

# Mango

**2015/16**  
Annual Report

**Horticulture  
Innovation**  
Australia



# Content

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# Executive summary

**During 2015/16, Horticulture Innovation Australia (Hort Innovation) was focused on investing the mango levy and Australian Government contributions into R&D and marketing projects to improve growers' productivity and profitability and ensure the long-term sustainability of the industry.**

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During the 2015/16 financial year, Hort Innovation invested more than \$2 million in R&D projects to expand markets, encourage greater transparency in the supply chain, promote use of crop forecasting, improve biosecurity practices and better understand key pests and diseases.

For example, two consignments of Australian mangoes to the United States of America were monitored to detect any supply chain issues and to ensure the pathway from shed to international markets was secure.

One project sought to provide growers and other industry participants with information on wholesale prices and eating quality – both of which are key factors in determining profitability.

Magpie geese in the Northern Territory were investigated to gain a better understanding of this pest which impacts on mango crops, while another project sought to gain insight into the diagnosis of resin canal discolouration.

Investing in developing communications channels to keep growers and other stakeholder up-to-date on the latest information was also an important part of the R&D investment.

In marketing for the industry, more than \$484,000 was invested in a number of strategic events to engage consumers and promote mango consumption, to promote mangoes through social media, to place mangoes in key media outlets, and to support mango retailers.

This included profiling mango growers in a range of publications, growers visiting selected stores across Sydney, providing point of sale kits to retailers and participation in a number of key events which provided the opportunity to promote mangoes as a favourite summer fruit. Mess-tival in Sydney was again a great success in promoting mangoes through a fun and creative event.

# Strategic Investment Advisory Panel

Hort Innovation has established Strategic Investment Advisory Panels (SIAPs) to provide advice to help ensure R&D and marketing investment decisions are balanced and prioritised by the current needs of each horticulture levy industry.

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## About industry SIAPs

The key function of Hort Innovation's levy-industry SIAPs is to provide transparent and robust advice on potential investment opportunities, helping to guide the way industry levies and Australian Government contributions are put to use. Each SIAP has clearly defined objectives associated with the provision of this strategic investment advice, and is guided by the priorities set out in the Strategic Investment Plan for each levy industry.

During the 2015/16 financial period, 18 SIAPs were formed, with others appointed in the 2016/17 period.

Each industry SIAP is made up of panellists from that industry – most of whom are levy-paying growers – with appointments made based on skills criteria and considering geographic and sectoral diversity.

Each SIAP also has a chair, as listed on the industry grower pages of Hort Innovation's website. The chair appointments selected by the Hort Innovation Board reflect a broad range of horticulture and agriculture experience, as well as solid foundations in former chairing roles.



## Mango SIAP panellists

Name	Organisation	Location
Marie Piccone	Manbulloo	NT
Bob Williams	Department of Primary Industry and Resources	NT
Robert Gray	Australian Mango Industry Association (AMIA)	QLD
Jill Wilson	JJs Farm	WA
Ross Maxwell	Jabiru Tropical Orchards	NT
Ian Groves	Groves Grown Tropical Fruits	QLD
Dale Williams	Euri Gold Farms	QLD
Gavin Scurr	Pinata Farms	NT, QLD
Joe Moro	Moro Mangoes	QLD

## Panel meetings

Summary notes from each SIAP meeting will continue to be available on the mango grower page on Hort Innovation's website, at [www.horticulture.com.au/grower-focus/mango](http://www.horticulture.com.au/grower-focus/mango). Below is a brief overview of the industry's inaugural meeting.

### June 15, 2016

Held in the 2015/16 period in Brisbane, Queensland, this meeting addressed governance, roles and responsibilities and outlined the strategic focus of the panel. A description of the processes and systems within Hort Innovation was given, including the delineation between the two major funding streams of levy and co-investment.

A marketing program presentation highlighted key areas of consumer focus, engagement, data and supply chain.

A review of the current investment program including financials and concepts received was held, as well as initial discussion on the development of the industry's Strategic Investment Plan.

# Marketing report

**Hort Innovation's 2015/16 marketing program for the mango industry focused on driving consumer demand for the fruit through a 'Wheel of Velocity and Momentum' strategy, based on the premise positive mango experiences will deliver increased sales. The program was delivered across multiple platforms and reached millions of consumers.**

The 2015/16 period was the second year in a three-year marketing plan for the industry, with activity broadly centred around consumer-facing events and initiatives, engagement of the supply chain, and export-market activity.

