generally recommended that no other products, such as fungicides, insecticides or nutrient sprays be mixed with copper sprays. The use of low rates (<0.5%) of petroleum spray oils as spreaders is generally okay.

The phytotoxic effects of copper on plants are more common when:

- copper is applied with other products (especially acidic ones) in the one tank mix;
- applied at high temperatures (especially when fruit and plant surface temperatures are above 25°C);
- humidity is low and cloud cover is close to zero;

### Using copper to control Anthracnose

Anthracnose is caused by the fungus *Glomerella cingulata*. Infection is increased by wound damage and through damage caused by fruit-spotting bug, *Cercospora* spot or scab. During the season, spores of this fungus germinate and produce a short infection peg that penetrates 1.5 mm into the skin (Coates et al. 1993). The fungus then remains dormant until harvest. As the fruit matures antifungal bodies in the skin of the avocado fruit break down and the fungus starts to grow and invade the fruit causing post-harvest rots.

Regular applications of copper on the developing fruit help to prevent Anthracnose spores from germinating.

### Best Practice Tips

- ✓ Copper sprays are protectant fungicides and need to be applied prior to infection.
- ✓ A good even coverage of copper to plant and fruit surfaces is essential.
- ✓ The protective layer of copper diminishes over time and only offers short-term protection under certain conditions (ie in wet humid climates). If infection is likely over long periods then reapplication may be necessary.
- ✓ Particle size (smaller the better) and rainfastness are the most important features of any copper product.
- ✓ Apply copper sprays on their own.
- ✓ The pH of the water used to apply copper should be >6.0
- ✓ Don't apply copper when fruit or leaf temperatures are high and humidity is low.

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# Update on the Development of Canopy Management Strategies

**By John Leonardi**  
Avocados Australia.

The project aims to identify canopy management strategies that can be successfully implemented in all major avocado growing areas across Australia. A total of 16 sites from the five major production areas (North Queensland, Central/Southern Queensland, Northern/Central New South Wales, Sunraysia and Western Australia) have been selected as case studies (Table 1). At these sites several canopy management strategies are being used including: tree removal; stag-horning/stumping, selective limb removal; selective and mechanical pruning; cincturing and plant growth regulators.

Table 1 Summary of canopy management sites used in this project

Site	Region	Variety	Canopy management system/s
1	Nth Qld	Shepard & Hass	Selective limb removal
2	Nth Qld	Shepard	Mechanical pruning, selective limb removal and plant growth regulators
3	Central Qld	Hass & Shepard	Mechanical pruning, selective limb removal and plant growth regulators
4	Central Qld	Hass & Shepard	Mechanical pruning, selective limb removal and plant growth regulators
5	Southern Qld	Hass	Mechanical pruning, stag-horning and plant growth regulators
6	Southern Qld	Hass	Selective pruning & stag-horning
7	Southern Qld	Hass	Selective pruning
8	Northern NSW	Hass	Selective limb removal and terminal pruning
9	Central NSW	Hass	Mechanical & selective pruning
10	Central NSW	Hass	Topping and selective pruning
11	Sunraysia	Hass	Selective/mechanical pruning and cincturing
12	Sunraysia	Hass	Selective/mechanical pruning and tree removal
13	Sunraysia	Hass	Selective/mechanical pruning and plant growth regulators
14	WA	Hass	Selective pruning
15	WA	Hass	Selective limb removal, mechanical pruning, stumping and tree removal
16	WA	Hass	Selective limb removal

Central/Southern Queensland and Northern/Central NSW sites were visited during the past few weeks. Information on the timing and cost of their canopy management operations and the impact on the 2006 yield were collected.

## Other canopy management strategies were investigated:

### Prohexadione-calcium (Regalis®) trial:

A trial investigating the effect of prohexadione-calcium application on shoot growth, fruit yield and quality in 'Hass' avocado was repeated in 2005/06. Foliar applications at 0.5, 0.75 and 1.0 g/l were applied to six year old trees at full bloom (05/09/05) and again 10 days later (15/09/05). Spring and summer growth flush were measured on 10 shoots per tree in December 2005 and March 2006, respectively. Fruit was harvested during April and May 2006 and the number and weight from each tree recorded. Mean fruit size was calculated from the data. Cumulative yield over the two seasons were also calculated (Table 2). In May, 20 fruit were harvested from each tree from all treatments, ripened at 20°C and assessed for quality. The severity (% of flesh affected) and incidence (% of fruit affected) of fruit rots and disorders were determined. Examples of some of the postharvest disorders are shown in Figures 1 & 2.

