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19 December 2014

Committee Secretary

Senate Standing Committees on Rural and Regional Affairs and Transport

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Dear Senators

Re: Inquiry into industry structures and systems governing the imposition of and disbursement of marketing and research and development (R&D) levies in the agricultural sector

Thank you for the invitation to provide a submission to the inquiry into the industry structures and systems governing the imposition of and disbursement of marketing and research and development (R&D) levies in the agricultural sector.

This submission is lodged by the Voice of Horticulture which represents the interests of commercial fruit, nut, turf, mushroom, nursery and garden growers in Australia. Our aim is to extend our coverage across the horticulture spectrum. Our current members are:

| | |
|--|---|
| Almond Board of Australia | Apple and Pear Australia Limited |
| Australian Banana Growers Council | Australian Lychee Growers Association |
| Australian Macadamia Society Limited | Australian Mango Industry Association |
| Australian Melon Association Inc. | Australian Mushroom Growers Association Limited |
| Australian Nut Industry Council | Australian Processing Tomato Research |
| Australian Table Grape Association | Avocados Australia Limited |
| Citrus Australia Limited | Custard Apples Australia Inc. |
| Growcom Australia Pty Ltd (Pineapples) | Nursery & Garden Industry Australia Limited |
| Passionfruit Australia Inc. | Persimmons Australia Inc. |
| Raspberries & Blackberries Australia | Summerfruit Australia Limited |
| Turf Producers Australia | |

Horticulture is Australia's third largest agricultural sector. It is about half the value of the broad acre cropping sector but only marginally smaller than the livestock sector (Table 1). Gross value of production is more than two and a half times greater than the dairy sector and nearly four times larger than the wool industry.



Table 1: Gross Value of Agriculture Production 2012-13

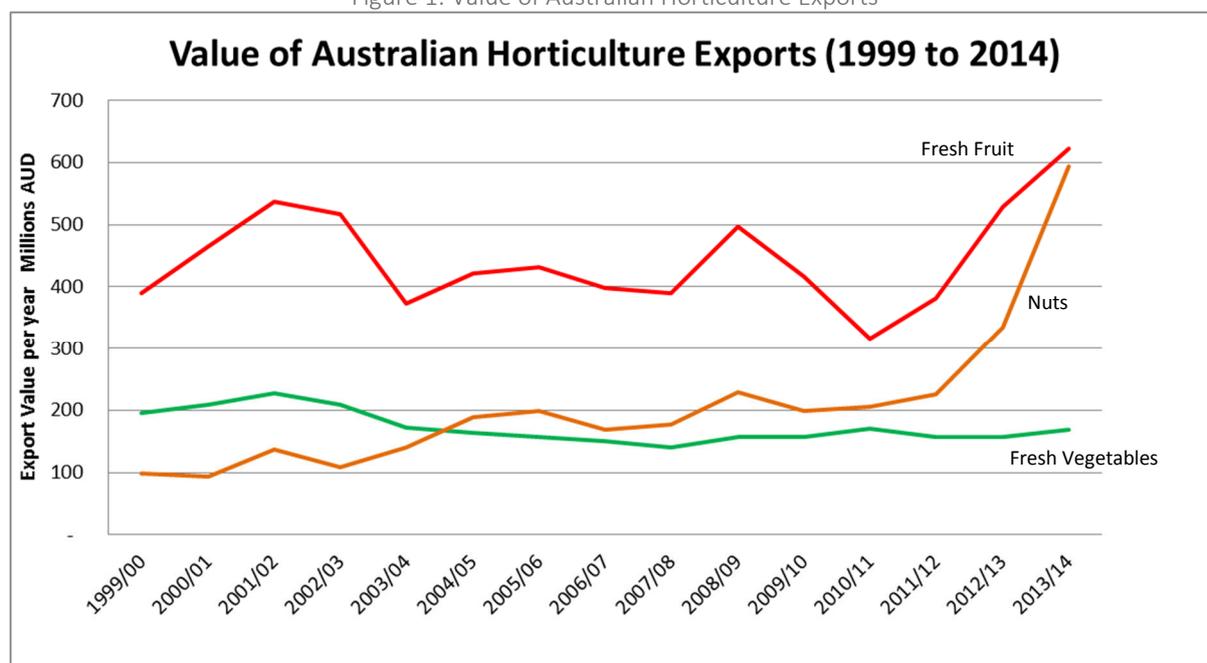
| | Gross value of Production (\$m) |
|----------------------|---------------------------------|
| Broadacre crops (a) | 18,170.40 |
| Cattle and Sheep (b) | 10,040.25 |
| Pork | 933.72 |
| Poultry | 2,213.78 |
| Eggs | 653.01 |
| Dairy | 3,687.33 |
| Wool | 2,471.65 |
| Horticulture (c) | 9,877.87 |
| | 48,048.01 |

Note: (a) Includes grains, hay and silage; (b) Includes other livestock e.g. goats; (c) Includes wine grapes
Source: ABS Cat 7502 Value of Agricultural Commodities Produced, Australia, 2012-13

A renewed focus on international markets has also seen significant growth in the horticulture exports over the past five or so years (Figure 1). In 2013/2014 the value of horticulture exports achieved a record \$1.5 billion, more than double the value achieved in 1999/2000.