## Consumer activity

Activity in this area was focused on getting and keeping Australians aware and excited about mangoes from the beginning to end of the season, with events, PR and social media all leveraged.

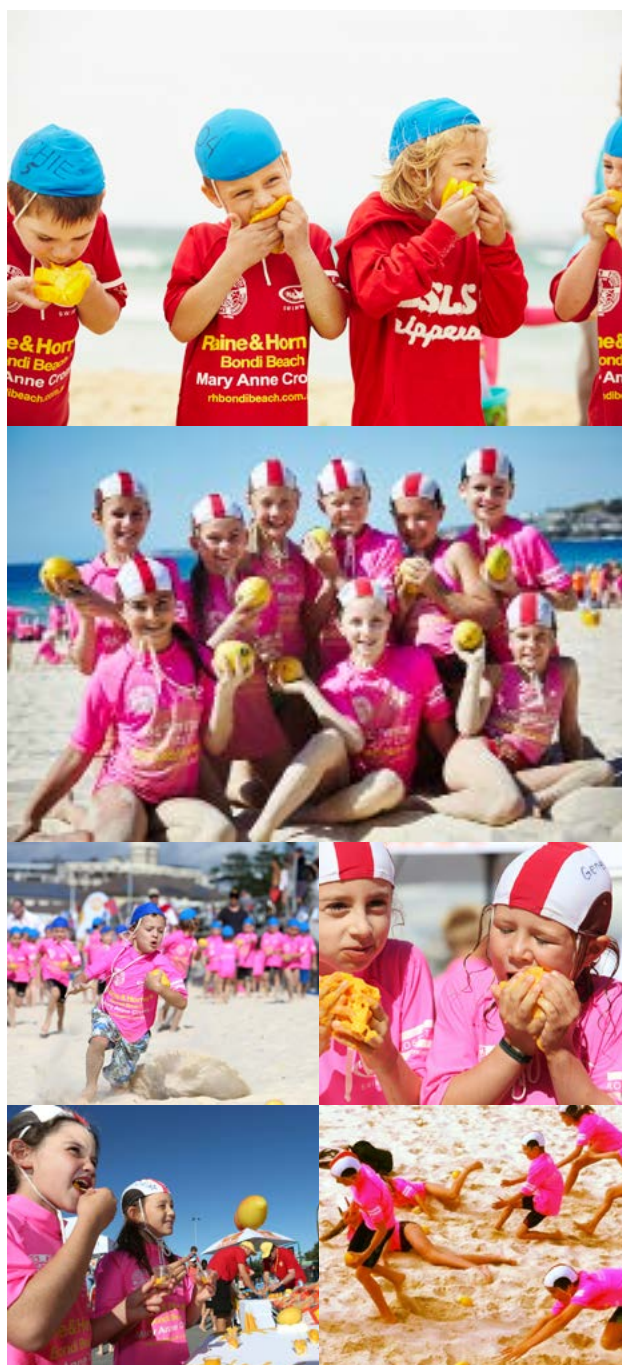
## Mango Mess-tival event

Mango madness descended on North Bondi in Sydney for the fourth annual Mess-tival, with Prime Minister Malcolm Turnbull a visitor to the event. Designed to celebrate the peak of the mango season and the official start of summer, Mess-tival is a one-day festival held in partnership with the North Bondi Surf Club. Its purpose is to keep mangoes top-of-mind for consumers throughout the long summer season, reminding them why mangoes are their favourite summer fruit, and to keep demand consistently high.

Nippers engaged in mango flag races, relay races and tug-of-wars, while the famous mango-eating competitions saw adults, Nippers and even TV presenters competing against each other to win a tray of mangoes. Growers representing the four main varieties were also on hand to educate the public about the different flavour profiles and usages of the fruit.

Channel 9 filmed throughout the morning for the *Weekend Today* national weather segment, which was watched by 300,000 people nationally.

In addition to raising the profile of mangoes, Mess-tival also raised funds for North Bondi Surf Club life-saving equipment and training. This year \$15,500 was raised, bringing the total surf-life-saver-club donations over the past four years to \$53,000.





## Social media

Social media proved a key part of the marketing campaign in 2015/16, driving high reach and frequency with consumers throughout the mango season. The Aussie Mangoes Facebook page posts reached more than 2.3 million consumers and boasted an average engagement rate of 5.4 per cent, almost double the industry standard. Posts on the [www.facebook.com/aussiemangoes](http://www.facebook.com/aussiemangoes) page included images and videos of recipes, regional harvest updates, preparation tips, mango trivia, event news and the 'Mango Madness' competition.

