AVOCADO INDUSTRY REPORT 2006-2007

Avocado program continues to expand

The avocado industry is currently in a phase of significant growth with new plantings coming into production. Levy income was significantly higher than previous years due to the steady increase in production as well as an increase in the levy rate which was implemented in April 2007. However, total levy collection was below budget due to the delayed levy change which was expected by November 2006.

A new strategic plan for the avocado industry was developed in 2005 and a number of new projects have been initiated in 2006/07 to address the priorities set out in that plan. There are three key platforms of the plan which are being addressed through various projects: 1. projects to drive revenue growth, 2. projects to improve production and marketing systems, and 3. projects to facilitate sound industry management. Now that the levy increase is in place, funding is being directed towards priority areas that have previously been beyond the scope of the budget.

This annual report provides a snapshot of the key avocado projects undertaken during 2006/07 through the HAL avocado investment program. The program is well balanced across a range of activities in line with the strategic plan.

Based on a major consumer research study completed during 2005/06 a new innovative and highly integrated marketing campaign commenced in April 2006. New creative imagery has been developed which highlights the messages of versatility and health. The campaign incorporated magazine advertising, consumer website, online advertising, consumer competition, point of sale, food service advertising and competition, and public relations.

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 were implemented to address this. Starting with the consumer, a major sensory research project was undertaken to determine exactly what consumer preferences are for avocados. The next step was to undertake a supply chain mapping exercise to determine where fruit quality and efficiency are impacted. This project will determine the priority needs for the next phase of the program. At the same time, a project is being initiated to monitor performance at retail level throughout the year.

Communication and industry consultation is critical to the effectiveness of the investment program. Managed in partnership between HAL and Avocados Australia, a range of activities were funded through the HAL program in 2006/07. Regular industry and program information was provided to growers by Avocados Australia in the form of *Talking Avocados*, the fortnightly *Guacamole* email newsletter and the avocado website.

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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 & 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.*

Improving the management of diseases

Phytophthora root rot continues to hamper tree health and postharvest anthracnose of fruit continues to reduce quality.

Developing disease tolerant rootstocks will help growers to manage the spread of crop-destroying diseases, so rootstock selection has become a vital consideration for new plantings. Results from this project so far have identified some superior rootstocks, however it is still early days and the trees will be monitored over time.

Researchers are testing old and new rootstocks for Phytophthora tolerance and vigour under varying conditions while taking into consideration essential attributes such as the influence on fruit quality and yield. Six field trials on rootstocks and root rot using a range of seedling and clonal rootstocks are underway.

The project will also evaluate phosphonate application methods and rates for root rot control.

The current recommendation for growers with healthy trees is to inject trees with phosphorous acid twice a year, following hardening of spring and summer flushes.

The trials are continuing, however, results so far suggest that a single injection at the correct time of the year will give a satisfactory root level of phosphonate.

Project AV04001

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Workshops to improve spray application

To control spotting bugs avocado growers are being encouraged to switch from calendar sprays of broad spectrum insecticides to targeted and optimum dose sprays based on pest monitoring.

Spotting bugs are an ongoing issue for the avocado industry in Queensland and New South Wales. The long risk period for spotting bugs and the reliance on endosulfan makes it imperative for avocado growers to adopt better management practices based on monitoring, hotspot management and improved spray application.

A series of 11 full-day workshops are being held over two years to educate growers in spotting bug management opportunities and improved spray application techniques.

Six workshops were held in May 2007 in Western Australia, NSW and Queensland. A total of 85 growers attended the workshops and received a comprehensive 52-page workshop manual. Evaluation sheets were distributed to all participants and returned by 43 growers.

Workshops were generally well received and after the workshops 32 per cent of participants said they were now very confident in managing spotting bugs, while 51 per cent were quite confident. Five per cent of growers were undecided and 12 per cent (mostly in WA) felt spotting bugs were not an issue for them.

Thirty-nine per cent of participants said they were now very confident in setting up and calibrating their own sprayer and 61 per cent were quite confident. Eighty-four per cent of participants said the workshop information was generally presented in a clear way and 81 per cent rated the venue and demonstrations as very good.

Six participants have sent their sprayer setup details for a free assessment. The remaining workshops will be held in autumn 2008.

Project AVO6001

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Farm visits reveal growing conditions

Twenty avocado growers from New South Wales and Queensland visited the two main avocado producing areas of Western Australia to look at growing and cultural techniques. Growing conditions in WA are vastly different to those of the East Coast and the harvesting season extends from September to March. Being counter season to the major avocado producing areas in Eastern Australia means demand often exceeds supply. Fruit moves rapidly through the market, helping to mitigate fruit quality problems.

In WA fruit set and early development occurs during the cooler wet winter months, while most of the fruit development and harvesting occurs over the hot dry summer months. These conditions minimise insect pest and disease pressure resulting in high-quality fruit with little crop loss and minimum chemical intervention.

Most of the growing areas had sandy soils requiring frequent irrigation. The well-drained soil also contributed to the low incidence of Phytophthora root rot. As with East Coast growers, canopy management is a major concern and various techniques are being used.

Project AV06013

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Fruit quality's effect on buying

Determining the level of fruit quality that negatively impacts on consumer purchasing behaviour is being investigated.

The project aims to:

- Determine the minimum maturity, (as measured by percentage of dry matter) that produces Hass avocados, which are of acceptable eating quality to consumers.
- Determine the level of ripeness or firmness preferred by consumers at consumption.
- Determine the maximum acceptable level of internal defects or bruising at different price points above which future consumer purchasing decisions are negatively influenced.

Research was undertaken in Brisbane using 107 consumers from Avocados Australia consumer research target demographic. People were recruited on the basis that a third fell into the categories of 'high frequency', 'medium' and 'occasional' eaters of avocados.

