AVOCADO
INDUSTRY REPORT 2005-2006

Avocado program goes from strength to strength

The avocado industry is currently in an enviable position with steady production and strong demand. Although there are many factors that impact on the market dynamics of the industry, the Horticulture Australia Limited (HAL) investment programs in research, development, marketing and promotion are contributing significantly to the current buoyant position.

Levy income was slightly higher than the previous year and total program expenditure was significantly higher in 2005/06 due mainly to the launch of the new marketing program in April.

This annual report provides a snapshot of the key avocado projects undertaken during 2005/06 through the HAL avocado investment program. The program is well balanced across a range of activities in line with the new avocado strategic plan, which aims to improve the profitability and sustainability of the industry.

A major consumer research study was completed during 2005/06. It provides high quality information about what consumers and the food service sector want from avocados. The results show encouraging consumption patterns while highlighting areas for improvement. The information has been used to guide the development of the new five year marketing campaign and will also influence future research direction.

The previous marketing campaign which included the highly successful "ave an 'avo" TV commercial was completed in 2005/06. A new innovative and highly integrated marketing campaign commenced in April which will build on the solid work carried out in the previous five years.

In terms of production issues, the program continues to focus on improving yield and fruit quality with major investments in projects to develop improved disease management strategies, new rootstocks and better canopy management guidelines, in particular.

Improving supply chain effectiveness is identified in the new strategic plan as a high priority issue and a number of new initiatives are currently being planned to commence in 2006. During 2005 the Infocado web-based data collection system was rolled out across the industry. The program, which is now tracking more than 85 per cent of product on the Australian market, will equip avocado growers and pack houses with valuable market volume and throughput data to assist in better marketing decisions.

Communication and industry consultation is critical to the effectiveness of the investment program. Managed through the partnership between HAL and Avocados Australia, a range of activities were funded through the HAL program in 2005-06. The third Australian and New Zealand Avocado Industries Conference in September provided 480 delegates with the latest information from around the globe. Regular industry and program information was provided to growers by Avocados Australia in the form of *Talking Avocados*, the fortnightly *Guacamole* email newsletter and a new Avocados Australia website.

It is hoped that a levy increase will be implemented in 2006 which will provide much needed resources to fund the implementation of the new strategic plan and continue to deliver significant industry benefit.

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These projects have been facilitated by HAL in partnership with Avocados Australia. Projects have been funded by the avocado levy and/or voluntary contributions from industry. The Australian Government provides matched funding for all HAL's R&D activities.

Australian Government priorities for rural research and development

As part of the Australian Government's commitment to rural research and development, horticulture industries can access matching Commonwealth funding through HAL for all research and development activities.

All R&D programs managed through HAL are driven by the strategic direction of horticulture industries and address the Australian Government's Priorities for Rural Research and Development. These Government priorities and a breakdown of the number of projects and the value of projects that address each priority are available in HAL's annual report.
This can be accessed at *www.horticulture.com.au* ◀

Industry biosecurity plans

A project to develop a comprehensive and nationally consistent biosecurity plan for the avocado industry is currently underway.

The plan, developed by Plant Health Australia (PHA) under the guidance of the Industry Biosecurity group, will identify threats to the industry, such as pests and diseases and will examine risk mitigation.

Fact sheets promoting awareness of key pests and how to identify and report them will be made available.

If deemed necessary by the Avocado Industry Biosecurity Group, contingency planning for high priority threats will be added to the project.

In 2005/06 PHA has promoted biosecurity for the avocado industry to Government and industry bodies around Australia, including members of Australian Avocados. PHA has opened the forum to discuss the implications of the Emergency Plant Pest Response Deed and to provide an overview of Industry Biosecurity Planning.

Two Industry Biosecurity Group meetings were held in September 2005 and April 2006 to discuss the development of the avocado biosecurity plan.

The project is at the midway point and progressing well. Members of the Industry Biosecurity Group supplied valuable materials, prepared within their fields of expertise, playing an instrumental role in the success of the project.

The Avocado Industry Biosecurity Group will review the first full draft of the report in October 2006. It is anticipated that all plans will be finalised by January 2007 and a launch date will then be announced by Avocados Australia.

Project HG03070

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Australian and New Zealand Growers' Conference

The third joint Australian and New Zealand Avocado Industries Conference was held in September 2005 in Tauranga, in the heart of new Zealand's avocado production region.

It brought together an extensive line up of top speakers from around the globe who addressed the 480 delegates on the latest developments, issues and successes in avocado production and marketing.

The audience were presented to by experts from Australia, New Zealand, Israel, South Africa, Chile, Peru, Mexico and USA, on

the following topics:

- Flowering and fruit set: yield, size and production
- New germplasm and global breeding programmes
- Pest and disease control strategies
- Integrated production systems and the impact on market access
- Postharvest quality and out-turn
- Competing in a global environment
- Building demand: promotions, marketing, customer trends and expectations

For those unable to attend, all presentations are available on CD by contacting Avocados Australia.

Project AV05007
Voluntary Contribution

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Avocado sunblotch viroid indexing protocols

Sunblotch can cut avocado yields by 30 per cent and cause further financial losses by disfiguring fruit and reducing its value. It can also put producers on the wrong side of quarantine restrictions for some export markets. Through this project a new DNA-based test has been developed to ensure that planting material is clean and free of the disease.

Sunblotch is caused by Avocado sunblotch viroid (ASBVd). ASBVd transmitted through seed used to propagate rootstocks and scion material used for grafting. There are currently no known insect vectors. This means that controlling planting material is the best way of keeping Sunblotch in check.