Table 2 Effects of prohexadione-calcium on shoot growth, number of fruit, mean fruit size and yield in 2006 and cumulative yields for 2005 and 2006 in 'Hass' avocado. Data are means of six trees per treatment.

Treatment	Shoot growth (spring + summer) (cm)	No. of fruit	Mean fruit size (g)	2006 Yield (t/ha)	Cumulative yield 2005 + 2006 (t/ha)
Unsprayed control	12.0	429	206.3	17.6	35.7
Regalis at 0.5 g/l	10.4	421	218.2	17.9	35.9
Regalis at 0.75 g/l	8.8	515	208.6	21.1	41.2
Regalis at 1.0 g/l	8.8	432	208.2	17.7	36.8
Regalis at 0.5 g/l x 2	9.0	480	216.7	20.7	42.3
Regalis at 0.75 g/l x 2	8.4	441	210.4	18.5	40.7
Regalis at 1.0 g/l x 2	7.9	423	228.2	18.7	37.0

There was no significant effect of treatment on yield however there was a trend toward reduced shoot growth and a lower severity and incidence of fruit disease with the higher rates of treatment. For example: The severity of stem and body rots in untreated trees was 1.8 and 0.5%, respectively compared with 0.3 and 0.1% in trees treated twice with

## Update on the Development of Canopy Management Strategies continued

Regalis<sup>®</sup> at 1.0g/l. The incidence of stem and body rots in untreated trees was 27.5 and 17.5%, respectively compared with 10.0 and 2.5% in trees treated twice with Regalis<sup>®</sup> at 1.0g/l.

### Uniconazole (Sunny<sup>®</sup>) trials:

A trial was established in south-east Queensland to investigate the effect of Sunny<sup>®</sup> application on shoot growth, flowering and yield in stumped 'Hass' avocado trees. Trees were stumped in July 2005. Foliar applications of 1 or 2% Sunny<sup>®</sup> were applied in February to young vegetative growth and in May prior to floral bud development. The effect of treatment on shoot growth and flowering was assessed in 10 shoots in each tree in August 2006 (Table 3).

**Table 3** The effect of Sunny<sup>®</sup> treatment on shoot growth and flowering in stumped 'Hass' avocado trees. Data are means of five trees per treatment.

Treatment	Shoot length (cm)	% of shoots flowering
Unsprayed control	88.8	60
1% Sunny in February	51.1	96
2% Sunny in February	58.5	84
1% Sunny in May	62.7	96
2% Sunny in May	64.1	96
1% Sunny in February & May	58.9	94
2% Sunny in February & May	55.3	96

### Where to from here?

Discussions on canopy management operations (timing and costs) and the impact of these strategies on yield and pack-out figures with growers from each site will continue during the 2006 season. Trials investigating the effect of Sunny<sup>®</sup> application on shoot growth, flowering and yield in stumped 'Hass' avocado trees are continuing during 2006/07. Experiments have also been established to investigate the effect of naphthalene acetic acid (NAA) on regrowth control in pruned trees. Shoot growth in NAA treated trees will be assessed following maturation of the spring and summer growth.



Figure 1. Stem-end rot



Figure 2. Body rots

### Examples of Canopy Management strategies:



(1) major limb removal



(2) stumping of large trees

### Acknowledgements

Thanks to all growers who provided information on their canopy management operations and pack-out and yield figures for the 2006 season. Chemicals for the experimental trials were provided by Sumitomo Australia Pty Ltd (Sunny<sup>®</sup>) and Nufarm Ltd (Regalis<sup>®</sup>).

This project is funded by using avocado grower R&D levies which are matched by the Australian Government through Horticulture Australia.

# Infocado Update

**By Joanna Embry**  
Avocados Australia

## Seasonal forecasting module online!

After receiving the green light at the Infocado Summit in July, September marks the launch of the seasonal forecast module for Infocado – the web based data collection system developed by Avocados Australia.

All Infocado contributors will have received their emailed forecast form on the 10th of September which is to be filled out and returned (all via email) by the end of the month. Online reports will then be available from the 8th of October with the program following the same pattern each month. As with the rest of the system, to streamline collection of data it has been decided that grower packers and packhouses are best to contribute this data on behalf of their grower suppliers

The first two modules of the system, the dispatch module and the short term four weekly forecast module, were launched last year and to date have achieved a high participation rate with approximately 85% of overall production entered into the system each week. The seasonal forecast module now provides a tool for packhouses and grower packers to monitor longer term avocado supply forecasts which will further assist with making marketing and management decisions in their business.