Consumers handled and tasted avocados to identify fruit characteristics that are perceived as being of optimum quality. Quality was quantified using defined objective measurements such as percentage of dry matter content, puncture force, area of damaged/bruised flesh and frequency of damage/bruising.

The avocados came from Queensland and as far away as Western Australia, ensuring a wide range of quality. They were carefully ripened and sorted into distinct groups based on quality characteristics.

Dry matter content, which represents the amount of carbohydrates and nutrients that have been transported from the tree into the fruit, was examined. Consumers showed a progressive increase in liking and willingness to buy avocados as the dry matter content increased.

Consumers gently squeezed the fruit to identify the softer, ripe avocados and indicated they would leave the hard avocados to eat on a later date. After tasting the avocado samples, consumers said they preferred to eat avocados that could be squeezed using moderate to gentle hand pressure. This related to an instrumental flesh firmness of 0.65 kgf or lower as measured using a penetrometer with an 11 mm diameter Effegi probe.

Images of fruit and how consumers react when they cut open an avocado and find the flesh has been damaged by bruising was examined. Each consumer evaluated 16 out of 64 possible scenarios representing 4 price levels ($1.29, $1.99, $2.49 and $2.99) and 4 levels of bruising (10%, 25%, 33% and 50% of the flesh damaged).

The incidence of bruising was also rated in 4 levels (one in 10 fruit, one in five fruit, three in five fruit and five out of five fruit affected by bruising). Consumers were asked to indicate their intention to buy an avocado after experiencing one of these scenarios.

The responses suggest that bruises need to be minimised in order to maintain consumer confidence. Only the lowest levels of damage (less than 10 per cent of the flesh) occurring very infrequently (one in 10 fruit) were tolerated.

Project AV06025

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Improving rootstocks

Hass grafted to GE, which is a rootstock recovered from a Phytophthora root rot infected site. Preliminary evaluation of this rootstock indicates high tolerance to root rot.

The Australia avocado industry has expanded mostly using an ad hoc range of rootstocks with no substantiating data, however, research is underway to assess various rootstocks' suitability to Australia's diverse production regions.

Despite a technically sound nursery scheme to supply disease-free, true-to-type trees, the development and use of superior rootstocks remains in limbo.

During 2004/05 about 1400 Hass and Shepard trees were planted in different production areas of Australia for long-term evaluation.

The trees were grafted to rootstocks representative of the three horticultural races of the species, as they impart different performance characteristics to trees.

In 2006 the first growth measurements were collected and in 2007 more growth measurements and the first yield data were collected.

Yield results have been converted into yield efficiency (kg/m3 of canopy) for each rootstock using the production and growth measurement data. While only preliminary results are available, some trends are evident in the cloned rootstock experiments with Duke 7, Velvick and Zutano producing the greatest yield efficiency.

Variability in the seedling rootstock experiments has not provided any clearly superior performer and further years of evaluation will be needed.

Preliminary results with relatively healthy rootstocks recovered from orchards heavily infested with Phytophthora root rot have given promising results.

Clones of these trees have been grafted to Hass and planted in heavily infested soils for evaluation. One rootstock, coded GE, has out-performed all other material at the site in the first year of evaluation. Many seedling rootstocks used by industry showed poor Phytophthora root rot tolerance over the same period of evaluation.

Project AV04007

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Measuring tree canopy dimensions to calculate yield efficiency of the different rootstocks.

Developing the avocado oil industry

The major factors determining the long-term commercial viability of Australia and New Zealand avocado-processing industries are consistency of fruit supply, particularly of fruit with adequate oil yield, and fruit quality.

This project assessed the oil yield of two cultivars grown in the major production regions of Australia and New Zealand, Hass (Australia/New Zealand) and Shepard (Australia). Some work was also done on less common cultivars.

The maximum oil yield varied from about 10 per cent in early season fruit, to about 29 per cent in late-season fruit, equating to an average 13 per cent yield from commercial cold-pressed procedures.

The percentage of dry matter and the oil yield (based on laboratory extraction procedures) were determined and in both countries dry matter and oil content increased in more mature fruit.

Commercial yield of cold-pressed avocado oil appeared to be the same in fruit of the same maturity in both countries. But, the average yield in New Zealand tended to be higher than in Australia, mainly because more of the fruit was harvested at a higher dry matter level. This may change if the Australian industry changes its minimum fruit maturity level.

Project AV03007

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Improving supply chain efficiency

The eating quality of avocados, productivity, and supply chain efficiency are crucial areas for the industry to address and have been identified as such in the Australian Avocado Industry Strategic Plan 2005-2010.

Recognising that many factors affecting fruit quality, productivity and supply chain efficiency are interrelated, the Supply Chain Improvement Program was developed. Its aims are to identify where the industry sits regarding quality and efficiency and identify points in the supply chain where improvements are needed.

The supply chain is defined as production though to consumer and includes ripening, wholesaling, independent retailing, specialist produce distribution, food service distribution/catering and processing functions.

Consultation with avocado businesses to help understand the nature of the supply chains and the resources available was undertaken.

Avocados Australia has:

- Mapped the supply chain types and identified the main businesses within them.
- Conducted an audit of research related to best practice at each point in the chain and the resources available that support the improved flow of avocados to the customer.
- Developed a database of information to improve business management practices.
- Identified gaps in research, resources and support which impacts on the efficient development of supply chains.

The findings allow Avocados Australia to identify investment needs regarding improved supply chain efficiency, product demand and consumer satisfaction.

Recommendations include:

- Developing a knowledge portal and improving the knowledge of desired quality parameters and marketing issues.
- Undertaking research on benchmarking key production, harvesting and packing activities at business level and developing a fruit quality benchmarking system.
- Extending the Infocado information system for the wholesale sector.
- Recognising businesses which adopt 'best practice' to facilitate improved fruit quality, productivity and supply chain efficiency.
- Avocados Australia to communicate more consistently regarding supply, promotion and other industry development activities.