To improve the industry's ability to test for ASBVd and ensure registered planting material is free of the pathogen, a new set of ASBVd indexing protocols have been developed.

This two-year project has delivered an effective new assay, or test, for ASBVd. The DNA-based test is conducted using a new duplex real-time Reverse Transcription-Polymerase Chain Reaction (RT-PCR) method. The method incorporates an internal control targeting the plant gene GAPDH. The result is a test that provides superior sensitivity, specificity and speed over conventional PCR assays, making it a particularly useful method for high throughput diagnostics.

To advertise the benefits of using clean planting material, a fact sheet on ASBVd was also written for distribution to the avocado industry.

Project AV03009
Voluntary Contribution & R&D Levy

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Infocado Rollout

Australian avocado growers and packhouses have valuable industry data at their fingertips thanks to the September 2005 rollout of the Infocado web-based data collection system.

Infocado was developed by Avocados Australia over a 12 month period to provide more timely and meaningful volume and throughput data to help the industry to make better informed management and marketing decisions.

Currently, Infocado has three data-tracking modules:

- the dispatch module tracking actual volume throughput for the previous week
- the weekly forecast module for expected dispatches in the next four weeks
- the season forecast module to record data for the upcoming 15 months

In Australia, individual businesses enter their data every week. Consolidated data from New Zealand growers is also entered weekly. In all modules, the data supplied by individual businesses is not identifiable in the aggregated results.

One of the challenges of the Infocado rollout was encouraging businesses across the supply chain to input information into the system.

Because Infocado is only as good as the data supplied by participating businesses, it was essential to secure the support of as many eligible packhouses and growers as possible.

As a result, Avocados Australia implemented a rollout program that included:

- A broad communications program to inform industry through the media
- A tailored communications program which involved directly contacting all major packhouses and grower-packers
- Regional Infocado information and training sessions
- A protocol to encourage consistent, timely and accurate data input and minimise impact on business resources
- A training and support program for all participants

One of the highlights of the rollout was the 2006 Infocado Summit, held in July 2005, attended by around 50 packers.

Participants learnt how the Californian avocado industry had benefited from more than 20 years of data collection, and discussed Infocado's benefits as well as possible improvements.

Ninety-four Australian packhouses and grower-packers are now registered with Infocado.

The New Zealand industry is also contributing on a consistent basis throughout their harvest period.

Avocados Australia is confident that more than 85 per cent of the Australian market throughput will be recorded and will continue to support the development of Infocado to ensure that the level of support is improved.

Project AV05003

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Avocado export report

Australian avocado exports constitute a small share of the world avocado market yet have made substantial gains from a small base with 917 tonnes exported in 2005/6 representing a four-fold increase in four years.

Developing avocado exports is a key strategy for the industry and there are three strategic areas of focus for avocado export development – market access, development and growth.

Market access involves opening new markets where Australian avocados have been prohibited or restricted. This can only be negotiated at a government level. HAL submits market access applications received and prioritised by its Horticultural Market Access Committee (HMAC) for Biosecurity Australia. Australian avocados have been given a high priority for negotiating quarantine access to the USA where the US Free Trade Agreement has given Australian avocados a 4,000 tonne tariff-free quota.

Market development involves cooperation with exporters to develop new markets and provide economies of scale that individual exporters are unable to achieve as solo operations.

Market growth involves the promotion of Australian avocados at trade exhibitions and in retail outlets and food service operators. In the past year Australian avocados were promoted at international trade exhibitions in Berlin (Fruit Logistica) and Singapore (Food & Hotel Asia) helping raise the awareness of influential buyers. At each event there was at least one exporter of avocados on the Australian stand, managed by

Australian Avocado Consumer Research

Thanks to an in-depth consumer research project, the Australian avocado industry now has valuable new information about what consumers and the food service industry really want.

The research project was conducted to guide the development of a marketing strategy for avocados over the next five years. It involved a comprehensive qualitative and quantitative study of avocado consumption from both a consumer and food service perspective.

The qualitative component consisted of focus group discussions with consumers (ranging from the regular user to the occasional buyer), and in-depth interviews with food service operators, including cafes and restaurants, international fast food chains and school canteens.

The quantitative component consisted of 1,000 online interviews with consumers from the regular user through to the occasional buyer.

Fieldwork was then conducted over several stages between April and August 2005, interspersed with strategic workshops.

The results show encouraging consumption patterns, while highlighting areas for improvement.

Market penetration

According to the quantitative research, more than half of all consumers buy avocados fortnightly, and 70 per cent buy at least monthly. Only 8 per cent had never tried avocados.

The qualitative research with consumers also raised important issues for the industry.

Consumers found buying avocados was something of a minefield, irrespective of whether they shopped at a supermarket or local greengrocer.

They reported they found it difficult to determine fruit quality and ripeness, and were unsure when avocados were ready to use. Wildly fluctuating prices also prevented consumers from buying more frequently.

Parents reportedly found it difficult to introduce avocados to their children.

While some of the younger mothers had introduced avocados while their child was still a baby, most only did so when the child was past the toddler stage.

There were a number of reports of children who refused to try, or simply didn't like, avocados.

The bigger problem for parents however, was finding ways to introduce avocados so that they weren't seen as a challenge.

Avocados are seen as healthy

Consumers spontaneously spoke about the 'good fats' in avocados. They believed that while avocados were high in fat, they didn't raise cholesterol or clog arteries.

Consumers also believed that avocados contained 'other good stuff' but were unable to say what these other good things were. Like all fruit and vegetables, avocados are seen generally as being 'good for you'.

Preparing avocados for the food service industry

The research showed a clear need for a new technology or process to prepare commercial quantities of avocados for the food service industry.