Horticulture is the largest employer in agriculture – employing one third of all agriculture workers. At August 2014 61,100 were employed in the sector with a further 6,250 in fruit and vegetable processing. Most horticulture industries remain labour intensive, as is the case with our international counterparts. Many regional economies and their rural townships are heavily dependent upon their horticulture industries for employment or servicing the seasonal workforces engaged by them.

Figure 1: Value of Australian Horticulture Exports



The Voice of Horticulture firmly believes that the levy system is almost universally supported by growers across the horticulture sector. There are many examples of how the compulsory R&D and marketing levy system has worked to the benefit of the industries involved. Just some of these are showcased in this submission (see Attachments 1 - 4).

There is recognition amongst growers that the compulsory levy is required to overcome market failures including free-rider issues and uncaptured spillover effects. Successive governments and agencies like the Productivity Commission have recognised that without policy intervention through a compulsory levy system, these market failures would mean an underinvestment in R&D and in commodity marketing. This underinvestment inevitably means that the horticulture sector and the regional communities that depend upon those industries would be worse off. As a consequence national gross domestic product (GDP) would also be reduced.

The compulsory levy system enables each orchardist and farmer to fairly contribute to the growth and sustained profitability of their industry. Research and development is fundamental to achieving improved yields on-farm and efficiencies across the supply chain – in packing sheds, cool stores, and logistics. This is critical in horticulture because our regulated labour market leads to a highly uncompetitive price structure compared with horticulture producers in almost all other nations.

The Voice of Horticulture believes that shifting the levy scheme from a compulsory to a voluntary one would, unsurprisingly, lead to the demise of the system. Although growers accept that they directly benefit from research activity that develops new varieties, improves production systems and better manages pests and diseases, there is no incentive for them to contribute funds if their neighbour does not. Indeed there is a commercial incentive for individual growers to take a “free-ride” and the ease of doing so is high because it is notoriously difficult to make agricultural research outcomes exclusive to those who paid for it. For example, opening up international markets often requires research on the efficacy of pest treatments which in turn underpins phytosanitary protocols imposed by the foreign import authority. It would be impossible to exclude growers from using the protocol and exporting product if they did not help fund the efficacy research. Similarly, investments that improve fruit quality across an industry can lead to significant growth of the industry. Individual producers can (and in some cases should) fund their own research to improve the quality of the products they produce. However, in a commodity market, even greater benefit can come from improving the quality across the industry, thus increasing consumer demand and expanding the size of the entire market.

The Voice of Horticulture also strongly believes that the matching of research and development dollars by the Commonwealth Government is fundamental to the success of the system. Matched government funding should be seen for what it is – the preferred policy response to market failure created by public good spillovers. For example, investment in precision irrigation research not only assists growers to reduce their water bills but also supports the downstream river system by reducing water uptake. Government funding encourages the capture of the public benefits from research and ensures that the level of R&D investment is optimal from a national economic view.

Most growers accept that there are synergies across horticulture and support a portion of individual industry levies being diverted to programs that benefit the wider sector or agriculture more generally. The former Horticulture Australia Limited (HAL) operated a program for across industry programs and transformational sector research in a number of disciplines including robotics and automation, market access, chemical registration, sterile insect technology, industry leadership capacity, climate variability and climate change. The Voice of Horticulture looks forward to assisting the new research and development corporation (RDC) Horticulture Innovation Australia Limited (HIA) to continue to develop such programs.

Nevertheless, The Voice of Horticulture contends that the significant proportion of levies raised must flow to individual commodity investments and not be pooled, at either a national or regional basis.

Some might suggest that pooling the horticultural levies would reduce RDC overheads because it reduces the number of industries which need to be consulted about the use of the levies. We believe that growers would effectively withdraw from the system entirely if pooling was imposed. Growers quite rightly perceive the levies as a compulsory tax to raise funds for the advantage of their industry and would be most aggrieved if they thought there was a possibility that their funds were used to benefit growers of other commodities.

The Voice of Horticulture believes that the rigorous set of principles that must be adhered to prior to government considering any new levies or changes to existing levies is one of the key positive attributes the levy model in Australian agriculture. These principles (outlined in the Department of Agriculture's Levy Principles and Guidelines¹) require proposers to provide a sound case based on market failure, consult widely with stakeholders and receive support from the majority of actual and/or potential levy payers. The exercise to initiate or change a levy is both extensive and expensive and industries do not embark on such initiatives without thorough consideration and evaluation.