Project AV06026

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Thai promotion triples sales

In April 2007 HAL and Avocados Australia joined forces with Australian exporter Sunfresh for a month-long promotion designed to increase sales of Australian avocados into Bangkok and other Thai regional centres.

Over the period of the promotion, sales of avocados tripled - a measure of the effectiveness of the early stages of the campaign.

It was obvious that avocado was not a regular shopping item for customers and quality/ripeness had great influence on their purchase.

Historically Thais have purchased hard green fruit, however the fruit provided for the promotion was ready-to-eat. Supermarkets indicated customer buying patterns changed during the promotion, with those previously observed buying a single piece of hard green fruit purchasing three or four pieces of ripe fruit.

The joint promotion included in-store tastings, the distribution of recipe booklets, TV advertising and editorial in local media. An English spoken advertisement was aired on three television channels with 30 different time slots during the course of the promotion. Also, three full page advertisements were published in English newspapers.

In addition advice was provided to retail staff on handling, storage and management of fruit.

Through the promotion the Australian marketing team also had the opportunity to increase its knowledge of Thai culture and cultivate business relationships.

Project AV06508

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Carbaryl residue studies in avocados

Unless supportive residue data is generated, registration of the much-used insecticide product, Bugmaster® Flowable Insecticide may be suspended or cancelled, severely limiting the availability of chemical control options for some key insect pests.

Bugmaster® is registered for use in avocado crops to control insect pests, but following a review of the active constituent conducted by the APVMA, the data submitted to the regulatory authority, many years ago, is now considered insufficient because of newer and stricter regulatory assessment standards.

Avocado growers say this product is an integral component of their pest management programs, and its manufacturer, Bayer CropSciences, has identified the avocado industry as an important market for the Bugmaster®.

Avocados Australia and HAL, in collaboration with Bayer CropSciences, has commissioned a residue study program to generate sufficient residue data to renew the registration.

The independent horticultural research firm Agronico Research Pty. Ltd. will conduct the field-phase of two residue studies in Queensland.

The studies will be conducted inline with the principles of 'Good Laboratory Practice' (GLP).

The GLP field report will be combined with Bayer CropSciences' analytical-phase report and then submitted to the APVMA for review.

The field-phase of the GLP studies is scheduled to begin during August and September this year.

Project AV06020

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Canopy management manual on its way

Growers will soon have access to a manual that illustrates canopy management strategies and assesses their cost efficiencies.

The manual aims to help growers develop cost effective strategies to optimise light penetration, maximise and maintain fruit quality and yield, and improve efficiency of harvesting and spraying operations.

In 2006/07 further information on the timing and costs of canopy management operations and the impact of these strategies on yield, fruit size and quality was collected from the study sites in major production areas.

Canopy management options such as selective limb removal, selective and mechanical pruning, staghorning/ stumping, tree thinning, removal and cincturing, as well as plant growth regulators are being studied.

Trials on the effect of naphthalene acetic acid (NAA) on regrowth control in pruned trees and uniconazole (Sunny®) on shoot growth, flowering and yield in stumped trees have also been undertaken.

Findings show that NAA at a half to one per cent, applied as a water spray or mixed with paint, reduced the number and length of regrowth shoots on pruned branches.

In other results, foliar applications of one or two per cent Sunny® in February 2006 to young vegetative growth and in May 2006, before floral bud development, reduced shoot growth and increased flowering in trees stumped in June 2005. There was a trend towards increased yield in trees treated in May.

Field days are being held in the major production regions during 2007 to allow growers to see a range of canopy management strategies and identify systems that might be suitable for them.

The manual will be finalised in 2008.

Project AV04008

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Increasing avocado exports

Australia Fresh Fruit Logistica Stand

With the assistance of committed exporters breaking new ground, exports of Australian avocados are expanding. While expanding from a small base, avocado exports have reached 924 tonnes.

Export development is a strategic goal for the horticultural industry and the avocado industry is part of the growth plan. Australian horticultural exports were valued at about $800.5 million in 2006, representing some 12 per cent of total production.

Promotion, in co-operation with Sunfresh an exporter of avocados to Thailand, helped introduce avocados to Thai consumers. Australian sales of 132 tonnes, represents more than 90 per cent of all imported avocados into that country.

Generally, expanding tourism and expatriate communities provide the initial demand in a country and slowly avocados become accepted by the local communities.

Demand for avocados in Singapore and Malaysia is also expanding and Australia is the leading import origin. The support for promotion and retail training by Australia is beneficial to building long-term growth.

Promoting avocados in major world exhibitions helps raise the profile of Australian avocados and shows world buyers that Australia is a high-quality producer.

HAL, presenting as Australia Fresh, has had stands at three exhibitions for the horticulture industry. These include Fruit Logistica, the world's largest fresh produce exhibition with 45,000 visitors from 100 countries and Gulfoods held in Dubai and HOFEX in Hong Kong.

In co-operation with Austrade, Tourism Australia and Avocados Australia, HAL is using brand Australia imagery to promote Australian avocados in retail outlets in a way that creates a year-round program at peak production periods.