The real question for the Australian avocado industry is whether the investment required to deliver this solution will pay off in the long run.

There is significant opportunity in this sector. Researchers were surprised at the level of interest in including avocados on the menu.

Providing pre-prepared avocado that can be kept in store (and meet shelf life criteria) will be a particular issue for fast food chains.

HAL, to generate business for the avocado industry.

Much of the demand for avocados is generated through the food service industry where Australia has a quality advantage with the large sizes, however an increasing number of avocados are being sold to consumers in Asian markets as they are introduced to the taste and health benefits of avocados.

New export promotion material incorporating the brand Australia imagery from Tourism Australia has been trialled this year and should be more widely available for export promotions in the 2006/7 season.

Country	Jul 01-Jun 02	Jul 02-Jun 03	Jul 03-Jun 04	Jul 04-Jun 05	Jul 05-Jun 06
Middle East (15)	44.83	81.81	88.78	157.21	246.21
Singapore	32.46	154.13	117.11	132.12	234.47
Hong Kong	79.89	86.34	86.28	76.20	214.57
Thailand	-	0.61	13.05	44.39	102.57
Malaysia	15.21	38.58	32.61	38.65	67.57
New Zealand	49.88	15.70	39.77	72.62	36.27
all other	3.06	16.21	39.61	15.74	15.70
TOTAL	**225.33**	**393.38**	**417.22**	**536.93**	**917.35**

Source of data: Australian Bureau of Statistics; HAL analysis

Table 1: *Australian avocado exports showing an increasing trend in tonnes*

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The research also showed that food service operators would prefer avocado in diced form, allowing both whole cubes for salads and mashed spreads for burgers and sandwiches.

Areas for future improvement

The research highlighted a number of issues for the avocado industry, including:

- Consumers are prevented from purchasing more frequently by variable fruit quality and difficulties judging ripeness
- 'Half-at-a-time' portion control can lead to waste, a problem for consumers and the food service industry
- Price can inhibit purchasing
- Even though avocados are seen as healthy, a perception remains that it's possible to have 'too much of a good thing'
- The lower down the socio-economic scale, the more difficulty parents had introducing avocados to children
- Lack of options in hot food (bar Mexican cuisine)
- Difficulties delivering pre-prepared avocado for the food service industry

A solid platform to build on

Research revealed many areas of strength which the Australian avocado industry can build on:

- Market penetration is high. Only a limited percentage have never trialled avocados or stopped buying them
- It's a main stream food, but still associated with aspirational imagery
- Avocados are more than just salad fillers – they have a real gourmet food potential
- Using avocado spreads is becoming established in the café industry
- Avocados are known for their 'good fats', but there's room to promote other vitamin and mineral content
- An optional extra may be investing in a greater presence in the food service industry

The results of the consumer research have led to the launch of a new promotional program in May 2006. The program is founded on a new creative concept and promotes both the versatility and nutrition of avocados.

Project AV04015

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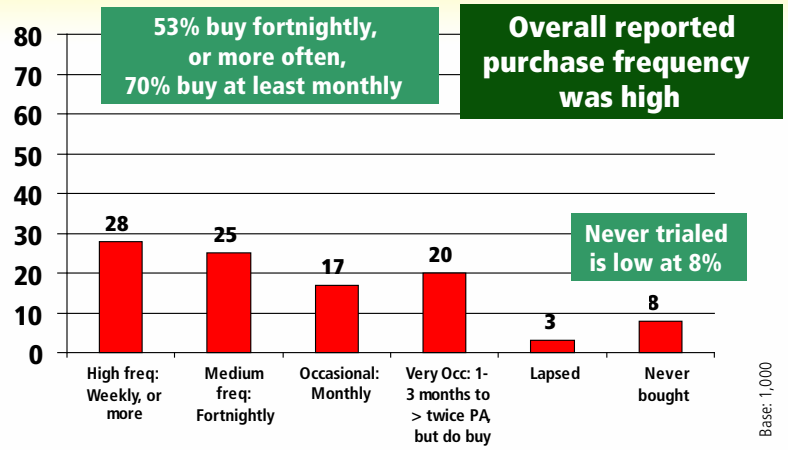
All Avocado Purchase Frequency: **All respondents**



Improved management of avocado diseases

The avocado industry faces ongoing problems with fruit quality due to anthracnose, pepper spot and stem-end rot. In addition, Phytophthora cinnamomi continues to cause root rot and kill trees unless regular phosphorous acid injections are undertaken. This project is testing ways to improve disease management in orchards and reduce reliance on chemical controls.

Trial assessing rootstock tolerance to Phytophthora root rot disease at Duranbah (NSW), 2006

The project aims to:

- develop further improvements in Phytophthora root rot management by evaluation of rootstocks for disease tolerance
- evaluate disease control using new fungicides and activators, including silicon
- develop nursery-based rootstock screening procedures for fruit disease resistance (particularly anthracnose, stem-end rot and pepper spot) based on defence compounds and mineral uptake
- evaluate disease control application methods

Field screening for fruit disease control using trunk injections with silicon

Early experiments found that postharvest anthracnose could be significantly decreased by using trunk injections eight and 12 weeks prior to harvest.

In experiments where silicon treatments were applied earlier, results were variable, but 1000ppm applied 32 weeks prior to harvest and 2000ppm applied 12 weeks prior to harvest were highly effective. There was a trend for reduced disease in fruit from injected trees. None of the treatments had a significant effect on the development of stem-end rot.

In experiments to determine if rootstock has an effect on uptake of silicon by injection to control postharvest anthracnose, there were no significant differences between treatments. However, high disease levels interfered with disease assessments.