The Seasonal forecast module also has the potential to assist packhouses/grower packers to improve their own forecasting skills. All businesses who have been on the system for at least one season will receive, with their forecast forms a copy of their actual dispatches for the previous year by month which should help them to better forecast coming seasons and better monitor comparative production by season and month. Learnings from those businesses who are most successful at accurately forecasting future dispatches will in the future be passed on to assist those who have trouble.

## Adding value

As part of a program of continual improvement and based on feedback from the Infocado Summit, Avocados Australia has also begun sending weekly reports which give a snapshot of the aggregated data that is available through the Infocado system. It includes graphical representations of some of the data that is available through the system as well as a list of those people who are contributing on a week by week basis. This also provides packhouses with a user friendly document that they can pass on to their growers suppliers.

If you would like more information about Infocado please contact:

**Joanna Embry**  
Ph: 07 3391 2344  
Email: [infocado@avocado.org.au](mailto:infocado@avocado.org.au)



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# INFOCADO WEEKLY REPORT

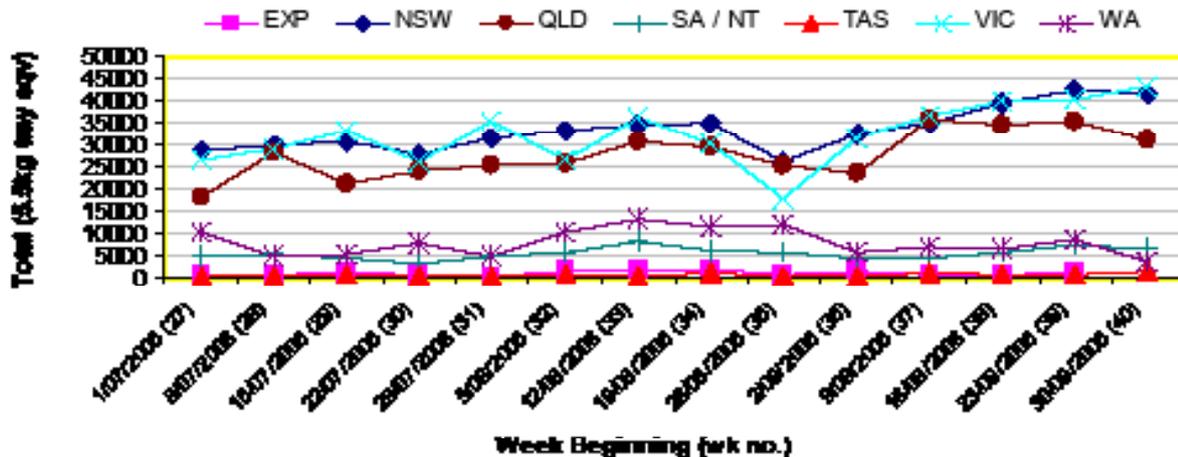
30<sup>th</sup> September to 6<sup>th</sup> October 2006 (Wk 40)

Industry Dispatches 30th September to 6th October (wk 40)