Project AV06509

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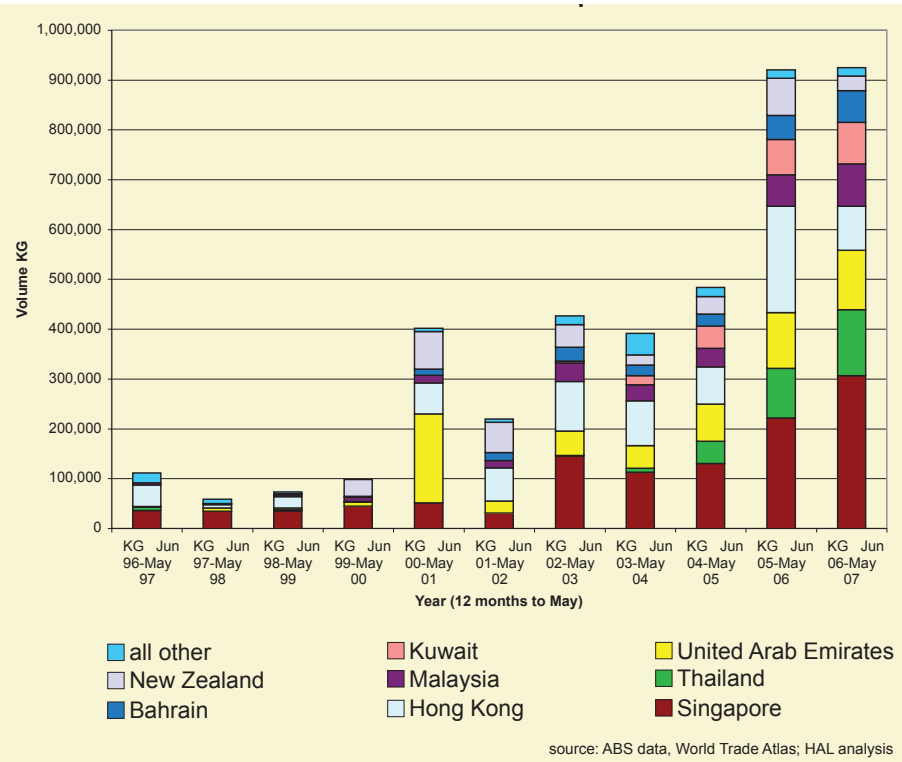
Australian Avocado export destinations



source: ABS data, World Trade Atlas; HAL analysis

Study groups to improve competitiveness

Study groups to help growers improve production efficiency and fruit quality are being delivered by this project across 10 main avocado production regions of Australia during 2006/07.

Topics covered to date have included preparation for harvest, irrigation, irrigating with limited water, nutrition, integrated Phytophthora control, biennial bearing, flowering and pollination.

Attendance by growers and re-sellers has averaged over 30 at each workshop. The aim is to bring people together to learn from each other, hear new information and observe and debate issues so that better production techniques can be used to improve productivity, fruit quality and competitiveness.

While this challenge needs to be taken up at all levels of the supply chain, this project is directed at the orchard level.

Detailed minutes are sent to growers after each workshop.

Each study group will meet once or twice a year for the three year life of the project.

The Northern Queensland study group discussed the control of Phytophthora root rot on a farm walk near Mareeba.

Gary Creighton of the NSW' Department of Primary Industries delivered an irrigation workshop to the Northern NSW group.

The Tristate study group on a farm walk at an orchard near Renmark in SA

Project AV06003

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Investigating high pressure processing

Processed avocados can now enjoy a four week shelf life, thanks to this project which successfully used high pressure processing (HPP) to eliminate damaging levels of Listeria monocytogenes, the major pathogen for refrigerated products.

Researchers showed that HPP can be successfully used to process avocado products with optimal processing and storage conditions.

In selected inoculated avocado products, HPP inactivated high levels of the major pathogen for refrigerated products, Listeria monocytogenes, without affecting the food's delicate flavour notes and texture, which can be negatively effected by thermal processing.

Good temperature control of the product at all times, in conjunction with the the proper application of a Hazard Analysis Critical Control Point (HACCP) plan and good hygienic practices are all essential to minimise food safety risks and achieve the four weeks shelf life.

While Avocado products are the first international success story for high pressure processing and are a shining example of the technology's use, the technical know-how required for the effective and safe manufacture and distribution of avocado products is not yet readily available in the public domain.

Project AV05001

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Battle to access pesticides

The Australian Pesticides and Veterinary Medicines Authority (APVMA) are re-evaluating pesticides as part of its Chemical Review Program. The re-evaluations are undertaken to ensure they meet current standards of safety and performance. As part of this process both dimethoate and fenthion are currently being reviewed. Results of this review are expected within two years.

It is likely that uses for dimethoate and fenthion will become restricted or removed following the review by the APVMA. This situation is particularly critical for post-harvest uses on commodities with edible peel. Indications from preliminary dietary intake calculations show that it is highly unlikely that post-harvest uses with either dimethoate or fenthion are sustainable on these commodities.

Affected industries without edible peel such as avocados also need to give consideration to the likely impact of losing access totally or restriction to post-harvest uses of these pesticides, and identify and implement strategies to ensure quarantine compliance, for example, generation of pre-harvest residue and efficacy data or alternative technologies.

An assessment of the data available for these pesticides presently indicates that a large number of current uses will come under pressure due to either a lack of suitable residue data or potential dietary intake concerns where data exists.

Project MT06022:
This project, which covers most of the horticulture industries potentially affected by this APVMA review and in which the avocado industry is participating ($15,731 or 2.9 per cent of total project funding), addresses the most likely data gaps which are necessary to maintain market access, mostly domestic, for the identified industries to the extent feasible. Efficiencies and cost-benefit will be gained as the residue studies conducted in this project will be conducted by one qualified research company.

The lack of residue data for dimethoate has been partially addressed with the Dimethoate Task Force (mostly the major international chemical companies manufacturing dimethoate) recently submitting a data package to the APVMA. However, this data will only help support pre-harvest uses in crops where the Australian use pattern can be aligned with the submitted data. Unfortunately, this may not always be the case as pre-harvest intervals vary appreciably. This could be problematic where relatively short pre-harvest intervals are needed to ensure quarantine levels of Fruit Fly control.

This project encompasses good laboratory practice (GLP) residue studies to be conducted over two seasons prior to the release of the findings from the APVMA review. Quotes have been received for a tender and an agency has been selected (Agronico Research Pty Ltd) to conduct the GLP residue studies. In the project, there is a trial on avocados in the first year for pre-harvest uses of both dimethoate and fenthion.