We support the need to review levies from time to time. If doing so the following consideration should be made:

1. As ballots and the processes to approve or reapprove the levies required to support them are expensive their frequency should be kept to a minimum (or cost weighed up against the benefit).
2. More importantly, allowances must be made to phase in any downsizing of levies including nil levies so that projects that are contracted prior to the ballot are allowed to run their course. Security of funding is key to secure long term projects like breeding that are critical to growth and development in horticulture. It would be extremely disadvantageous for service providers and research agencies to attract world's best expertise if program funding was not secure.
3. Be careful that a short term review process does not drive short term, ad hoc projects that are not consistent with the long term development/improvement of horticulture.

The Voice of Horticulture is aware that the number and diversity of levy types across horticulture adds to the complexity of operating the system and has led to higher collection costs than is experienced in a number of other agricultural sectors. However horticulture is by its very nature a diverse collection of industries with production systems that include broad-acre, glass house and dark-house, hydroponic, orchards and vines, and intensive cropping. Whilst an ad valorem levy may offer a practical solution to removing the plethora of different levy types (some levied on cents per kilogram, others by pots or runners, others by product value at farm gate) it would not remove the need for different rates for each of the individual industries.

This is a critical point. Each industry established their levy rate to generate the funds required to meet their specific R&D and marketing needs. Some industries are mature and need significant funds to develop newer varieties that are pest resistant or more attuned to changing consumer tastes. Some industries need fewer funds as the focus is on the extension of world's best practice production techniques. Some industries are "infant industries" and require funds to develop domestic and export markets. The point is that finding a single levy rate, even an ad valorem one that would raise the funds required of each of the horticulture industries would be an impossible task.

Finally, The Voice of Horticulture believes that the compulsory R&D and marketing levy system must be viewed within the wider context of the horticultural levy structure. In addition to the R&D and

¹ http://www.daff.gov.au/data/assets/pdf_file/0003/253353/levy-principles-guidelines.pdf

marketing levies many horticultural industries also have levies pertaining to Plant Health Australia, Emergency Plant Pest responses and national residue testing. Any changes made to the R&D and marketing levy structure could have adverse implications for these levies which are critical to biosecurity and trade.

Biosecurity is important to both growers and governments alike. Pests and diseases can significantly lower plant yields and/or product quality and in some cases devastate entire commercial crops. Managing them add to production costs, something growers can ill-afford in an environment where our labour costs make us one of the highest cost producers in the world. From a public and government perspective, managing pests and diseases is also critical to the protection of Australia's unique flora and fauna and its eco-system. Levies that enable Plant Health Australia to assist cropping industries and the State and Commonwealth governments to manage policy and research is important to achieving our common biosecurity objectives.

International trade in fresh fruit and vegetables is also inexorably linked with secure biosecurity systems. In order to convince some foreign governments (and an increasing number of them) that fresh fruit and vegetables should be allowed to be imported into their countries from Australia we must demonstrate that we do not have specific pests and diseases of concern to them or that we can manage them in such a way that there is very little risk that those pests and disease could accompany exported product. Just like Australia, those potential markets undertake commodity import risk analyses and develop protocols that specify how a particular fruit or vegetable must be treated prior to export. Research and development levies are used extensively to fund the scientific evidence that is required to justify why no or minimal treatment measures should be imposed upon our fresh product trade.

Going forward, The Voice of Horticulture will be keen to work with other agricultural industries, Austrade and other government agencies to advocate and develop a cohesive and effective Brand Australia. A key pillar of such a brand will be our "clean and safe" image. As a relatively high cost producer we must target niche markets that are prepared to pay premium prices for high quality products. In many markets high quality is synonymous with "clean and safe". For many in horticulture that image is underpinned by the levy system that allows for the national residue program that is operated by the Department of Agriculture. The national residue levy enables industry to fully fund the independent testing of produce against a chemical screen that checks residues against the Australian laws as well as the maximum residue limits established by governments in our export markets. Many of our Asian trading partners perceive that Australian government involvement in this system authenticates that Australian industries are compliant, or put another way, are "clean and safe".

The Voice of Horticulture would be pleased to appear before the committee to elaborate further on the points raised in this submission.

Yours sincerely



Tania Chapman
Chair

Case study summaries

Case Study 1 – Future Orchards® for higher apple and pear production (See Attachment 1)

As a result of the effort to improve technology uptake under Future Orchards®, Australian apple orchards are becoming more productive and returning a higher revenue per hectare – year on year.