Phosphorous acid application methods

After the discovery that injection of trees with phosphorous acid can inhibit feeder root growth if applied at the commencement of root flush, we compared injections with trunk sprays for control of root rot. When injected, most of the phosphorous acid travels down to the roots. The concentration in the roots is relatively high and, therefore, inhibitory.

When sprayed onto the trunks, a lower but more consistent supply of phosphorous acid travels to the roots, with little or none ending up in the canopy. Levels in the roots are sufficient to see recovery in severely affected trees. Trials are continuing.

Pot trial assessing the effectiveness of various silicon formulations to control Phytophthora root rot in seedlings, 2006

Preharvest fruit dipping

It was found that Pentrabark significantly reduced anthracnose disease severity and delayed ripening by an average of 24 hours, however, the defence activators Kasil and Bion showed variable results.

Silicon and root rot in the glasshouse

A trial conducted on seedlings, comparing drenches of Kasil and phosphorous acid and incorporating *P. cinnamomi* inoculation, found that phosphorous acid treatment significantly improved tree and root tip health but silicon application had no effect.

A trial to evaluate uptake of five silicon products in seedlings and their effects on *P. cinnamomi* root rot confirmed that silicon does not control root rot.

Rootstocks and root rot in the glasshouse

Seedlings of six rootstocks were used. Half of the trees had their roots trimmed. Half of the trimmed and half the untrimmed trees were inoculated with *P. cinnamomi*. There were significant differences in root regeneration capacity between the rootstocks, in both healthy and diseased soil. Further testing with a large number of rootstocks will be carried out.

Project AV04001

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Harvest temperature effects on post harvest avocado quality

Research underway to determine the impact of high harvest temperatures and cooling delays on fruit quality has yielded promising results to date.

The research is being carried out in WA's south west where avocados are harvested during the hottest months of the year and temperatures regularly top 30ºC by mid-to-late morning.

While Californian recommendations are to avoid harvesting when temperatures rise above 30ºC, and to remove field heat from fruit within six hours of harvest, this is not always possible in Western Australia where some growers must harvest all day and many use central packing and cooling facilities, which can delay cooling for up to 24 hours.

The research project has now been tracking the effects of high harvest temperatures on fruit quality for two seasons. The research sees fruit harvested at increasing temperatures above 28ºC. It is then held in trays under shade for two or 24 hours, and cool stored at 5.5ºC for 28 days before ripening at 17ºC with 'ripe-gas'.

Year one data resulted in very little impact on fruit quality. In the second year, data showed a significant impact on fruit with 35 per cent dry matter, and very little impact on fruit with 31 per cent dry matter.

Body rots increased with more mature fruit when temperatures rose over 32°C, or there was a 24 hour delay in cooling. However, it did require more than 10 days of ripening (at 17ºC, four days with ripe gas added) to display sufficient body rots to allow assessment.

On the strength of the data from year one and two, the trial has now moved to a verification stage involving commercial storage, long distant transport (to east coast markets) and ripening operations.

When complete, data from the project will help the avocado industry develop new guidelines to ensure fruit quality.

Project AV03005
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Avocado Partnership Agreement

Industry consultation and communication are two key elements funded through the Avocado Partnership Agreement between HAL and Avocados Australia.

Through this funding arrangement Avocados Australia has continued to expand its communication tools over the past year to benefit the industry at large.

The newly launched website continues to grow in content, and ***Talking Avocados***, ***Guacamole*** and ***Avo Snapshot*** are still going strong thanks to continual improvement.

Launched in May 2006, the website now contains an exciting consumer section. It includes a large recipe database, nutrition information and beauty tips.

The grower section has also been re-branded to match the promotion campaign.

Talking Avocados remains an important and effective communication tool for the industry. Reports in *Talking Avocados* are practical summaries for growers on the latest in R&D, marketing, industry issues and avocado information from around the globe.

The fortnightly *Guacamole* email newsletters helps industry leaders communicate quickly, effectively and cheaply with growers. When Cyclone Larry hit north Queensland in March 2006, *Guacamole* was put to good use to assist growers in the recovery process. *Guacamole* is full of short, sharp summaries to provide growers with snapshots of relevant industry information.

Industry consultation also remained a core part of Avocados Australia's communication activities. The Avocados Australia Board met with the Avocados Industry Advisory Committee (IAC) five times from July 2005 to March 2006.

Each meeting was essential to both the decision-making process and in ensuring the effective execution of industry programs. The implementation of the new promotional program has been an important part of the IAC's work over the last year.

Project AV05910

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Marketing and communications overview 2005-06

The avocado industry is undergoing continued and rapid growth. The industry has been growing at a rate of 35 per cent over the last five years as new orchards have been established. Currently Australia is producing 34,000 tonnes per annum.

Avocados have become a more desirable fruit as consumer awareness of their health benefits, taste and versatility has increased. For example, the popularity of avocados as a spread can be noted in sandwich shops alone. The recent TV campaign and success of public relations has helped achieve this outcome that has helped the industry maintain viable prices in the wake of ever increasing volumes.

In 2005, the avocado industry commissioned new market research to assess the consumer use and attitudes towards avocado consumption in the domestic market. The research vindicated the strategies of the previous five years positioning avocados as a year-round food with positive health attributes and as a regular consumption item.

What set avocados apart from the rest of the fresh produce market is that they are considered to be both a fruit and a vegetable, they have a distinctive taste and texture and they are unlike anything else. Most consumers were able to talk about avocados' 'good fats' and were aware that there were other vitamins and minerals but couldn't mention any of them; 85 per cent of respondents considered avocados to be either quite or very healthy.