The Instagram page (@aussiemangoes) also saw record numbers, with almost 30,000 engagements and audience growth of 516 per cent since last season.

## Website

During the 2015/16 the industry's consumer-facing website was refreshed to be device responsive, and launched in January. The [www.mangoes.net.au](http://www.mangoes.net.au) destination features new recipes and, more importantly, a translation feature for use in export markets.

## Media

The power of the media was harnessed to educate consumers with various mango-based recipes, bring awareness to the industry through grower profiles, and reinforce mangoes as the fruit of summer with other initiatives. Activities included:

- » Outreaching to influencers. Media kits were sent to health and wellness influencers, cooks and foodies throughout the season to encourage them to use mangoes in their cooking and share their mango recipes and images on social media. This initiative generated coverage that reached more than 1.5 million consumers. As part of outreach activities, mango trays were also sent to 14 top Instagram influencers, with resulting coverage reaching over an additional 1.5 million. Meanwhile, outreach work led to video recipes being posted by some of Australia's most followed YouTube chefs, including Nicko's Kitchen, Todd's Kitchen and Cooking With Karma, and reached 1.7 million people.
- » Grower profiles. Australian mango growers were profiled across print, TV, radio and online media outlets, with 11 pieces of coverage in publications such as the *Katherine Times* and *The NT News*, as well as WIN TV and the ABC, highlighting the media appeal of 'real' farmers.
- » Media famils. Select media was invited to take a behind-the-scenes look at the mango production process to prompt sharing of the experience and knowledge gained with their audiences. This year Australia's number one food blog, Recipe Tin Eats, visited the Groves Grown farm at Yepoon, where the paddock to plate experience included taste testing and recipe development.

- » Recipes, product places and reactive press office. Mango recipes, imagery and preparation information was distributed to media each month and resulted in coverage in publications such as *Donna Hay*, *Women's Weekly*, *Who Weekly*, *Woman's Day*, *Taste Magazine* and *Better Homes and Gardens*.

## Collateral point of sale

With consumers in mind, new recipes were produced to freshen up collateral and point of sale kits were distributed nationally. These included posters and bunting focussing on the differences in varieties, 'Go On Make Summer Yummy' posters and an A6 recipe brochure.

## Engaging the supply chain

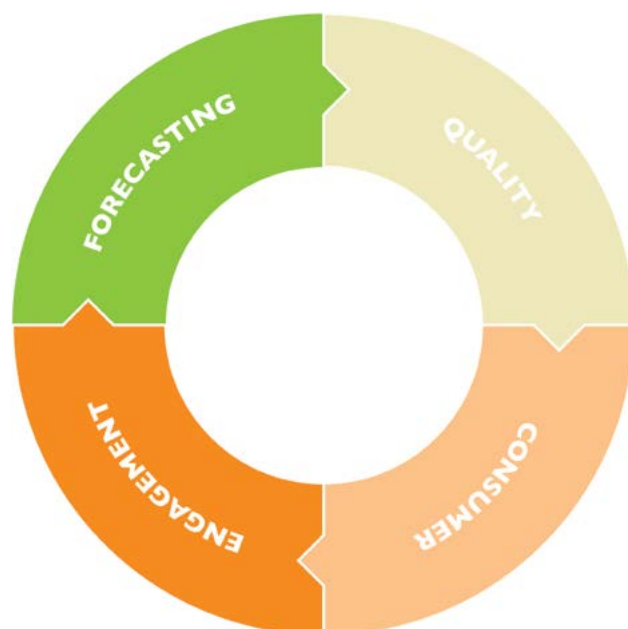
This aspect of the marketing activity worked to develop and organise a range of events involving all key stakeholders within the mango supply chain. The aim was to build interest, excitement and understanding of the mango industry, and to increase the demand for and consumption of fresh mangoes.

## Grower pre-season roadshows

Pre-season grower roadshows were conducted in all major growing areas. Grower attendance was strong and represented in excess of 80 per cent of total production.

## Retailer pre-season roadshows

A series of pre-season planning meetings were held with the buying, quality and marketing teams of each key retailer. Given the seasonality of mangoes it was important to 'recalibrate' teams which had previously managed the category and indoctrinate those who hadn't. The purpose of these sessions was to create and agree on a specific 'go-to-market' plan for each retailer aligning their plans with the industry 'Wheel of Velocity and Momentum'.