Apple and Pear Australia Ltd identified that key to increasing the productivity of Australian apple orchards was to shift to high density orchards and focus on producing a high quality fruit.

Future Orchards® identifies key practices to help growers achieve this goal by running extension activities. Average yields are now 41 tonnes per hectare, but some Future Orchards' growers have achieved up to 100 t/ha – demonstrating there is still huge opportunity to increase productivity.

Case Study 2 – Quality boost for Avocados following education campaign (See Attachment 2)

As a result of an extensive whole of supply chain education and training effort, the avocado industry reduced the level of unacceptable damage to avocados at retail by 38 per cent between 2008 and 2012.

Avocados are a highly perishable product and susceptible to damage, so improving avocado quality at retail level is a major strategic objective for the industry.

Alongside supporting research to reduce damage to avocados, Avocados Australia has developed extensive education material for growers through to retailers to provide best practices for maintaining avocado quality. Per capita consumption of avocados has increased 70% in the past ten years and returns to growers have also increased over this time.

Case Study 3 – Strategic marketing campaign keeps bananas in top spot (See Attachment 3)

The Australian Bananas marketing campaign is recognised as being one of the best in horticulture, successfully lifting per capita consumption by 2 per cent per year, every year.

Australian Bananas has a strong brand presence, including the “Make your body sing!” jingle, and a promotions achieving product awareness across TV, radio, outdoor advertising and online campaigns.

A three-year rolling marketing strategy has allowed the Australian banana industry to set long term goals – keeping bananas as the top-selling fruit in the nation’s supermarkets.

Case Study 4 – R&D program lifts citrus exports to China (See Attachment 4)

Due to an innovative research and development program, between 2012 and 2014, the export volume of Australian citrus increased 468% from 2,400 tonnes to 13,400 tonnes.

The Australian citrus export program into China has been, and continues to be, a long term commitment that has seen a huge increase in volume, with returns of an average \$150 per ton more than any other market. Plus the value achieved per kilo increased by 10% between 2013 and 2014.

Looking forward it is anticipated that trade will continue to grow as China sees Australia as the sweet, safe, healthy choice for its citrus.

Attachment 1 – Future Orchards® for higher apple and pear production

Launched in 2006, Future Orchards® provides growers with practical and hands on education to help increase the fruit quality and productivity of their orchards and help them become internationally competitive.

Future Orchards holds regular orchard walks (held twice a year in each of the eight growing regions) and business development groups, and provides access to the online benchmarking database ‘OrchardNet®’, Australian Orchard Business Analysis data, Australian Fruitgrower technical articles and webinars.

The project was designed to increase production, lower orchard production costs per kilogram of fruit, increase the percentage of premium fruit harvested and bring Australian orchardists up to international competitiveness in the domestic and export markets.

Future Orchards original goal was to help apple and pear growers understand intensive production systems within two years, to ensure all new plantings were intensive within five years and to have an internationally competitive industry in Australia within 10 years. The project is well on track to achieving these goals.

In addition, the project monitors designated blocks with different tree densities and issues in each apple and pear growing district. Orchard walks are held regularly in each growing region to give growers first hand comparisons of the costs and benefits of adopting different orchard production systems and approaches.

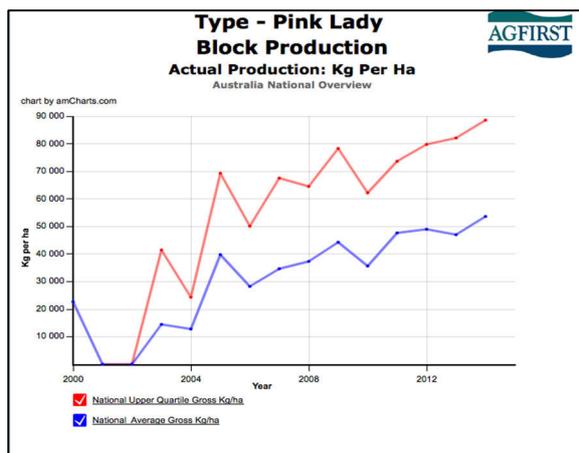
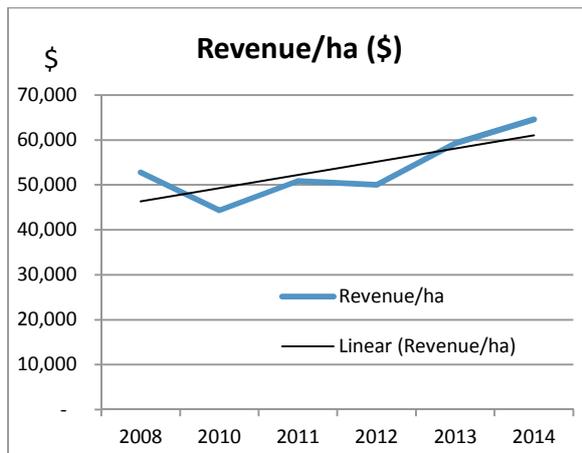
The project has been well received leading to an iteration of the Future Orchards concept focused on the strategic goal of “Growing high quality fruit at internationally competitive prices.”