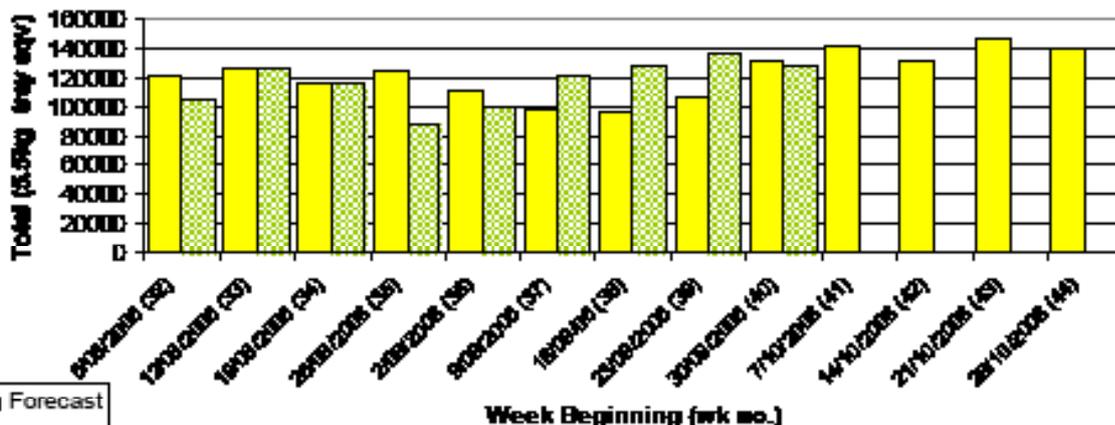
Dest. State	5.5Kg	5.5Kg	5.5Kg	5.5Kg	5.5Kg	5.5Kg	5.5Kg	5.5Kg	5.5Kg	5.5Kg	Bulk	Oil	Other	P/PK	Proc	5.5Kg Eqv
	<16	16	18	20	22	23	25	28	28+	Total						10Kg
NSW	154	1,332	4,940	8,076	2,126	5,630	6,039	2,735	102	31,134	5,049		236	6,072		41,461
QLD	49	612	1,368	2,037	2,645	5,109	5,025	2,929	228	20,002	5,158	6,485	1,070	1,584	350	31,105
SA / NT		8	65	156	60	1,136	2,362	976	73	4,836	893					6,460
TAS							432	264		696	530					1,660
VIC	166	2,121	8,306	9,687	2,123	6,930	4,486	1,287	503	35,609	3,186			10,296		43,274
WA		10	85	395		512	1,332	469	700	3,503	250					3,958
<b>Total</b>	<b>369</b>	<b>4,083</b>	<b>14,764</b>	<b>20,351</b>	<b>6,954</b>	<b>19,317</b>	<b>19,676</b>	<b>8,660</b>	<b>1,606</b>	<b>95,780</b>	<b>15,066</b>	<b>6,485</b>	<b>1,306</b>	<b>17,952</b>	<b>350</b>	<b>127,917</b>

## Throughput by Destination State

Throughput 1st January to date = 4,160,602 5.5kg tray eqv



## Dispatch vs weekly forecast for all varieties and all packs (5th August to 4th November)



**Major Capital City Weather Report – week ahead**

City	Tue	Wed	Thu	Fri	Public Hols	Upcoming school Hols
Brisbane	 23°	 24°	 25°	 26°		18 <sup>th</sup> Dec – 28 <sup>th</sup> Jan
Melbourne	 23°	 31°	 32°	 28°	Melb Cup – 7 <sup>th</sup> Nov	22 <sup>nd</sup> Dec – 28 <sup>th</sup> Jan
Perth	 25°	 20°	 21°	 21°		15 <sup>th</sup> Dec – 30 <sup>th</sup> Jan
Sydney	 22°	 27°	 29°	 31°		22 <sup>nd</sup> Dec – 28 <sup>th</sup> Jan

*If you have any suggestions for improving these weekly reports please email to [infocado@avocado.org.au](mailto:infocado@avocado.org.au) by Thursday 12<sup>th</sup> October—all suggestions will be considered*

**Dispatch Data (Week 40—begin 30/09/06)**

Variety	5.5Kg	Bulk	Oil	Other	P/PK	Proc	5.5Kg Eqv
	Tray	10Kg	Kg	Kg	Kg	Kg	Total
Fuerte	327	96		6			503
Hass	63,435	14,675	6,390	1,300	17,952	390	115,043
Hass NZ	8,640						8,600
Lamb Hass	1,442	134					1,936
Reed	14	33					74
Sharwil	1,063	128	95				1,313
Wurtz	449						449
<b>Grand Total</b>	<b>95,780</b>	<b>15,066</b>	<b>6,485</b>	<b>1,306</b>	<b>17,952</b>	<b>350</b>	<b>127,917</b>