## Point of sale displays

The industry worked with retailers to ensure mangoes dominated the point of purchase with striking front-of-store displays from the beginning to the end of the season, regardless of weekly volumes.

## Retailer tool kit

To ensure quality displays were built and maintained throughout the season, mango merchandising and handling guides were developed with retailers. Education, training and guidance tools were issued to all retailers including the Mango Quality Assessment Manual, the Mango Ripening Manual and the Mango Skin Colour Guide.

## Coles head office launch

A launch was held in Coles in November with R2E2, KP, Calypso and Honey Gold mango varieties. Over 5000 mangoes were sold to more than 3000 employees and raised over \$5,700. Coles met this amount almost dollar for dollar and donated \$10,000 to their charity of choice.

## Grower market tour

Coinciding with Mess-tival, this was a three-day event held in Sydney. The intention was for growers to gain a better understanding of what it takes to market a great mango experience and the role they play in bringing the mango Wheel of Velocity to life. A total of 10 growers attended, representing all varieties and all major growing areas. Growers visited selected stores across all major and independent retailers as well as the Sydney Central Market, ALDI and Woolworths distribution centres. Most importantly they had the opportunity to engage with a wide range of consumers at Mess-tival.

## Retailer support

All retailers used mangoes as a key line in their Christmas campaigns with strong mango presence in their television commercials, radio and magazine advertising. Advertising support and bold displays in the front of stores continued throughout January and February with display positions held until the end of March in support of late season varieties such as Kietts and Pearls.

## Mango Sales Challenge

Due to the large volumes of fruit coming from North Queensland growing regions after Christmas, retailers were encouraged to execute a Mango Sales Challenge. The event was executed in Woolworths and IGA nationally as well as Harris Farm Markets in New South Wales. The Sales Challenge encouraged produce managers to refocus their attention on mangoes, and encouraged the building and maintenance of large displays at front of stores.



## Marketing-funded export activities

Hong Kong, Singapore and Korea were the focus of marketing and promotional programs rolled out over the December/January period. Specifically targeted to each market, the campaigns were executed during the peak sales period.

In Korea the campaign focussed on driving awareness and consumer demand for Australian mangoes using a combination of public relations, social media and in-store demonstrations.

In Hong Kong and Singapore there was cooperation with the Dairy Farm Group to implement campaigns in both markets. The theme 'GO an Aussie Mango, In Season Now' was designed to promote Australian mangoes as the freshest and the best. Stores received kits containing point of sale material including consumer posters, varietal posters and bunting, and a product handling and merchandising guide for the education of the produce team. In-store demonstrations were implemented in Hong Kong and Singapore, while Hong Kong also had a sales challenge.

# R&D project list 2015/16

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## PROJECTS CONTRACTED

MG15002	Quality standards, refinement and testing
MG15003	Data collection to facilitate supply chain transparency – stage 3
MG15004	Monitoring mango fruit quality through the supply chain to the US
MG15005	Understanding and mitigating the aggregative response of the magpie goose to mango orchards in the Northern Territory
MG15006	Mango industry communication program 2016-2017
MT14052	Essential Market Access Data Packages
MT15032	Monitoring and evaluation framework for the industry Strategic Investment Plan

## PROJECTS IN PROGRESS

MG13017	Capacity building, information, technology and extension for the Australian mango industry
MT12001	SPLAT Cue-Lure based management of Queensland fruit fly
MT14006	Export – Import Market Intelligence Project 2014-2016

## VC PROJECTS CARRIED OVER FROM HORTICULTURE AUSTRALIA LIMITED

MG12005	Building capacity in the NT mango industry using small-group extension
MG12012	Manipulating mango flowering to extend harvest window
MG12015	Integrating genomics into an applied mango breeding program
MG12016	In-transit ripening and prediction of outturn quality for mango
MG12017	New fruit fly systems for mangoes and market access
MG12020	Sequencing mango genome
MG13016	Improving consumer appeal of Honey Gold mango by reducing under skin browning and red lenticels discolouration
MG13700	The 10th Australian Mango Conference – Northern Territory
MG14004	Reducing mango industry losses from resin canal discolouration
MG14019	Parent – integrating genomics into an applied mango breeding program
MT12028	OHMA operational support 2012 to 2015*
MT13061	Understanding the purchase behaviour of fresh produce consumers
MT14027	Horticultural Market Access Manager 2014-2015
MT14055	Driving collaboration in Australian horticultural research

During the 2015/16 financial year, all Australian levy paying horticulture industries also contributed to across-industry projects addressing issues that affect horticulture as a whole.