Outcomes:

The outcomes of any technology transfer project can be difficult to measure, but APAL believes that the documented outcomes of the Future Orchards projects over time are impressive. Several of these outcomes have become clearer during the most recent iteration of the concept (2012 to 2014).

Table 2: Orchard Business Analysis - 2008-2014 Average Gross Yield (tonnes/ha)

| | 2008 | 2010 | 2011 | 2012 | 2013 | 2014 |
|-----------------------|------|------|------|------|------|------|
| Av. yield (tonnes/ha) | 36.3 | 31.3 | 36.6 | 40.9 | 39.1 | 38.7 |



Future orchards involves a number of project activities for demonstrating world’s best practice and facilitating adoption of these practices.

- National Orchard Benchmarking
- Webinars
- Orchard Business Analysis
- Magazine Articles
- Focus Orchards
- Front line advisors
- Orchard Walks

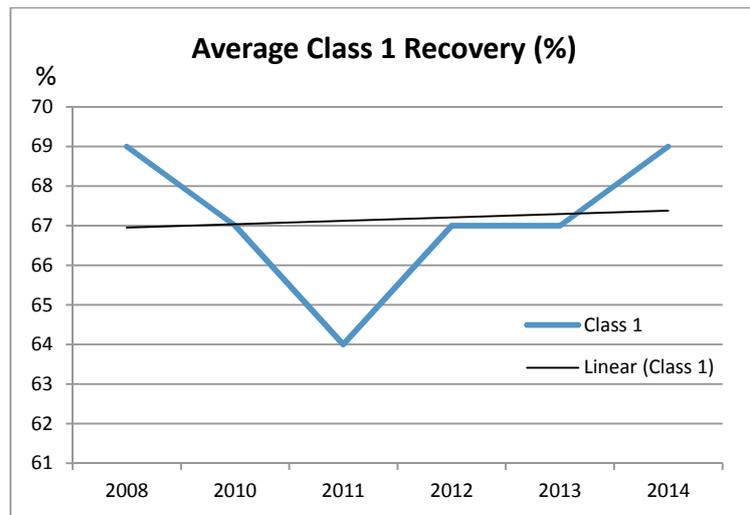
Orchard walks are the central activity of the Future Orchards project. Australia-wide orchards walks are managed as two travel “loops” of four regions each. The northern loop being Stanthorpe, Orange, Batlow and Shepparton and the southern loop being South West Western Australia, Adelaide Hills, Southern Victoria and Tasmania

Orchard walks involve an Agfirst consultant, APAL technical manager and a specialist guest speaker. Focus Orchards set up in each growing region.

“The highlight has been the continual path of business improvement on the Flavell Focus Orchard. The Flavell family have been very receptive to all the inputs provided by Future Orchards over the past 2 years....Their productivity over the 3 years of being a Focus Orchard has gone from 31 t/ha in 2012 to 41t/ha in 2014.”

Ross Wilson, Agfirst.

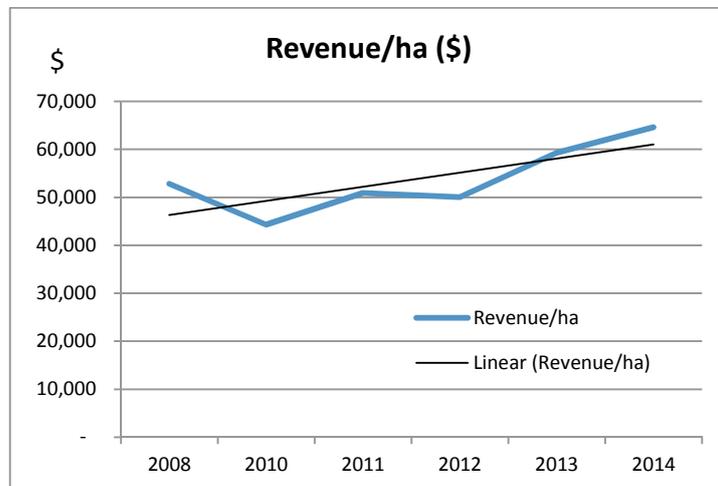
| Year | Ave Class 1 Recovery (%) |
|------|--------------------------|
| 2008 | 69 |
| 2010 | 67 |
| 2011 | 64 |
| 2012 | 67 |
| 2013 | 67 |
| 2014 | 69 |



The trend line indicates an increasing class 1 recovery rate over time with trend-corrected rates growing from 67% to 67.4% over 6 seasons.