**Forecast Data (Week 41—44)**

Variety	5.5Kg	Bulk	Oil	Other	P/Pk	Proc	5.5Kg Eqv
	Tray	10Kg	Kg	Kg	Kg	Kg	All Tray
<b>Week 41—begin 7/10/06</b>							
Fuerte	1,327	296		6			1,866
Gwen		225					409
Hass	94,285	11,562	2,500	1,150	12,700	150	115,998
Hass NZ	16,920						16,920
Lamb Hass	1,226	125					1,453
Reed	120	30					175
Sharwil	660	80					805
Wurtz	200						200
<b>Week Total</b>	<b>114,738</b>	<b>12,318</b>	<b>2,500</b>	<b>1,156</b>	<b>12,700</b>	<b>150</b>	<b>140,135</b>
<b>Week 42—begin 14/10/06</b>							
Fuerte	265	90		6			430
Hass	89,804	9,045	2,300	1,000	7,700		106,849
Hass NZ	37,054						37,054
Lamb Hass	1,006	100		20			1,191
Sharwil	650	80					795
Wurtz	200						200
<b>Week Total</b>	<b>128,979</b>	<b>9,315</b>	<b>2,300</b>	<b>1,026</b>	<b>7,700</b>		<b>147,920</b>
<b>Week 43—begin 21/10/06</b>							
Fuerte	100	20		6			137
Hass	84,264	8,597	2,300	1,350	7,700		100,559
Hass NZ	40,254						40,254
Lamb Hass	1,006	100		20			1,191
Sharwil	650	80					795
Wurtz	500						500
<b>Week Total</b>	<b>126,774</b>	<b>8,797</b>	<b>2,300</b>	<b>1,376</b>	<b>7,700</b>		<b>144,837</b>
<b>Week 44—begin 28/10/06</b>							
Hass	75,240	7,487	3,600	1,050	7,700		89,698
Hass NZ	46,774						46,774
Lamb Hass	700	100					882
Wurtz	500						500
<b>Week Total</b>	<b>123,214</b>	<b>7,587</b>	<b>3,600</b>	<b>1,050</b>	<b>7,700</b>		<b>139,254</b>

**Week 40 contributors**

- Avocado Industry Council (NZAGA)
- Avonwest
- Balmoral Orchard
- C F Fechner
- Chinook Orchards
- Chislett Developments Pty Ltd
- Coastal Avocados
- DJ Tottenham
- Donovan Avocados
- Googa Farms
- Green Nugget Orchards
- Green Pear Avocado
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- Mi Binga Orchards Pty Ltd
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- RM & KL Cornwell
- Rob Farnsworth Pty Ltd
- Summerland House With No Steps
- Sunfresh
- Sunnyspot Packhouse
- Tenlerfield Fruit Packers
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**You may wish to print a copy of this report and insert it into the 'reports' section of your Infocado Information Kit.**

## News from around the world

### New Zealand: joint venture ripe for increased avocado crop

Two big Bay of Plenty avocado packhouse operators have formed a joint venture to cut costs and position themselves for an expected boom in production. Satara and Aongatete Coolstores' new Bravo Avocado Company is expected to have average annual turnover of around \$1.2 million and handle about 15 per cent of the national avocado crop. "It'll be a significant player in post-harvest avocado," said Satara group general manager Murray Gough. But he said it was difficult to tell exactly where Bravo would rank nationally, given the lack of transparency in the industry.

Gough said the venture was aimed at immediately reducing costs and increasing returns to growers. Cost reduction would be even more important in future, with the industry forecast to double production in the next five years as large new planting comes on stream. This could naturally decrease prices, so reducing costs would help sustain grower income and keep fruit coming into the joint venture's packhouses, Gough said.

Most of the national avocado crop is grown in Northland and the Bay of Plenty. Bravo will pack avocado at Satara facilities in Whangarei and Katikati. Aongatete will stop packing avocados at its Bay of Plenty site but its staff will work for the joint venture, providing advice to growers.

NZAX-listed Satara is a grower-controlled co-operative, with non-listed "transactor" shares having 60 per cent of the voting rights, and the listed "investor" shares 40 per cent. Gough said it was intended that all Bravo growers would be able to buy Satara transactor shares if they wanted.

Source: NZ Herald

### Israel: 50% increase of avocado exports in the year 2007

The export season 2006/07 of avocados has started and the first shipments are on the way to Europe. The Plants Production & Marketing Board estimates that the optimistic export forecasts will encourage a further increase of new plantations – all over the country.

The chairman of the avocado grower's organization- Mr A. Rotman informed that the reason for the spectacular achievements during the last 2 years is attributed to the high yields per acre. It is one of the highest yield globally.

The investments during recent years, in research and development and in the application of advanced methods of pruning and treatment of the trees, resulted in the afore-mentioned yields. The place of the Avocado export is second only to the Citrus Exports.

Source: "The Marker"

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News from around the world  
continued

## Football Fans to devour more than 262,000,000 pounds of Avocados during the Regular Season

### Hass Avocados Offer a New Twist on Tailgaters' Meals

Tailgating season is about to kick off and avocados are a must-have item at parking lot parties around the country. In fact, according to the Hass Avocado Board, football fans consume more than 262.5 million pounds of avocados at their tailgating celebrations during the regular football season.