\* As well as being funded by multiple levy programs, this project involved funding from Hort Innovation's across-industry contribution stream.



# R&D report

Take a closer look at some of Hort Innovation's key projects for the mango industry below. To keep up to date with the latest information on new and ongoing R&D for the industry, visit [www.horticulture.com.au/grower-focus/mango](http://www.horticulture.com.au/grower-focus/mango), and keep an eye out for Hort Innovation's quarterly Hortlink publication, also available from the website.

## Monitoring mango fruit quality through the supply chain to the US (MG15004)

The aim of this project, wrapped up in the 2016/17 period, was to monitor two consignments of Australian mangoes to the United States of America (US). It endeavoured to detect any supply chain impacts on quality and, by working closely with growers, treatment facilities, freight forwarders, exporters and importers, to quickly address any issues and enable improvements to be made.

The US is the world's largest mango importer, taking about 350,000 tonnes a year. The entire pathway from the shed to the US entry port must be secure and all processes audited.

After 15 years of negotiation, the Australian industry gained access to the mainland US in January 2015, starting with a four-year pilot program. The program's Operational Work Plan requires property and packaging sheds, packaging, labels and documentation to meet particular standards. It also requires specific pest and fungus management, pre-export inspections and irradiation.

The two consignments monitored by this project covered 13 commercial shipments over the 15/16 season and totalled about 75 tonnes. There were no compliance issues reported on arrival in the US. While there were some quality issues with overheated, overripe, old, out of grade and lenticel spotted fruit, these were the exception.

Around 99 per cent of the Australian mangoes at retail had a very attractive appearance with high flavour and were very popular with US retailers and consumers.

A number of recommendations resulted from the activity, including improved cool chain and ripening management, investigation of Keitt lenticel spotting, and improved compliance in Brisbane. More grower awareness of mango seed weevil compliance in the adoption of the new net pallet packaging option, widening the US distribution, lengthening the supply season, and consideration of branding and promotion in the US were further recommendations.



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## Understanding and mitigating the aggregative response of the magpie goose to mango orchards in the Northern Territory (MG15005)

The goal of this project is to develop sustainable management strategies for magpie geese in mango orchards by better understanding the bird's population and behaviour.

The core components of the project include:

- » An ecological monitoring study to better understand why magpie geese are moving from their native wetlands into mango orchards in the Northern Territory
- » Empirical studies to assess the effectiveness of various stimuli and environmental modifications in reducing bird density and bird-crop interaction.

## Data collection to facilitate supply chain transparency – stage 3 (MG15003)

With its third phase beginning at the start of 2016, the goal of this project is to provide growers and other industry participants with timely information on two key factors that can influence profitability: mango wholesale prices and eating quality.

During the mango season, the industry publishes daily and weekly wholesale prices, accessible via [www.industry.mangoes.net.au/market-prices](http://www.industry.mangoes.net.au/market-prices). The regular provision of this independently collected data provides growers with clear signals on market conditions, allowing sound business decisions to be made. This is especially important as distance to market, and the relatively short but busy harvest window, means growers have little opportunity to undertake further analysis of markets during their harvest window.

In regards to mango quality, there is the random sampling of a minimum of 30 per cent of consignments at the three major wholesale markets in Brisbane, Sydney and Melbourne. Measurements of fruit maturity are taken and the results are summarised in the *My Mango* e-newsletter.

In the most recent season, destructive sampling using a refractometer has now been replaced by the use of hand-held near-infrared (NIR) technology (the Felix 750 Produce Quality Meter), which can be used to non-destructively sample dry matter in mangoes at varying stages of ripeness.

## Mango industry communication program 2016-2017 (MG15006)

Beginning in February 2016 and carrying on from previous communications work, this project maintains and improves the flow of timely and relevant industry information to Australian mango growers and other stakeholders. It produces and maintains a number of regular communication channels, including but not limited to:

- » The quarterly *Mango Matters* publication, distributed in hard copy and as an electronic resource, with issues available at [www.industry.mangoes.net.au/mango-matters](http://www.industry.mangoes.net.au/mango-matters)
- » E-newsletter *The Slice*, produced monthly in the mango off-season, with issues available at [www.industry.mangoes.net.au/the-slice](http://www.industry.mangoes.net.au/the-slice)
- » E-newsletter *My Mango*, produced monthly in the pre-season period and during the mango season, with issues available at [www.industry.mangoes.net.au/my-mango](http://www.industry.mangoes.net.au/my-mango)
- » The Australian Mango Industry Association database and website, [www.industry.mangoes.net.au](http://www.industry.mangoes.net.au)

Other activities under the project include the hosting of webinars to present key information to growers, attendance at and reporting of industry workshops, and the production of other resources.