The key recommendations of the consumer research were to:

- increase use among occasional users
- promote the vitamin and mineral content among the general population
- increase sales in Victoria
- promote avocado spread usage
- increase consumption among children

For this current year, 2006, the industry has decided to kick off a new campaign which is based on the results of the consumer research carried out in 2005. After selecting four service providers to pitch for the program, the avocado industry awarded the campaign to De Pasquale, a Brisbane based agency. This agency is now responsible for creating and implementing an innovative campaign which will build on the solid work carried out in the previous five years.

The objective of the new campaign is to motivate occasional users to increase purchase frequency, and to maintain the purchase frequency of high users.

The strategic direction set for the current program is focused heavily on versatility, demonstrated by recipe usage. Targeting the traditional female grocery buyer 25 to 54 years (with a skew to 25 to 39 years), both media and creative relies on introducing new uses for avocado supported always by specific recipe usage. The Campaign line, '*Add an avo*' plays perfectly to the avocado's role as an accompaniment to meals, delivering a real product truth in the way they are used. At the same time, the health benefits will continue to be supported with a supplementary campaign focused on vitamin and mineral content. This strategy delivers two key messages to the market. That avocados are both '*Versatile*' and '*Good for You*' supporting the overall positioning that avocados are amazing. "*The most versatile and nutritious fruit on earth.*"

Magazines filled the major media role in 2006 with full page colour advertisements, recipe leaflets and both a consumer and food service competition delivered by up over 10 consumer and food service titles. Using magazines enables key messages to reach a higher percentage of the target audience more often than any other media given the current spend. It also provides the opportunity to educate consumers with more in-depth information than is possible through a TV commercial.

To be certain that as many of our target audience as possible were exposed to the message, the magazine advertisement was supported by on-line advertising, newly developed in-store media and point-of-sale. The avocado website is a large part of this campaign, it continues to serve as a reference point for consumers where they can find more recipes and information about avocados.

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Canopy Management Strategies

Canopy management is one of the major production issues facing the avocado industry today. This project is investigating ways to optimise light penetration, maximise and maintain fruit quality and yield, and improve efficiency of harvesting and spraying operations.

Sixteen trial sites have been set up, from the five major production areas (North Queensland, Central/Southern Queensland, Northern/Central New South Wales, Sunraysia and Western Australia).

The range of canopy management options are being trialled include:

- Tree removal
- Stag-horning/stumping
- Selective limb removal
- Selective and mechanical pruning
- Cincturing and plant growth regulators

In many cases a combination of strategies are being used, such as mechanical pruning, selective pruning and application of plant growth regulators.

Information on tree age and spacing, the timing of flowering, vegetative flushing and harvesting and a history of canopy management operations have been collected for each site.

In 2005/06 researchers met with growers on-farm at pruning time and during harvest to collate information on the timing and costs of canopy management strategies and the impact on yield, fruit size and quality. In turn each canopy management system has been evaluated on cost, yield, fruit size and quality, tree size control and the net return per hectare.

A further trial studying the effect of prohexadione-calcium (Regalis®) on shoot growth, fruit yield and quality in Hass avocado was repeated during 2005/06.

Five year old Hass trees being hedged using an Afron pruner

When Foliar applications (at 0.5, 0.75 and 1.0 g/l) were applied to six year old trees at full bloom and again 10 days later, the treatment had little effect on yield. However, with higher rates of treatment there was a trend toward reduced shoot growth and a lower incidence and severity of fruit disease.

The project continues, with the effect of naphthalene acetic acid (NAA) on regrowth control in pruned trees and the impact of uniconazole (Sunny®) application on shoot growth, flowering and yield in stumped trees, currently being investigated.

Trees pruned to form an 'A' shape allowing good light interception into the orchard

Project AV04008

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Study Tour, USA and Mexico

Growers and packers had the opportunity to learn from the world's two largest avocado producing countries, Mexico and the USA, during a capacity building study tour to those two countries in November 2005.

The ability to recognise and absorb learnings from the world's leading producers of avocados is regarded as essential to the Australian industry's survival.

Delegates completed a 10 day study tour of Mexican and Californian avocado industries and attended the 2005 PMA Fresh Summit from 4 to 8 November.

The PMA Fresh Summit was attended by more than 17,000 delegates from over 60 countries. The educational program featured 10 different tracks developed to address the key leadership, management, and operational challenges facing the fruit and vegetable business.

More than 800 companies, including the industry's leading suppliers, smaller companies showcasing specialty products, and international trade pavilions, exhibited at Fresh Summit.

The Mexican avocado industry is concentrated around Uruapan in central western Mexico. The industry produces more than 1,000,000 tonnes of avocados per year. Just over 200,000 tonnes are export to the USA each year during the period November to April. Mexico has the highest per capita consumption of avocados in the world at around the 10kg per person per year. This results in the Mexican also being one of the highest value markets for avocados as the strong demand equates to good returns for growers.

CAC Stand at PMA Fresh Summit '06

Mexican growers sell the fruit on the tree at a per kilogram rate. Packing houses buy the fruit on the tree, pay for harvesting, transport, packing and marketing. The growers are generally paid within seven days of harvest.California is a well organised cohesive industry. With the Californian Avocado Commission (CAC) collecting levies and managing an extensive and very successful marketing program along with a range of R&D projects. The industry has been developing for more than 90 years.

The Californian industry has grown over the last 30 years from 50,000 tonnes to 180,000 tonnes. Over this time the USA market has been opened to a range of imported fruit. The industry also manages a larger marketing program for the generic promotion of all avocados including all imported fruit.