Horticulture Australia Limited (HAL) and DAFF through OCPPO (Office of Chief Plant Protection Officer) are coordinating this issue with industry, state and federal governments to minimise the negative impact upon market access and maximise regulatory harmonisation. This research is an important part of the Horticulture Industry's Market Access Strategic R&D Plan and is being administered by HAL through the Industry's Working Group for Market Access R&D.

Project MT06022

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Domestic marketing update

The key target market for the Australian Avocado promotions campaign in 2006/07 was urban and suburban female grocery buyers between 25 and 39 years of age who are regular, infrequent or non-users of avocados.

The secondary target market was female grocery buyers between 40 and 54 years of age.

Development of creative imagery

A new agency, De Pasquale was appointed to develop new creative imagery which will be used in the promotional campaign for avocados in years to come.

The newly developed creative aimed to raise awareness and generate year round excitement about avocados, shifting purchase emphasis to characteristics such as health and versatility. Educating consumers on the key health benefits of avocados.

The creative developed for this campaign "*Add an Avo*" follows on from the previous campaign "*Ave an Avo*". This tagline encourages the increased usage of avocados thereby targeting infrequent and occasional users. Recipes were used to showcase the versatility of avocados as well as their health attributes.

Magazine Advertising

Three advertisements (see below) were created for consumer magazine advertising, two focusing on their versatility and one on health attributes.

A total of 36 consumer advertisements were placed in May and again in October and early November. The last burst of activity for the 2006/07 season occurred in March and April 2007. The ads ran in women's lifestyle, health and nutrition publications such as *Woman's Day, New Woman, Delicious* and *Good Medicine*. The selected magazines have a circulation of more than 1.7 million while their readership exceeds 6.7 million.

Avocados also gained 109 per cent of total media expenditure in free editorial coverage in these magazines. As avocados are unbranded, magazines were very willing to showcase them in recipes, which gave the industry a large amount of additional exposure.

Online Consumer Advertising

An online advertising component was added to the overall marketing campaign this year. The target audiences access the internet at least monthly, more often than any other media, and most likely they are online at least weekly.

The three-month campaign took place between August and October 2006. It focused on the versatility of avocados. Expandable banners were placed on the relevant sections of Yahoo and Ninemsn websites (health and recipe focused sections) and when consumers glided over these banners, a recipe sheet dropped down.

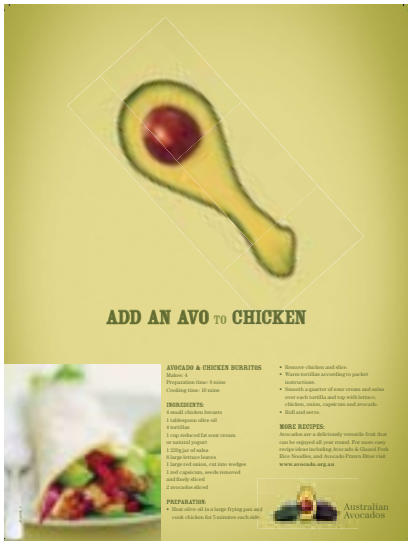
In total the online campaign delivered more than 20,000 consumers to the Avocados Australia website.

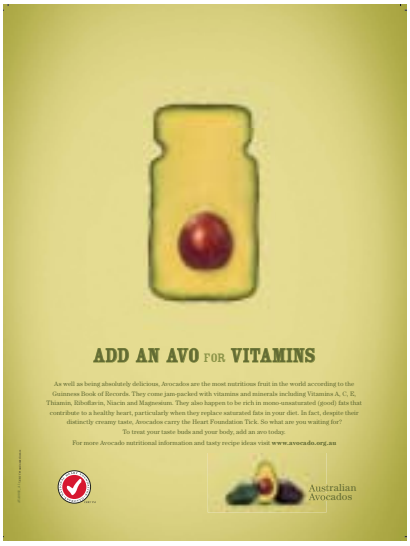
In summary, the key learnings for this campaign were:

- The expanding creative is the most successful execution. It provided the user with an opportunity to interact with the brand and the offering; the creative has an average interaction rate of approximately 30 per cent.
- Recipe sponsorships provide fantastic integration and branding opportunities. The Ninemsn Recipe Finder sponsorship – with greater monetary commitment, provided far more value than the Yahoo sponsorships.

Website Development

The existing website was updated and now features two distinct sections, one for consumers and one for growers.





The consumer section features information such as the history of avocados, different varieties, beauty tips and an interactive recipe finder which allows you to search more than 100 avocado recipes online. The website also offers consumers the possibility to subscribe to an e-newsletter dedicated to avocados.

The grower section has been updated with the same look and feel as the consumer site *www.avocados.org.au*

Consumer competition

To get avocados and their versatility to the top of people's mind, a consumer competition was organised in conjunction with three magazines; *Good Medicine, Woman's Day* and *New Weekly*.

All three magazines promoted the competition in their July editions and consumers were asked to submit their most creative and original avocado recipes. Three finalists were then flown to Sydney to compete in a cook-off in the *Woman's Day* test kitchen, after which the recipes were tested by the three food editors of the magazines and a winner was selected. The winner was rewarded with a $5,000 cash prize, while the runners-up each received a goodie bag valued at $200. In total 3,670,000 readers saw the competition.

Point-of-sale

To make avocados more visible at the point-of-sale posters and recipe leaflets were created for independent retailers. These were distributed via the central market authorities and also used for the Royal Show in Adelaide.

Not only were recipe leaflets available at point of sale, a four-page leaflet was developed and distributed via *Woman's Day*. In the October edition of *Good Medicine*, the full 12 page recipe leaflet was added to the inside back page.

Food service advertising

Consumer research carried out in 2005 showed great potential for increased use of avocados in the food service industry. As a result, a small part of the marketing budget has been dedicated to this target market on a trial basis.