## Capacity building, information, technology and extension for the Australian mango industry (MG13017)

This project, which has run since 2014, funds a dedicated industry development officer to manage a range of activities with the ultimate goal of improving the profitability and long-term sustainability of the Australian mango industry. Some of the core activities include crop forecasting and biosecurity.

## SPLAT Cue-Lure based management of Queensland fruit fly (MT12001)

This project aimed to investigate the efficacy of a type of pheromone technology to assist in controlling Queensland fruit fly (Qfly) and to help protect domestic and international fruit markets.

Early results from this project found that the Specialised Pheromone Lure Application Technology (SPLAT) approach is as effective as current controls in managing Qfly and worth further investigation.

This form of control has appeal as it has a reduced-risk insecticide that poses an even lower risk to humans and the environment and does not require labour-intensive handling and placement.

## Monitoring and evaluation framework for the industry Strategic Investment Plan (MT15032)

Among other things, this project helps support the monitoring and evaluation of individual industry Strategic Investment Plans (SIPs). SIPs are the roadmaps that help ensure levy investment decisions align with individual industry priorities. They are used to guide decision-making in levy spending, and represent a balanced view of stakeholders in each industry.



## Building capacity in the NT mango industry using small-group extension (MG12005)

This project sought to assess the effectiveness of extension activities delivered in small groups in building innovation in the Northern Territory (NT) mango industry.

It aimed to promote a productive learning environment to build communication between researchers and growers, and to further develop the skills and knowledge of growers and other stakeholders in the sector.

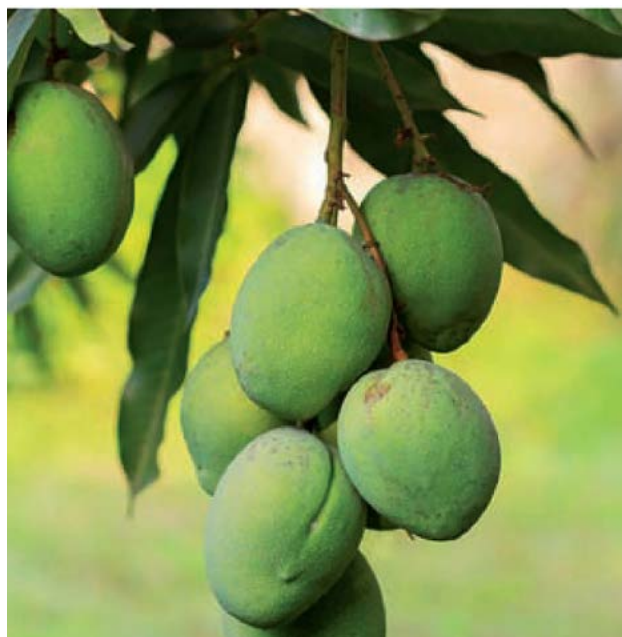
Groups of up to 20 drawn from mango businesses and affiliated agribusinesses from the Darwin and Katherine growing regions met between 2012 and 2015, while the process attracted participants from a range of mango businesses varying in size from 50 to 50,000 trees. Topics covered included best practices in agronomic, pest management and post-harvest activities.

Feedback was that participants found the sessions informative, open and friendly, and believed they built a sense of community amongst participating businesses. Most said they found being able to share in a group environment and having input from other growers was helpful.

Feedback also showed participants gained knowledge across business management, marketing and how practical research could help address on-farm issues. Growers said they valued the ability for industry, government, growers and service providers to meet on a regular basis and to identify issues of relevance to the sector.



Growers enjoyed and appreciated the small-group process used in project *Building capacity in the NT mango industry using small-group extension* (MG12005)



*The 10th Australian Mango Conference – Northern Territory* (MG13700) included an on-farm field day at Barry Albrecht's orchard and packing shed.

## The 10th Australian Mango Conference – Northern Territory (MG13700)

This project provided support to the 10th Australian Mango Conference, held in Darwin on May 25-28, 2015.

Presentations at Sky City Casino over the event's first two days focused on export, marketing, quality, consumer and fresh fruit business trends. The third day of the conference saw a move 'on-farm' to a field day held at Barry Albrecht's mango orchard and packing shed.