Mexican Packing House

Project AV05008
Voluntary Contribution

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Rootstock Improvement

The Australian avocado industry has continued to expand using a mixed range of rootstocks, selected by nurserymen, with no real data to substantiate their performance.

To address this, a project is underway to develop consistently high yielding and disease tolerant rootstocks, that produce high quality fruit.

Despite a sound nursery scheme (Avocado Nursery Voluntary Accreditation Scheme) to supply disease-free, true-to-type trees to industry, the development and use of superior rootstocks remains a challenge.

Recent studies in Australia, comparing post harvest anthracnose development of Hass fruit from trees grafted to different seedling rootstocks, suggests that through selection and evaluation, significant progress can be made in improving the genetic foundation of Australian avocado trees.

Etiolation room

During 2004/05 approximately 1,400 Hass and Shepard trees were planted in different production areas of Australia for long term evaluation. The trees were grafted to rootstocks representing the three horticultural races of the species, since they impart different performance characteristics to trees.

Rootstocks were either clonally propagated giving genetic uniformity between trees or grown as seedlings showing genetic variability.

In 2006 the first growth measurements were collated. Tree growth on the various rootstocks performed differently across the different environments. At Pemberton in WA 'Hass' grafted to cloned 'Zutano' rootstocks showed the best growth, whilst at Walkamin in North Queensland this occurred where 'Hass' was grafted to cloned 'Velvick', and 'Shepard' a Mexican hybrid variety grew most when grafted to cloned 'Thomas', a Mexican race rootstock.

Analysis of the tolerance of Phytophthora rot root, showed 'Velvick' (both as a cloned or seedling rootstock) and 'SHS-R01' as a seedling rootstock had the best results. While these results are preliminary 'Velvick', which is available from commercial nurseries, should be seriously considered for use when replanting old avocado ground.

Rootstocks have now been recovered from five high performing trees and vegetatively cloned (Fig. 1) then grafted to Hass. These trees will be planted in the field during the spring of 2006 to assess if the high producing trait of the parent trees can be attributed to genetic superiority or to site influence.

Project: AV04007

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Revision of standards for elevating work platforms

Revision of standards AS1418 pt 10 & AS2550 pt 10

Horticulture now has an engineer representing the growers' interests with regard to elevated work platforms (EWPs) and compliance with the Australian Standard.

Occupational Health and Safety (OH&S) regulators across Australia require that EWPs comply with the Australian Standard, AS2550.10 (Safe use) and AS1418.10 (Design).

Growers have been concerned that horticulture EWPs often do not comply with significant provisions of the standards and these non-compliances have been used to help prove prosecutions by state OH&S regulators. Regulators have been taking an increasing interest in horticulture through information sessions and audits. Some 8000 EWP's currently used in orchards are affected.

This project engaged an experienced engineer to represent horticulture on the standards review committee and present a case for change to bring horticulture EWP's into compliance. The final project reports are available bu email from the address below.

The project was successful in effecting changes to AS2550.10 to meet the needs of horticulture:

1. AS2550.10 formerly required operators to wear a fall-arrest harness. However, the work showed the harness introduced extra safety risks and that the risk of fall could be managed better by other means. The mandatory requirement has now been replaced by a requirement to use risk assessment to gauge the risk of falls. A documented risk assessment will be essential to defend any decision not to employ a harness in the event of an EWP accident.
2. The AS2550.10 major inspection program had required involvement of engineers and testing professionals not generally available across rural Australia. The work showed that existing maintenance personnel with extra training could provide the required skills. Consequently, the requirement for professional maintenance personnel has now been struck out and requirements of 10 year inspections simplified and less prescriptive

A typical EWP as used in orchards across Australia

The project has been extended to represent horticulture at the AS1418.10 committee review starting April 2006. The committee plans to consider accepting the European Standard ISO 16368 as the basis for the new AS1418.10. The idea has merit in that the European standard is generally accepted as authoritative and is well supported by test results and analysis. Its acceptance as an Australian Standard would save ongoing development costs.

However, clear evidence exists that some modification to the ISO standard is necessary to meet Australian industry needs. ISO 16368 does not meet the needs of the Australian horticulture EWP community in several respects:

1. The maximum traverse speed allowed by ISO 16368 is just 25% that normally used in Australian orchards. The lower speed requirement appears to be associated with the needs of higher and larger industrial EWPs and does not meet needs of horticulture.
2. Differences between AS1418.10 and ISO 16368 in relation to hydraulic design, operator platform details, and design of controls need to be resolved before ISO 16368 could be accepted by horticulture users in Australia and New Zealand.

The final report argues that horticulture needs ongoing representation on Australian Standards committees. Standards are the forum of manufacturers and users to ensure their needs are met within the requirements of the legislated Acts and Regulations. The alternative is to maintaining representation is to rely on representatives from other EWP sectors to do their best for horticulture. However, their best may well not meet the needs of horticulture.