"Tailgating doesn't have to mean the same old party foods," said celebrity chef and grill master, Jet Tila. "Fans are learning that avocados are so much more than guacamole. Hass avocados add a creamy and delicious flavor that will transform ordinary game day snacks into tantalizing meals."

Tailgating has become a competition among football fans. Custom-made tailgating trailers, fold-out bars and satellite television systems are just a few of the extravagances that parking lot grill aficionados use to take parties to the next level. However, with bragging rights on the line, delicious food is the most important element of any tailgating event; and Hass avocados are just the ingredient to help tailgaters create dishes that will separate the amateurs from the professionals.

### About the Hass Avocado Board

The Hass Avocado Board (HAB) was established in 2002. A 12-member Board administers the program. Over 20,000 producers and 100 importers are involved in the HAB, which covers fresh domestic and imported Hass avocados sold in the U.S. market. Source: HAB

### Wal-Mart calls on Suppliers to Reduce Packaging

Wal-Mart Stores, Inc. plans to measure its 60,000 worldwide suppliers on their ability to develop packaging and conserve natural resources, beginning in 2008. The initiative is projected to reduce overall packaging by 5% and save 667,000 metric tons of carbon dioxide from entering the atmosphere, the equivalent of taking 213,000 trucks off the road annually and saving 66.7 million gallons of diesel fuel from being burned. Wal-Mart estimates that the initiative will create \$10.98 billion in savings throughout the supply chain. "Even small changes to packaging have a significant ripple effect. Improved packaging means less waste, fewer materials used, and savings on transportation, manufacturing, shipping, and storage," said Wal-Mart CEO H. Lee Scott in a press release. On November 1, 2006, Wal-Mart will introduce a packaging scorecard to more than 2,000 private label suppliers. On February 1, 2007, tools and processes will be made available to all of the company's global suppliers. Wal-Mart Sustainable Packaging Value



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Network, a group of 200 leaders in the global packaging industry, is leading the project. This group includes representatives from government, NGOs, academia, and industry. Source: PMA

**Online Ads Surge in Britain**

Online advertising spending in Britain jumped 40 per cent to £917.2 million (\$1.72 billion) in the first half of 2006 compared with a year ago, taking a market share of 10.5 per cent. The Internet Advertising Bureau (IAB) said internet ad spending had continued to grow despite a depressed overall market and predicted it would overtake spending on national press advertising before the end of 2006.

According to the study carried out by PricewaterhouseCoopers for the IAB, the internet is the fastest-growing advertising medium in Britain, commanding a market share of 10.5 per cent for January to June 2006, up from 7.3 per cent for the same period in 2005. IAB said this took online advertising to within one per centage point of the national press, which recorded an 11.4 per cent share for the first half of 2006.

“This has been a very tough market, marked in most media by loss of confidence and declining advertising expenditure,” Guy Phillipson, chief executive of the IAB, said in a statement. “In this environment, it’s encouraging to see the internet turning over nearly half a billion pounds a quarter-showing healthy growth from an already high base.

“The gap between online and newspaper advertising is narrowing fast, and if this growth rate continues, then we will be a £2 billion-medium by the new year.” Zenith Optimedia, a media planning and buying

firm, said on Monday the internet would receive a greater share of global ad spending this year than outdoor outlets such as billboards and it was set to overtake radio soon.

The group said the growth was being driven by smaller brands turning to the internet because it was relatively cheap and could target their markets effectively. Source: SMH

**US: Chilean Hass Avocados give fans the ‘Dodger Dog’**

Dodger fans will be the first to try an exclusive new twist on a classic favorite when the Chilean Avocado Importers Association (CAIA) debuts a gourmet avocado topping for the world-famous Dodger Dog on Friday, September 22 at Dodger Stadium. Chilean Hass avocado “ambassadors” will be on hand next to concession stands to provide a free topping made from fresh avocados to celebrate the beginning of Chilean Hass avocado season in the United States.

“The Avo Dog is a very popular food in Chile,” said Jorge Covarrubias, chairman of CAIA. “We hope that this easy-to-enjoy recipe and the avocado’s year-round availability make this delicious hot dog topping a ‘home run’ in the United States, too.” The recipe includes diced Chilean Hass avocados mixed with lime juice, diced tomatoes and salt with optional onion and seasonings.

The first shipment of Hass avocados arrives in the United States from Chile this week -- just in time for the topping to make its debut as the ideal baseball playoff season party food. Avocados have

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### News from around the world continued

traditionally not been associated with fall, winter, and baseball playoff season, but now due to high quality imports from Chile, Hass avocados are available in the United States year-round. Between 265 million and 290 million pounds of Hass avocados are expected to be shipped to the United States from Chile this import season, which runs from September 2006 through March 2007, when fresh Hass avocados from other regions are in short supply.