Data for the average revenue per hectare on a national level gathered from the OrchardNet inputs indicates the outcomes shown in the table and graph below. Although in any business it would be expected to see a growth in revenue over time, it should be noted that the growth indicated by the trend line is well above the national rate of inflation. Also, the revenue noted here is on a per hectare basis rather than an enterprise basis.

| Year | Revenue / Ha (\$) |
|------|-------------------|
| 2008 | 52,825 |
| 2010 | 44,334 |
| 2011 | 50,913 |
| 2012 | 50,033 |
| 2013 | 59,271 |
| 2014 | 64,604 |



The three graphs above indicate that the apple industry has shown significantly positive outcomes since the inception of Future Orchards with the current project continuing the positive trends.

Attachment 2 – Quality boost for Avocados following education campaign

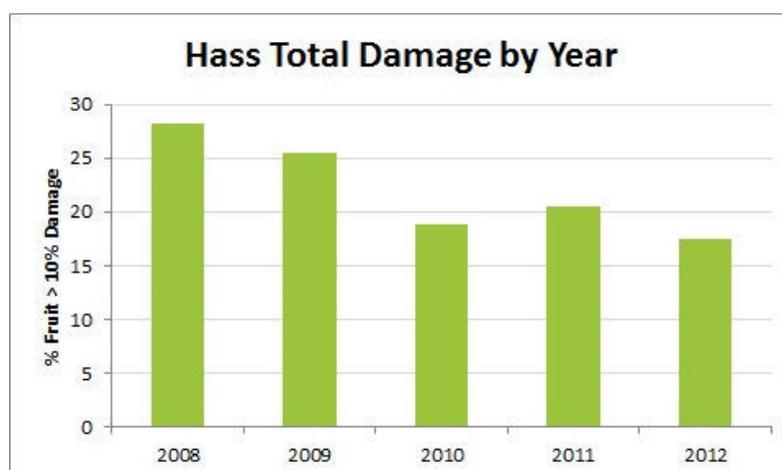
Avocados are a highly perishable product and susceptible to damage. Improving avocado quality at retail level is a major strategic objective for the industry. In 2006, detailed sensory research was undertaken to quantify consumer's preferences and tolerances of internal defects. This research established, amongst other things, that consumers will tolerate up to 10% internal defects with higher levels of damage adversely impacting future purchasing decisions.

A suite of R&D and extension projects have been implemented since 2006 to address the issues affecting avocado quality:

- Education materials developed and disseminated (hard copy and on-line) for each sector of the supply chain – growers, packers, transporters, wholesalers, ripeners, retailers.
- Weekly and quarterly forecasting and dispatch reporting to help industry to achieve more consistent crop flow through the supply chain across the year.
- National hands-on retailer training.
- Extension program to facilitate adoption of best practice for growers, packers, transporters, ripeners, wholesalers.
- Detailed ripening guidelines developed for ripeners.
- Research to improve field disease management.
- Research to identify and minimise causes of fruit bruising.

A monitoring program was also established to monitor changes in fruit quality at retail level over time. Fruit is sampled from 64 stores across 4 capital cities every month and assessed against key quality criteria. This data has provided insights into the main quality defects (rots and bruising) and has helped to direct future research.

The extensive data set provides hard evidence that the initiatives undertaken through the levy program to improve avocado quality at retail level are having a positive impact. The percentage of Hass avocados at retail level with unacceptable levels of damage decreased by 38% from 2008 to 2012. This improvement in quality is helping to drive increased consumer demand and returns to levy payers. Per capita consumption of avocados has increased 70% in the past ten years and returns to growers have also increased over this time.



Attachment 3 – Strategic marketing campaign keeps bananas in top spot

Bananas is Australia’s largest single horticulture industry and ranks not only as the nation’s #1 fruit but also the #1 selling line in the nation’s supermarkets.

While the industry enjoys its status as a market leader, it also recognises it must keep competing for market share. The industry also knows that its rivals are not only other fresh food lines but also heavily-promoted processed foods and snacks.

Bananas is a mature market with significant market penetration among its traditional consumer base of young families. A challenge is that the identified growth prospects lie in the harder-to-reach demographic of young singles.

With year-round production based mainly in far north Queensland, bananas also has significant scope for continued strong supply, placing demands on initiatives that will assist to move fruit through the market. But the industry also needs supply flexibility as seasonal weather events can bring the prospect of temporary supply interruptions.

Because of these and other challenges, the banana industry has recognised the need to support banana production and supply through the Australian Bananas marketing campaign.

Australian Bananas has been central to the banana industry’s success and is recognised as one of the best known and most effective marketing campaigns in horticulture.