Project HG05031

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Avocado program 2005/06

Project No	Title	Contact/ researcher	Organisation	Phone	Email
AV02009	Optimising the posharvest qualities of Hass avocado through improved calcium nutrition	Peter Hofman	QLD Dept of Primary Industries and Fisheries	07 54412211	peter.hofman@dpi.qld.gov.au
AV03005 (vc)	Harvest temperature effects on postharvest avocado quality	Alec McCarthy	Dept of Agriculture WA	08 9780 6273	amccarthy@agric.wa.gov.au
AV03007 (vc)	Assisting the development of the avocado oil industry in Australia and New Zealand	Allan Woolf	The Horticulture and Food Research Institute of NZ Ltd	+64 9 815 4200	woolf@hortresearch.co.nz
AV03009	Development of avocado sunblotch viroid indexing protocols for the avocado nursery industry	Andrew Gearing	QLD Dept of Primary Industries and Fisheries	07 3896 9353	andrew.geering@dpi.qld.gov.au
AV04001	Improved management of avocado diseases	Fiona Giblin	QLD Dept of Primary Industries & Fisheries	07 3896 9299	fiona.giblin@dpi.qld.gov.au
AV04007	Rootstock Improvement for the Australian Avocado Industry - Phase 2	Anthony Whiley	Sunshine Horticultural Services Pty Ltd	07 54415441	whileys@bigpond.com
AV04008	The development of canopy management strategies suited to the different growing environments across Australia for increased profitability	John Leonardi	Avocados Australia Ltd	07 3391 2344	j.leonardi@avocado.org.au
AV04015	Australian Avocado Consumer Research	Antony Allen	Avocados Australia Ltd	07 3391 2344	ceo@avocado.org.au
AV05001 (vc)	High Pressure processing of avocado products	Mala Gamage	Food Science Australia	03 9731 3471	thambaramala.gamage@csiro.au
AV05002 (vc)	Riverland & Sunraysia Avocado Growers Study Tour of Western Australia, April 2006	James Altmann	Biological Services	08 8584 6977	fruitdrs@hotkey.net.au
AV05003	Support to the Australian Avocado Industry Infocado (crop flow): volume data collection	Joanna Embry	Avocados Australia	07 3391 2344	j.embry@avocado.org.au
AV05005	Avocado levy consultation process	Antony Allen	Avocados Australia Ltd	07 3391 2344	admin@avocado.org.au
AV05007 (vc)	The 2005 Australian and New Zealand Avocado Growers Conference "Profit Together" - Tauranga (20-22 September)	Antony Allen	Avocados Australia Ltd	07 3391 2344	ceo@avocado.org.au
AV05008 (vc)	Avocado Industry Capacity Building Study Tour, USA and Mexico, November 2005	Antony Allen	Avocados Australia Ltd	07 3391 2344	ceo@avocado.org.au
AV05900/10	Avocado Partnership Agreement 2005/06	Antony Allen	Avocados Australia Ltd	07 3391 2344	a.allen@avocado.org.au
HG03070	Development and implementation of industry biosecurity plans	Rodney Turner	Plant Health Australia	02 6260 4322	rodney@phau.com.au
HG04006	Assessment of the national fruit and vegetable consumption campaign	Martin Kneebone	RETAILworks Pty Ltd	03 9852 8733	mkneebone@retailworks.com.au
HG05031	Revision of Australian Standards AS1418 Pt 10, and AS2550 Pt 10 as applied to Elevating Work Platforms (EWP's) used in Horticulture	Keith Batten	Keith Batten & Associates	0418 738 969	batten@bigpond.net.au
	Domestic Marketing Program	Yelli Kruger	HAL	02 8295 2300	yelli.kruger@horticulture.com.au
	Export Marketing Program	Wayne Prowse	HAL	02 8295 2300	wayne.prowse@horticulture.com

The avocado industry contributes funding towards an across industry program that addresses issues affecting all of horticulture.
Details of the current program are listed on pages 14 and 15.

Across Industry Projects

Project No	Title	LOP Budget	Project Start	Project Completion	Organisation	Researcher	Contact No
AUSHORT							
AH01015	Key genes for horticultural markets	$2,409,090	2001/02	2006/07	CSIRO Plant Industry	Steve Swain	08 8303 8600
AH03002	Area wide management of fruit fly - Central Burnett	$1,072,727	2003/04	2006/07	QLD Dept of Primary Industries and Fisheries	Annice Lloyd	07 3896 9366
Outcome 1: Enhance the efficiency, transparency, responsiveness and integrity of the supply chain for the total industry to provide clear market signals							
AH04036	RPCs / Cartons / Packaging Standardisation - Market Interaction & Change Opportunity	$22,866	2004/05	2005/06	HAL	Gerard McEvilly	02 8295 2300
AH05007	Horticulture Commercialisation Casebook	$30,000	2005/06	2005/06	CDI Pinnacle Management P/L	Shane Comiski	07 3217 6466
Outcome 2: Maximise the health benefits of horticultural products in the eyes of consumers, influencers and government							
AH03011	Promoting the health advantages of fruit and vegetables to increase their consumption	$300,000	2003/04	2004/05	HAL	Sarah Pennell	02 8295 2300
AH05027	Ensure equivalence of imported product with Australian quality specifications and food safety and chemical residue requirements	$50,000	2005/06	2005/06	Food Compliance Australia P/L	Ian Delaere	08 6242 1355
Outcome 3: Position horticulture to compete in a globalised environment							
AH04006	Horticulture gene technology communication	$90,000	2004/05	2006/07	Agrifood Awareness Australia Ltd	Paula Fitzgerald	02 6273 9535
AH05003	Coordination of market access for horticulture products	$300,000	2005/06	2005/06	HAL	Stephen Winter	03 9832 0787
AH05023	Market Access Support Program	$50,000	2005/06	2005/06	Australian Citrus Growers	Mark Chown	03 5023 6333
AH05016	Codex attendance	$16,000	2005/06	2005/06	HAL	Richard Bennett	03 5825 3753
AH05017	Strategic review of industry development in horticulture	$74,882	2005/06	2005/06	Concept Consulting Group P/L	Brian Ramsay	02 6294 2157
AH05030	Industry Development Review Implementation Plan	$30,118	2005/06	2005/06	Concept Consulting Group P/L	Brian Ramsay	02 6294 2157
AH05019	Levies on imported products	$9,840	2005/06	2005/06	p2p business solutions	Jenny Margetts	07 3311 2710
AH05024	Fruit fly workshop	$70,000	2005/06	2005/06	HAL	Brad Wells	02 8295 2300
Outcome 4: Achieve long-term viability and sustainability for Australian horticulture							
AH03006	Plant Health Coordinator	$209,200	2003/04	2003/04	HAL	Peter Merriman	03 9836 0865
AH03007	Coordination of the horticultural plant improvement programs	$179,915	2003/04	2005/06	HAL	Paul Brennan	02 6688 0245
AH04007	Pesticide regulation coordinator	$850,000	2004/05	2009/10	AKC Consulting P/L	Kevin Bodnaruk	02 9499 3833
AH04009	Coordination of minor use permits for horticulture	$499,000	2004/05	2007/08	AgAware Consulting P/L	Peter Dal Santo	03 5439 5916
AH05009	Horticulture Water Initiative Phase 2 - water access for Australian horticulture	$177,269	2005/06	2005/06	RM Consulting Group	Charles Thompson	03 5441 4821