Three food service magazines have been selected and over the whole campaign 12 advertisements ran in *EatDrink Magazine, Foodservice News* and *OpenHouse Monthly*.

The ad created for the food service industry focuses on the fact that avocados can add a great margin to their dishes, for example a sandwich with avocado normally receives about a 50 cent mark-up. In addition it focuses on the ease of incorporating avocados into a menu as well as the nutritional benefits they offer.

Food service competition

A food service competition has been organised together with *EatDrink Magazine*. The magazine prepared a three page article featuring newly developed food service recipes and in-depth information about avocados.

The competition ran on the cover page and was included in an article and on the *EatDrink* website. The restaurant that incorporates avocados into their menu most creatively won $1000. The November edition of *EatDrink* containing the competition was sent to all 23,479 food service subscribers.

Public Relations

The major components of the PR campaign were:

- ***Media launch consisting of a media release and follow up***
- ***Approaches to metropolitan and lifestyle magazines***
- ***Tailored media kits for radio programs*** - A number of baskets containing fresh avocados, a toaster, a butter knife, salt and pepper shakers and media materials were distributed to a targeted list of radio station program producers and presenters between the 28 July and the 8 August 2006.
- ***Approaches to cooking and lifestyle programs*** - The public relations program targeted a number of cooking and lifestyle programs throughout October and November, this list included: *Fresh, Huey's Cooking Adventures, Saturday Kitchen, The Cook and the Chef* and *Better Homes and Gardens*.

Project AVO6500

For more imformation contact:
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Keeping avocado growers informed

Communication is critical to staying in business and it's essential to keep a constant watch on any, and every, piece of information that will improve the bottom line in any avocado business.

Avocados Australia, in partnership with HAL, is working to provide Australian avocado growers with a mix of effective and relevant communication tools. These include the grower summaries, *Talking Avocado*, the email newsletter called *Guacamole*, and a growing website.

Talking Avocados continues to be an important and effective communication tool for the industry as the reports are practical summaries. It provides growers with updates on industry research and development (R&D), marketing, industry matters and avocado information from around the world.

The new fortnightly email newsletter, Guacamole, enables industry leaders to communicate quickly and cost effectively with growers. It focuses on short, sharp summaries that are easy to digest, giving growers an overall understanding of relevant industry information.

The content of the website, avocado.org.au, continues to grow. A grower-only login section with full versions of R&D final reports and marketing updates are available to all registered Australian avocado growers. The public pages of the website provide up-to-date information for growers, consumers and the media.

Avocados Australia and the Avocados Industry Advisory Committee (IAC) met four times during 2006/07. Each meeting was critical to the decision-making process to ensure the industry programs were effectively carried out. The implementation of the new promotion program has been an important part of the IAC's work over the last year.

Project AV06900

For more information contact:
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Reviewing the maturity standard

The Australian avocado industry through Avocados Australia is poised to act on recommendations to develop 'maturity-based' strategies for improving fruit quality.

Growers use avocados' characteristic of not ripening on the tree to 'tree-store' and strategically harvest fruit to meet supply chain requirements over a six to eight month period.

Despite fruit not ripening on the tree, there are important physical and biochemical changes occurring during maturation related to postharvest quality.

Fruit maturation is a complex biological process that is not fully understood and there is some debate as to how effective commercial harvest indices are for assessing maturity across different years, regions, and countries.

Through optimising maturity guidelines, the quality of fruit delivered to consumers is expected to improve.

The review looked at physiological changes in the fruit during maturation; the influence of maturity on sensory quality, rots and ripening behaviour; maturity standards used in the main avocado-producing countries; and technologies for assessing maturity.

Recommendations from the review were:

- Quantify how much of the poor quality fruit in the marketplace can be attributed to maturity in relation to other pre and postharvest factors. If maturity is a significant contributor to quality, then try to establish if this is because of non-compliance of maturity standards or inadequate standards.
- Determine the components of quality that are important to consumers and influence purchasing behaviour.
- Review the minimum maturity standard for dry matter (21 per cent) considering the higher standards in other countries and the suggested move in California from 20.8 per cent to 23 per cent.
- In the medium term, develop new harvest indices that determine immaturity and over maturity more accurately and reliably, so that growers and marketers can confidently supply acceptable quality fruit to early and late season markets.

Project AVO6014

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Managing and developing information and quality systems

As the avocado industry grows there is an increasing need for growers, and the industry as a whole, to understand the points at which supply and demand impact on returns.

A three-pronged approach has been developed to address this.

1) The continued management of the Infocado system.
2) The development of a system to collect productivity information.
3) The management and co-ordination of supply chain projects addressing quality and efficiency.

Infocado

Infocado was developed in 2004 by Avocados Australia to collect more meaningful and timely industry supply data, specifically throughput and forecasts, to assist businesses with better information to base management and marketing decisions on.

It 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; and the season forecast module to record data for the upcoming 15 months.

Management of the system involves the production and distribution of weekly and quarterly reports providing analysis and graphical representation of the data. It also includes encouraging consistent, timely and accurate data input, which minimises the impact on business resources and managing updates to the system. About 85 per cent of Australian market throughput is recorded through the system with 94 packhouses registered.

Productivity information

A pilot productivity data collection system has been developed. The data is collected from growers and includes age of trees, number of trees, variety, rootstock, spacings and yield. It is based on a similar system to Infocado, but the data can be submitted by growers either electronically or in hard copy.

At the individual grower level it will assist growers in tracking their productivity over time, between varieties, root stocks and tree ages and give them the ability to compare their productivity against regional and national data. It will also assist growers to forecast future production.

At the industry level the data will help develop a long-term production forecasting model to assess and update marketing and promotions plans. It will also track productivity over time to determine if the current research and development program is producing the desired results.

A pilot is being conducted in Western Australia with plans to roll it out across all growing regions during 2008.