Source: Chilean Avocado Importers Association

### Avocado exports from Peru increased 61%

During the first half year of 2006, the Peruvian exports of avocados increased with 61%. One reached an export turnover of \$24.92 million compared to \$ 15.48 million during the same period last year, according to the export association Adex. Spain was the major export destination, with \$8.83 million and 35% of the total, followed by the Netherlands with \$ 5 million, the UK with \$ 4.5 million and France with \$3.84 million Camposol is the major exporter with a share of \$12.34 million and 50% of the total, followed by Consorcio de Productores de Fruta with \$2.13 million and, amongst others Agroindustrias Verdeflor, Procesadora Laran and Agropecuaria Fundo Waimanalo.

Source: Freshplaza

### Want Fat with that? A surprising way to make vegetables more nutritious

#### Are you getting the most out of your fruits & vegetables?

That's the question researchers are trying to answer as they study how our bodies absorb the healthful nutrients and compounds in foods. What they are finding is that in our quest to cut calories and fat from our diets, we may be cutting out a lot more.

It turns out that some of the best stuff in fruits and vegetables -- certain vitamins and cancer-fighting compounds -- are "fat-soluble." That means some fat needs to be present for the body to adequately absorb the nutrients. But studies are now showing that people who opt for no-fat dressing or who skip adding foods like avocado or cheese to a dish to avoid fat calories, are getting far less out of their salads and other veggies.

"What we're finding is that if you don't have some fat in the meal, all these wonderful" compounds are missed, says Steven Clinton, program leader for molecular carcinogenesis and chemoprevention and the Ohio State University Comprehensive Cancer Center in Columbus. "If the nutrients don't get into your system, then what good are they?"

Dr. Clinton's latest research looks at how adding avocado -- which is

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News from around the world  
continued

relatively high in unsaturated fat -- to salsa or a salad affects how well the body absorbs healthful compounds in the foods. In particular, the study looked at absorption of carotenoids, the red, yellow and orange pigments found in many fruits and vegetables that are believed to have cancer-fighting properties.

For the salsa study, 11 test subjects were first given a meal of fat-free salsa and some bread. Another day, the same meal was offered, but this time avocado was added to the salsa, boosting the fat content of the meal to about 37% of calories. In checking blood levels of the test subjects, researchers found that the men and women absorbed an average of 4.4 times as much lycopene and 2.6 times as much beta carotene when the avocado was added to the food.

Lycopene is the red carotenoid found in tomatoes and watermelon that is being studied as a potential fighter of prostate and other cancers. Beta carotene is the orange pigment in fruits and vegetables that is used in the body's manufacture of vitamin A. Studies suggest that diets high in fruits and vegetables containing beta carotene are linked to lower cancer rates.

With the salad test, the impact of adding avocado was even greater. The first salad included romaine lettuce, baby spinach, shredded carrots and a no-fat dressing, resulting in a fat content of about 2%. After avocado was added, the fat content jumped to 42%. When the salad was consumed with the avocado, the 11 test subjects absorbed seven times the lutein and nearly 18 times the beta carotene. Lutein is a carotenoid

# Grower Member Application Form

## Avocados Australia Limited

ACN 105 853 807

For Associate and Affiliate membership application forms please go to [www.avocado.org.au](http://www.avocado.org.au) or call **07 3391 2344**

### Member Details

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

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

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

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

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

### Contact Details

Business phone no: \_\_\_\_\_

Home phone no: \_\_\_\_\_

Fax no: \_\_\_\_\_

Mobile no: \_\_\_\_\_

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 avocado production (please circle)

0.5 - 5 ha	6-19 ha	20-49 ha	50-99 ha
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### 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               |
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### News from Around the World

*continued*

found in many green vegetables and is linked with improved eye and heart health.

Researchers noted that a small portion of the increased carotenoid levels in the blood of test subjects could be attributed to the compounds present in the avocado. However the vast majority of the increase was attributed to better overall absorption once fat was present.

Study researchers say they were not only surprised by how much more absorption occurred with the avocado added to the meal, but they were taken aback at how little the body absorbed when no fats were present. "The fact that so little was absorbed when no fat was there was just amazing to me," says Dr. Clinton.