AH05011	Review of key genes for horticulture	$30,000	2005/06	2005/06	BiotechSmarts Consulting	Glenn Tong	03 9479 1698
AH05012	Economic evaluation of the biotechnology portfolio	$75,000	2005/06	2005/06	Innovation Dynamics	Joan Dawes	02 9209 4233
AH05021	Horticulture's submission to "Ensuring a profitable and sustainable agriculture and food sector in Australia" white paper	$13,600	2005/06	2005/06	Hassell & Associates	Jan Paul van Moort	02 9241 5655
AH05026	Horticulture's submission to "Ensuring a profitable and sustainable agriculture and food sector in Australia" white paper - Stage II	$55,950	2005/06	2005/06	Hassell & Associates	Jan Paul van Moort	02 9241 5655
AH05028	Inquiry into Pacific region seasonal contract labour	$20,000	2005/06	2005/06	George Brownbill Consulting P/L	George Brownbill	02 6162 1905
AH05029	Review of the Horticulture Water Initiative Program (AH05009)	$14,600	2005/06	2005/06	Scholefield Robinson Horticultural Services P/L	Peter Scholefield	08 8373 2488

The avocado industry contributes funding towards an across industry program that addresses issues affecting all of horticulture. Details of the current program are listed above. A full report of the program can be found at ***www.horticulture.com.au/industry/acrossindustry.asp***

Go for 2 & 5™ consumer campaign

Assessment of the National ***'Go for 2 & 5'™*** Fruit And Vegetable Consumption Campaign

In 2005, $5.5 million was invested in a communications campaign to encourage consumers to eat more fruit and vegetables.

A project was undertaken to analyse the campaign's commercial impact. A key finding of the analysis was that marketing campaigns of this style and scale can indeed generate commercial returns.

The assessment focused on the impact of two phases of activity:

- $5 million national campaign, running for nine weeks from April to June 2005
- $500,000 Queensland campaign, which ran for four weeks during October 2005

There were no precedents for this type of assessment, so a new methodology was developed.

The new method determined the impact on demand of the total volume, and the value of all forms of fruit and vegetable products purchased over the two campaign phases.

The analysis showed that the national campaign had generated an impressive $52.9 million in retail sales over the nine week period, substantially more than the initial investment.

The 11,602 tonnes increase in sales represented an increase of more than 0.136 serves per day per capita over the campaign's nine week duration.

In Queensland, the results were even better, returning almost $9.4 million in retail sales, equating to an increase of almost 0.261 serves per day per capita over this campaigns four week duration.

It's likely that Queensland campaign recorded stronger results because it also benefited from the earlier national campaign.

In order to undertake the project the researchers also defined the volume and value of the fruit and vegetable markets that could possibly have benefited from the campaigns.

On a national level, the markets totalled almost 2.5 million tonnes, or $7.4 billion in retail value. Within Queensland, they totalled 505,905 tonnes, or $1.6 billion in retail value.

The results of this project should assist horticulture industries in planning future media investments.

Project HG04006

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Investment Summary 2005/06

Year Ended 30 June 2006 Unaudited

	Marketing 2005/2006	R&D 2005/2006	Combined 2005/2006
Funds available 1 July 2005	389,522	308,638	698,160
INCOME			
Levies Received	890,269	474,789	1,365,058
Commonwealth Contributions		509,623	509,623
Other Income	33,065	15,466	48,531
Total Income	923,334	999,878	1,923,212
Budget	790,951	937,581	1,728,532
Variance to Budget	132,383	62,297	194,680
PROGRAM INVESTMENT			
Levy Programs	898,172	736,133	1,634,305
Service Delivery Programs by HAL	49,961	283,113	333,074
Across Industry Funding		31,902	31,902
Levy Collection Costs	39,150	20,878	60,028
Total Investment	**987,283**	**1,072,026**	**2,059,309**
Budget	798,187	1,014,695	1,812,882
Variance to Budget	(189,096)	(57,331)	(246,427)
Annual Surplus/Deficit	(63,949)	(72,148)	(136,097)
Closing Balance 30 June 2006	**325,573**	**236,490**	**562,063**

Industry Advisory committee – 2005/06

Bob Granger (Independent Chair)
Antony Allen
Rod Dalton
John Tyas
Lachlan Donovan
Colin Fechner
Jennie Franceschi
Jim Kochi
Henry Kwaczynski
Peter Molenaar
Chris Nelson
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