Supply chain projects

The third prong is the management and co-ordination of supply chain projects addressing quality and efficiency.

There has been an absence of quantitative, impartial information available to determine the combined impact of price and fruit quality on demand and the structures available to address issues affecting quality and efficiency in the supply chain.

Supply chain projects have been developed to address this gap and employ a stepped approach, involving different service providers, to build the full picture of fruit quality and supply chain efficiency.

Three projects have been undertaken including a review of maturity standards, consumer sensory research and supply chain mapping and resource audit.

Projects AV06006 and AV05003

For more information contact:
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Avocado Program 2006/07

Project No and Funding	Title	Start Project	Project Completion	Organisation	Contact
AV04001/Levy	Improved management of avocado diseases	31-Jan-05	30-Sep-07	QLD DPI&F	Fiona Giblin 0438 043 891
AV04007/Levy	Rootstock Improvement for the Australian Avocado Industry - Phase 2	1-Jan-05	30-Jun-08	Sunshine Horticultural Services Pty Ltd	Tony Whiley 07 5441 5441
AV04008/Levy	The development of canopy management strategies suited to the different growing environments across Australia	1-Jul-04	31-Aug-08	Avocados Australia	John Leonardi 07 3391 2344
AV05003/Levy	Support to the Australian Avocado Industry Infocado (crop flow): volume data collection	1-Sep-05	1-Sep-06	Avocados Australia	Joanna Embry 07 3391 2344
AV05005/Levy	Avocado levy consultation process	31-Oct-05	30-Jan-06	Avocados Australia	Antony Allen 07 3391 2344
AV06001/Levy	Improving spraying and management of spotting bugs in avocados	1-Jul-06	1-Oct-08	Growing Greener Growers	Henry Drew 07 5445 0032
AV06003/Levy	Study groups to achieve globally competitive avocados	15-Dec-06	30-Jun-10	QLD DPI&F	Simon Newett 07 5441 2211
AV06005/Levy	Econometric ROI and Marketing Investment Apex Analysis	2-Jan-07	30-Mar-07	Horticulture Australia Ltd	Clinton Skeoch 02 8295 2300
AV06006/Levy	Scoping of a National Avocado Quality System and Management of Avocado Industry Information Systems	1-Oct-06	30-Sep-09	Avocados Australia	Joanna Embry 07 3391 2344
AV06010/Levy	Export Development for the Australian Avocado Industry	4-Jun-07	4-Dec-07	Avocados Australia	Antony Allen 07 3391 2344
AV06011/Levy	Guidelines for avocado irrigation management under limited water supplies	1-Jul-06	30-Jun-07	RM Consulting Group	Anne-Maree Boland 1300 306 043
AV06012/ Levy	Singapore Avocado Supply Chain Development	1-Jul-06	30-Jun-07	Horticulture Australia Ltd	Yelli Kruger 02 8295 2300
AV06014/Levy	Avocado maturity: a review of harvest indices and how they relate to postharvest quality	1-Sep-06	13-Oct-06	HortResearch Ltd	Jason Johnston 64 9 815 4200
AV06020/Levy	Avocado Carbaryl Residue Trials	30-Nov-06	30-Jun-08	Agronico Research Pty Ltd	Dale Griffin 03 9787 1590
AV06025/Levy	Avocado Australia Ltd Sensory Research	1-Mar-07	26-Jul-07	HortResearch Ltd	Roger Harker 64 9 815 4200
AV06900/Levy	Partnership Agreement/Industry Consultation 2006/07	1-Jul-06	30-Jun-07	Avocados Australia	Antony Allen 07 3391 2344
HG04006/Levy	Assessment of the national fruit and vegetable consumption campaign	15-Apr-05	15-Apr-05	RETAILworks Pty Ltd	Martin Kneebone 03 9852 8733
MT05001/Levy	Revision of Australian Standards AS1418.10 and AS2550.10 as applied to Elevating Work Platforms	1-Jun-06	30-Mar-07	Keith Batten & Associates	Keith Batten 0418 738 969
MT06022/Levy	Generation of dimethoate and fenthion residue samples to maintain market access	6-Jun-07	31-May-09	Agronico Research Pty Ltd	Dale Griffin 03 9787 1590
AV03005/VC	Harvest temperature effects on postharvest avocado quality	30-Jul-03	10-Nov-07	DA&F Western Australia	Alec McCarthy 08 9780 6273
AV03007/VC	Assisting the development of the avocado oil industry in Australia and New Zealand	31-Jan-04	2-Jul-07	HortResearch Ltd	Allan Woolf 64 9 815 4200
AV05001/VC	High Pressure processing of avocado products	1-Mar-06	30-Jun-07	Food Science Australia	Mala Gamage 03 9731 3471
AV06002/VC	Improving technology uptake in the WA avocado industry	1-Nov-06	1-May-10	Avocado Growers Association of WA	Alec McCarthy 08 9780 6273
AV06013/VC	NSW Avocado Growers Study Tour to Western Australia, March 2007	25-Mar-07	30-Jul-08	Quadrant Australia Pty Ltd	Gordon Burch 02 6550 4055
HG06029/VC	Industry Development and Technology Transfer for Horticultural Growers in the Bundaberg Region	1-Jul-06	30-Jun-09	Growcom	Jan Davis 07 3620 3844
AV06500/M	Avocado Marketing Program 2006/07	1-Jul-06	30-Jun-07	Horticulture Australia Ltd	Yelli Kruger 02 8295 2300

All HAL projects have been funded by the avocado levy and/or voluntary contributions

Levy = Levy Contribution VC = Voluntary Contribution M = Marketing Levy Contribution