**Fatten Up**

Some fat-soluble compounds that may be better absorbed by the body if consumed with a little fat:

- **Lutein** (spinach, kale)
- **Beta carotene** (carrots, cantaloupe)
- **Lycopene** (tomatoes)
- **Zeaxanthin** (corn, romaine lettuce)
- **Vitamin E** (mango, broccoli, spinach)

Getty Images

An earlier study done in 2004 by Ohio State University researchers showed a similar effect comparing salads consumed with no-fat, low-fat and full-fat salad dressings. When the seven test subjects consumed salads with no-fat dressing, the absorption of carotenoids was negligible. When a reduced-fat dressing was used, the added fat led to a higher absorption of alpha and beta carotene and lycopene. But there was substantially more absorption of the healthful compounds when full-fat dressing was used.

So far there isn't enough research to advise people how much fat they should consume with vegetables to get the optimal absorption of carotenoids. The basic advice is to still count calories and don't overdo the fats, choosing heart-healthy unsaturated fats like avocado or olive oil rather than foods with a high saturated-fat content.

A recent rat study by German researchers showed that the type of fat matters. They compared vitamin E absorption in rats that were fed diets with cottonseed oil or hydrogenated oils -- which contain unhealthy

## News from Around the World continued

trans fats. The trans fats actually slowed the absorption of vitamin E compared with other type of fat.

For people watching their weight and the fat content of their diet, the balancing act might be tricky. The best nutrient absorption from the salad, for instance, occurred when diners ate dressing with 28 grams or about two tablespoons of canola oil. That translates to about 250 extra calories.

Nutritionists say diners should look at the overall fat content of the meal. A bowl of cereal with berries might be improved by using 2% milk or full-fat yogurt instead of skim milk. But if you're eating a meal, dietitians advise clients to choose one food item per meal with a significant amount of fat, and keep the other foods very low in fat.

"If you are having a hamburger for dinner and strawberries for dessert, it is not necessary to douse the berries in cream since the hamburger has plenty of fat to help you absorb the nutrients and phytochemicals from the berries," says Elizabeth Grainger, Ohio State research dietitian. "The key is always moderation."

Source: The Wall Street Journal

### New Zealand: HortResearch develops red-fleshed apple

HortResearch has developed an antioxidant-rich red-fleshed apple that promises to lend to a wide variety of applications in functional beverages, as well as novel marketing potential for formulators.

The New Zealand-based fruit science company developed the fruit over an eight-year period using apples with natural red flesh but without the appearance, quality or storage requirements to meet commercial standards. The red-fleshed apple could be an enticing ingredient for functional beverage formulators in particular, and the company unveiled a juice concept along these lines at the IFT Expo in Orlando last month.

In a global market that is ripe for so-called super fruits, the red-fleshed apple stands out because unlike other previously less-known fruits - such as exotic naturally-occurring acai or mangosteen - it has been crossbred specifically for its nutritional benefits. The idea behind HortResearch's red-fleshed apple was to crossbreed for a high concentration of anthocyanin - the plant flavonoid which gives the fruit its pigmentation and is believed to have antioxidant properties.

HortResearch is also encouraging formulators to study the red-fleshed apple for its potential in promoting cognitive development. In the past, studies have linked anthocyanin to brain health. "These studies are strongly suggestive

that these types of fruit can have a positive effect in this health area," HortResearch business leader Karl Crawford told Nutra Ingredients.

Cognitive function is a focus for HortResearch in other breeding programs as well - such as its ongoing work with blackcurrants which aims for optimal anthocyanin and antioxidant levels to substantiate health claims. HortResearch says through market research it has found consumers are willing to pay significant price premiums for fruit with novel colors and tastes, as well as added health benefits.

"Even though the fruit is some years from commercialization there has already been considerable interest from the market," said Crawford, adding that the company will apply for a plant variety right to protect its new apple breed.

The juice niche the red-fleshed apple is set to target is a growing market. US sales for functional fruit and vegetable juices rose from \$2.2bn in 2002 to \$2.4bn in 2005, according to Euromonitor International. The growth in market share for these products was even larger, albeit from a lower base, in Europe over the same period - rising from \$1.5bn to \$2.4bn.

While taking a new fruit from an early stage to full commercialization can take decades of breeding, HortResearch says that by using the latest genomic science techniques it could be supplying growers with new red-fleshed apple trees in five to six years. "The red-fleshed breeding line has been singled out for immediate fast-track development mainly because the colour is so appealing," said Crawford.

Source: Nutra Ingredients



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