Presentation topics here included collaboration to maximise profitability, future retail trends, accessing the Korean market, consumer engagement, fruit fly, resin canal discolouration, and crop manipulation.

Throughout the conference, delegates had the opportunity to discuss a range of issues, challenges and opportunities.

Growers who could not attend were able to access presentation material published online and in the industry publication, *Mango Matters*.

## Quality standards, refinement and testing (MG15002)

This project delivers ongoing training to key quality staff through the supply chain, with the ultimate goal of ensuring consistent quality of mangoes that meet or exceed consumer expectations. It began in the 2015/16 season and is due for completion in 2017.



## Reducing mango industry losses from resin canal discolouration (MG14004)

This project sought to gain insight into growers' experience with, and diagnosis of, resin canal discolouration (RCD) in Kensington Pride fruit produced in the Northern Territory.

RCD leads to economic loss, however detection of the defect has increased, particularly among early-season fruit produced in the NT.

As part of this project, 26 growers and packers were surveyed and 21 said RCD had affected them in 2013. Nine growers considered it an economic issue for their business, while four growers and two packers estimated RCD accounted for 10 to 30 per cent lost production and five to 25 per cent lost packout.

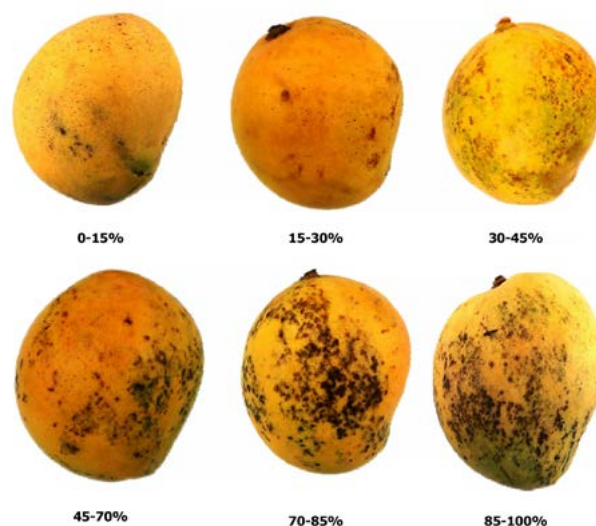
The survey highlighted considerable variation in production and post-harvest practices employed by each business.

As part of this project a standard procedure was developed for accurately diagnosing and quantifying RCD. The use of a standardised protocol, where fruit is evaluated for internal symptoms of RCD at eating ripe, should enable industry personnel to accurately and consistently diagnose and rate the severity of this defect.

Fruit was monitored from tree to market to identify production and post-harvest practices that caused RCD, which was significantly higher in commercially transported and ripened fruit than in fruit ripened with no commercial handling.

The final phase of the project studied the involvement of bacteria in RCD development. *Pantoea agglomerans* and an *Enterobacter* species were consistently recovered from Australian mangoes with RCD symptoms but not from fruit with no sign of RCD. Additionally, *Pantoea agglomerans* was found in mango wash at several orchards and pack sheds.

Kensington Pride mangoes exposed to solutions containing bacteria tended to develop more RCD than fruit processed in bacteria-free solutions. Foliar applications of copper hydroxide and postharvest hot water treatment of inoculated fruit reduced the level of RCD.



These photographs show the varying severity of external symptoms of RCD, investigated in the project *Reducing mango industry losses from resin canal discolouration* (MG14004)

This project highlighted that RCD is a serious economic issue for several mango businesses in the NT and that further research is needed to confirm these preliminary leads, identify precise causes, and develop reliable control measures.

Full details of all completed research can be found in project final reports, which are available to order at [www.horticulture.com.au/about/resources-publications-final-reports](http://www.horticulture.com.au/about/resources-publications-final-reports) (final reports are free to Australian horticulture levy payers, registered Hort Innovation members and industry representative bodies).



# Financial summary

## Financial operating statement 2015/16

	MARKETING (\$)	R&D (\$)	TOTAL (\$)
	2015/16 July – June	2015/16 July – June	2015/16 July – June
<b>Opening balance</b>	<b>309,897</b>	<b>268,210</b>	<b>578,107</b>
Levies from growers (net of collection costs)	620,331	479,931	1,100,263
Commonwealth funds	-	551,066	551,066
Other income	6,297	5,056	11,354
<b>Total income</b>	<b>626,629</b>	<b>1,036,054</b>	<b>1,662,682</b>
Project funding	477,736	958,751	1,436,487
Consultation with and advice from growers	6,511	16,588	23,100
Service delivery	62,952	126,794	189,746
<b>Total matched expenditure</b>	<b>547,200</b>	<b>1,102,133</b>	<b>1,649,333</b>
Levy contribution to across industry activity	-	24,630	24,630
<b>Closing balance</b>	<b>389,326</b>	<b>177,500</b>	<b>566,826</b>
Levy collection costs	20,305	15,318	35,623
<b>Additional expenditure through VC</b>	<b>-</b>	<b>1,048,025</b>	<b>1,048,025</b>