Australian Bananas marketing

Key features of the Australian Bananas marketing campaign include rolling three-year strategies. These have allowed longer-term goal setting and the achievement of some significant successes in recent years.

These successes have been won despite the instances of production fluctuations that inevitably occur in horticulture, competition from other produce lines and under heavy fire from larger and more well-resourced competitors in the processed-food sector.

Campaign highlights

Australian Bananas is renowned for its strong brand presence, including the iconic “Make your body sing!” jingle, and a range of activities achieving product awareness. These include television, radio and outdoor advertising and online and social campaigns.

Australian Bananas also reaches communities through its national Schools Sponsorship program and its support of community sponsorship and events.

Features of the Australian Bananas campaign include:

- supported by an industry production levy raising approximately \$4million in grower funds annually. Marketing is managed by Horticulture Innovation Australia
- provides integral input to the banana industry’s Strategic Investment Plan, supporting the plan’s objectives to increase the value of the banana category and maintain the #1 fruit status

- creation of the “nature’s energy snack” campaign that has allowed bananas to increase market share and reach. Bananas have successfully won a share of the snack food market against traditional processed snack lines such as confectionary, chips and soft drinks
- setting of measurable Key Performance Indicators. Already the #1 fruit and supermarket line, bananas is also on track to reach its goal of becoming Australia’s #1 snack food by 2015.

Achievements

- successfully managing consumer expectations around temporary supply interruptions and retail price rises following Tropical Cyclone Yasi in 2011. This was a key danger period for banana marketing
- utilising the Bananas Are Back campaign in 2011 to reintroduce bananas to the market after an 8-month absence and to manage heavy return-to-market supply levels
- exploring new opportunities for market growth including the newly identified key audience of 18-39 year olds with no kids
- managing seasonal supply and quality issues with a focus on supply-chain initiatives and outreach to retailers and consumers
- lifting per capita consumption in line with objectives of a 2 per cent per annum increase
- management of a multi-channel marketing program to continue to drive consumer demand as supply levels lift. Bananas achieved record production levels in 2013-14, more than 8 per cent higher on a year-on-year basis. Marketing initiatives are ensuring fruit moves through the market with a view to consistently generating sustainable grower returns
- bananas are on track to claim the title of #1 snack food – a significant achievement for fresh food marketing and adding to the titles of #1 fruit and #1 supermarket line.

Awards and nominations

- recognised as Australia’s best marketing campaign targeting children winning the Parents’ Jury, Name and Shame Awards in November 2012
- Produce Marketer of the Year finalist, PMA Australian-New Zealand in June 2013. Australian Bananas was a finalist in the premier award for produce marketing
- Festival of Media Global Awards – Australian Bananas was shortlisted at this international event for best targeted campaign April 2013.

The future

The banana industry marketing levy allows bananas to establish and achieve longer-term goals through well planned and resourced three-year marketing strategies.

Successes achieved to date are significant and have underpinned bananas’ #1 status. Independent analysis confirms the banana industry is targeting the right consumer groups to continue to increase market penetration and banana consumption.

The current strategy concludes in mid-2015. A new three-year strategy will follow and a review and planning process began in 2014.



Voice of Horticulture

www.voiceofhorticulture.org.au

Attachment 4 – R&D program lifts citrus exports to China

Innovative R&D KCT program secures a greater share of export markets for Australian citrus

The China dream has long been on the citrus industry's export agenda. However, overcoming the technical challenges for entry into China has required substantial research and development (R&D) over many years.

Liz Mecham explains that through a number of projects jointly funded by industry and government, as well as businesses taking the initiative to apply these R&D outcomes, the China market is shaping up to be the most promising opportunity the industry has ever seen.

The South Australian Research and Development Institute (SARDI) has been at the forefront with research that has included a better understanding of the behaviour of Fuller's rose weevil (FRW), enhanced monitoring methods through the use of a beat mat, and the development of targeted pesticide applications on the trunks of trees.

The innovative approach to pest management has taken the industry a quantum-leap forward and the China dream is now being realised. Growers exporting to Korea and Thailand also have benefitted from this orchard systems approach, where FRW is a quarantine challenge.

While there are significant rewards in all these markets, the Korean, China and Thailand (KCT) export program may not be for everyone.

The KCT program is a long-term commitment that starts with identifying suitable orchards which provide high enough returns to justify the additional effort.

Citrus Australia's South Australia industry development officer, Sam Rogers emphasised: "The first step in that decision is to have a Registered Crop Monitor assess the FRW status of any orchard before entering the KCT export program for the first time. This will provide a good indication on the effort that is required over the next few seasons."

"The use of the beat mat to survey for FRW has certainly revolutionised the industry," Sam added.