Across Industry Program 2006/07

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

Project No	Title	Start Project	Project	Organisation	Contact
Outcome 1: Enhance the efficiency, transparency, responsiveness and integrity of the supply chain for the total industry to provide clear market signals					
AH04006	Horticulture gene technology communication	2004/05	2006/07	Agrifood Awareness Australia Limited	Paula Fitzgerald 02 6273 9535
AH04007	Pesticide regulation coordinator	2004/05	2009/10	AKC Consulting Pty Ltd	Kevin Bodnaruk 02 9688 0444
AH04009	Coordination of minor use permits for horticulture	2004/05	2007/08	AgAware Consulting Pty Ltd	Peter Dal Santo 03 5439 5916
AH04035	Minor use coordination HAL management costs	2004/05	2009/10	Horticulture Australia Limited	Brad Wells 02 8295 2300
AH05018	Review of successful consumer satisfaction projects	2005/06	2006/07	Horticulture Australia Limited	Sarah Pennell 02 8295 2300
AH06004	Horticulture Code of Conduct – industry support package	2006/07	2006/07	Horticulture Australia Council	Kris Newton 02 6273 9600
AH06007	Primary production and processing standards	2006/07	2007/08	Horticulture Australia Limited	Richard Bennett 03 5825 3753
AH06012	Evaluation strategies for varieties derived from Australian breeding projects or imported varieties	2006/07	2006/07	Horticulture Australia Limited	Marian Sheehan 02 8295 2300
AH06013	Horticulture for the consumer CRC – business plan	2006/07	2006/07	Australian Institute for Commercialisation Ltd	John Kapeleris 1300 364 739
Outcome 2: Maximise the health benefits of horticultural products in the eyes of consumers, influencers and government					
AH06008	Human nutrition needs for horticultural industries allocation	2006/07	2006/07	Horticulture Australia Limited	Sarah Pennell 02 8295 2300
AH06010	Promoting the health advantages of F&V to increase their consumption - Phase 2	2006/07	2006/07	Horticulture Australia Limited	Chris Rowley 02 8901 0329
Outcome 3: Position horticulture to compete in a globalised environment					
AH05003	Coordination of market access for horticulture products	2005/06	2006/07	Stephen Winter & Associates Pty Ltd	Stephen Winter 03 9832 0787
AH05024	Fruit fly workshop	2005/06	2006/07	Horticulture Australia Limited	Brad Wells 02 8295 2300
AH05034	Market access support program	2005/06	2006/07	Horticulture Australia Limited	Kim James 08 6389 1407
AH06006	Establishment of a pesticide residue task force	2006/07	2006/07	Horticulture Australia Limited	Brad Wells 02 8295 2300
AH06014	Codex attendance 06/07	2006/07	2006/07	Horticulture Australia Limited	Richard Bennett 03 5825 3753
Outcome 4: Achieve long-term viability and sustainability for Australian horticulture					
AH06003	Horticulture for Tomorrow – Phase II	2006/07	2006/07	Horticulture Australia Limited	Alison Turnbull 02 8295 2300
AH06002	IMC Horticulture industry strategic plan contribution	2006/07	2006/07	Horticulture Australia Limited	John Webster 02 8295 2300
AH06009	Horticulture Water Initiative Phase 3	2006/07	2006/07	RMCG	Anne-Maree Boland 1300 306 043
AH06011	Industry development review	2006/07	2006/07	Richard de Vos	Richard de Vos 02 9973 4507
AH06015	Cooperative venture for capacity building (CVCB) membership fees	2006/07	2007/08	Horticulture Australia Limited	Richard Stephens 02 8295 2300
AH06016	Human capability – building strategy bench-marking horticulture's labour and skills needs	2006/07	2006/07	Horticulture Australia Council	Kris Newton 02 6273 9600
AH06019	Australian horticulture's response to climate change and climate variability	2006/07	2006/07	Horticulture Australia Limited	Alison Turnbull 02 8295 2300
AH06100	Horticulture data audit	2006/07	2006/07	AEC Group Limited	Ashley Page 07 3831 0577
AH06101	Horticulture data audit associated costs	2006/07	2006/07	Horticulture Australia Limited	Andrew Collins 02 8295 2300
AUSHORT					
AH01015	Key genes for horticultural markets	2001/02	2006/07	CSIRO Plant Industry	Steve Swain 03 5051 3159
AH03002	Area wide management of fruit fly – Central Burnett	2003/04	2006/07	QLD Department of Primary Industries & Fisheries	Annice Lloyd 07 3896 9366

Financial Report (Unaudited)

Avocado Investment Summary

Year Ended 30 June 2007

	Marketing 2006/2007	R&D 2006/2007	Combined 2006/2007
Funds available 1 July 2006	325,573	236,490	562,063
INCOME			
Levies Received	1,121,086	613,894	1,734,980
Commonwealth Contributions		656,483	656,483
Other Income	26,628	18,526	45,154
Total Income	**1,147,714**	**1,288,903**	**2,436,617**
Budget	*1,566,387*	*1,596,809*	*3,163,196*
Variance to Budget	*(418,673)*	*(307,906)*	*(726,579)*
PROGRAM INVESTMENT			
Levy Programs	990,674	1,155,576	2,146,250
Service Delivery Programs by HAL	134,930	157,390	292,320
Across Industry Funding		13,405	13,405
Levy Collection Costs	44,242	23,750	67,992
Total Investment	**1,169,846**	**1,350,121**	**2,519,967**
Budget	*1,071,519*	*1,334,681*	*2,406,200*
Variance to Budget	*(98,327)*	*(15,440)*	*(113,767)*
Annual Surplus/Deficit	(22,132)	(61,218)	(83,350)
Closing Balance 30 June 2007	**303,441**	**175,272**	**478,713**

Avocado Industry Advisory Committee

Bob Granger (Chair)
Peter Molenaar
Lachlan Donovan
Colin Fechner
Henry Kwaczynski
Antony Allen
Jim Kochi
Chris Nelson
Daryl Boardman
Jennie Franceschi
John Walsh

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Know-how for Horticulture™

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