# Minor use permits

Pesticides are a valuable tool for the mango industry. While the use of pesticides is being modified through the increasing uptake of integrated pest management, there is still a need for the strategic use of specific pesticides.

Pesticide companies submit use patterns for registration to the Australian Pesticides and Veterinary Medicines Authority (APVMA) and the mango industry is therefore provided with limited registrations because of its minor crop status.

Minor use permits are required in the mango industry where the market size is considered too small and therefore not adequate commercial returns for the research and development investment by the pesticide companies.

**Below is a list of all current minor use permits for the mango industry, as of November 28, 2016.**

Permit ID	Permit description (pesticide/crop/pest)	Date issued	Expiry date	Permit holder
PER12450 v6*	Trichlorfon / Specified Fruit crops / Fruit fly	06-Oct-11	31-Jan-21	Growcom
PER80374*	Bulldock (beta-cyfluthrin) / Custard Apple, Lychee, Mango, Persimmon / Various Insect Pests	1-Oct-15	30-Sep-18	ALGA
PER13484 v2*	Carbaryl / Mango / Mango Leafhoppers	01-Jul-12	30-Jun-20	AMIA
PER13996	Fipronil / Mango trees / Giant termite	04-Feb-13	31-Mar-18	NT Mango Assoc.
PER14286 v2	Actara Insecticide (thiamethoxam) / Mangoes / Mango Seed weevil	01-Oct-13	30-Sep-18	AMIA
PER14743 v2*	Trichlorfon / Custard Apple, Lychee, Mango and Persimmon / Flatid planthopper, Flower eating caterpillar, Looper and Yellow peach moth.  Suppression only: Fruit-spotting bug, Banana spotting bug, Green vegetable bug and Lychee stink bug	1-June-14	30-Jun-20	Growcom
PER13859	Dimethoate / Orchard cleanup – fruit fly host crops following harvest / Fruit Fly	9-Feb-15	31-Jul-24	Growcom
PER14970	Ethephon / Mangoes / To manage seasonal vegetative flushes in mango trees	12-Feb-15	31-Mar-18	AMIA
PER14830	Chlorothalonil (Bravo Weather Stik Fungicide) / Mango Trees / Anthracnose	4-Feb-15	30-Nov-17	AMIA
PER80893	Etoxazole / Mango trees / Tea Red Spider Mite	2-Dec-15	31-Mar-19	AMIA

\* During the 2015/16 financial year, renewals or applications for these flagged permits were prepared and submitted to the APVMA. Industry levy funds were also used for residue-data generation during the period.

*All efforts have been made to provide the most current, complete and accurate information on these permits, however it's recommended that you confirm all details on the APVMA website, [portal.apvma.gov.au/permits](http://portal.apvma.gov.au/permits). Details of the conditions of use associated with these permits can also be found on the APVMA site.*

AMIA = Australian Mango Industry Association; ALGA = Australian Lychee Growers Association





### Minor use R&D projects active in the 2015/16 period

MG14018	Minor use permits for the mango industry
MG14014	<p>Generation of residue data for pesticide minor-use application in mangoes – Peracto</p> <p>This project funded residue trials to determine residue levels and crop safety following the use of beta-cyfluthrin for the control of fruitspotting bug, banana-spotting bug, elephant or rhino beetle, red-shouldered leaf beetle, swarming leaf beetle, longicorn trunk borer, macadamia nut borer, macadamia nut borer, mango planthopper, green vegetable bug, lychee stink bug and yellow peach moth in mangoes.</p> <p>The residue data from this project was used to support a minor use permit renewal application for beta-cyfluthrin in mangoes (under permit PER80374).</p>
ST15026	Generation of residue data for pesticide minor use permit applications in horticulture crops 2015/16 – Peracto

**Horticulture Innovation Australia Limited**

ACN 602 100 149

Level 8, 1 Chifley Square

Sydney NSW 2000

Telephone 02 9295 2300

Fax 02 8295 2399

[www.horticulture.com.au](http://www.horticulture.com.au)