"Just a few years ago we were relying on other methods but the research by SARDI has demonstrated a very reliable method of detecting FRW in orchards and providing confidence that it won't be present in consignments.

"Growers must also provide evidence of specific cultural and Integrated Pest Management (IPM) practices, monitoring records for all quarantine pests, and have orchards surveyed by a Registered Crop Monitor in February."

Sam explained that China had the most stringent requirements and orchards must be surveyed and found free from FRW and a range of other pests and diseases.

"Thailand permits a small tolerance in orchards but the skirting and trunk-band spray program is mandatory. Korea also is very sensitive to FRW as we know from our United States counterparts," she continued.

While Korea is less prescriptive of the in-field requirements for FRW, skirting and trunk-band spraying should be applied to avoid costly failures. Korea has a strong expectation that all quarantine pests will be adequately managed at the grower level.

"There are just no short cuts," Sam said. "However, while some minor tolerances are permitted for Korea and Thailand, growers and packers must really weigh-up the consequences of supplying these markets if FRW is present - even at low levels."

Thanks to the SARDI research and some on-farm ingenuity, growers participating in the Korea, China Thailand (KCT) export program have developed various versions of the SARDI trunk-band sprayer; and this has proved very effective in combating FRW.

The trunk-band sprayer is a time and cost-effective method to deliver excellent trunk coverage with insecticides to prevent the emerging FRW entering the canopy.

But, that's only part of the story, Sam said, tree skirting and weed management were also critical components of the FRW program.

While initially sceptical of the higher input costs, growers who created their own trunk-band sprayer are now big advocates of the program.



The development of the trunk bank sprayer has meant growers now have a simple, tractor mounted unit to undertake this spraying task.

Rick Pierce from Cox's Orchards in South Australia, said the innovative trunk-band sprayer is providing an effective method of meeting the spray and pest management requirements.

"We did have cost concerns – but we sat down with the MFC and went through it all ... and while there is additional work with trimming and weedicide, at the end of the day, those costs we were concerned about were not significant and have reduced over time as we have gotten better at the practices," Rick explained.

Fruit sold through the program, he said, had more than covered extra production costs by delivering "...prices \$100 to \$150 a tonne above what we had been getting for similar fruit".

But Rick was quick to point out premiums would only continue if growers were clear with the program's requirements.

It is a sentiment backed-up by Sam Rogers, who said growers needed to ensure they were up to speed on market requirements, but even more importantly, the protocol requirements.

"The innovative approach to pest management has taken the industry a quantum-leap forward and the China dream is now being realised."

"The trunk-band spraying program involves regular applications of an insecticide registered specifically for trunk-band spraying such as Karate Zeon, Matador Zeon or Trojan at label rates with Kaolin clay added for safety, indicating spray contact," she said. "Spray records must also be retained for auditing purposes."

Sam stressed the importance of protecting these vital markets by presenting pest-free fruit to the packer.

The development of the trunk bank sprayer has meant growers now have a simple, tractor mounted unit to undertake this spraying task.

The sprayer was the focus of an on-farm field day at Waikerie in April

Cox's Orchards have been participating in the program for four years which led to the development of the new four-headed spray head unit to further increase time and management efficiencies.

On the Cox's sprayer, the nozzles can be altered between stream or fan application, and are set at between 90 and 45 degrees to the tree trunk along a 750mm bar and powered by a 12 volt solenoid.

Attached to an adjustable arm, and carried on a forklift front (to allow for row widths and height adjustment) the spray head passes trees twice – once on each side between 300 and 500mm from the trunk – to ensure full coverage of trees.

Rick also uses a synthetic bonding agent and Kaolin clay in his sprays which not only helps it bond with the sprayed surface, but colour the tree trunk and fruit upon drying.

"It identifies any overspray, but also alerts growers, GLOs and packing houses to any contaminated fruit," Rick explained.

"Good skirting to trees is essential to minimise the cost associated with (spray) contaminated fruit."

Steven Falivene, NSW Department of Primary Industries (NSW DPI) citrus industry development officer, has been working with Sam and the Citrus Industry to help facilitate grower adoption of practices to meet export country quality and protocol requirements.

This has included online videos and factsheets on the NSW DPI and Citrus Australia website on the design and use of the trunk-band spray units and their application.

The videos show how citrus growers Rick Pierce (SA) and Shane Smythe (NSW) demonstrate the design and features of their sprayers.

Steven said growers could also download the DPI fact sheet to learn about growing practices for export. 🍊

To view the grower videos and download information sheets visit dpi.nsw.gov.au



(Above) Innovative tree skirters and trunk band sprayers are providing an effective method for meeting the spray and pest management requirements of FRW.

(Below) According to Citrus Australia's South Australia industry development officer, Sam Rogers the use of the beat mat has made detection of FRW in orchards a scientifically robust process.

