

Current and future prospects

- 1.1 The Australian honey bee industry is a small but vital component of the Australian economy. While the production of honey and associated bee products represent only some \$80 million per annum gross value of production,¹ the value of European honey bees (*Apis mellifera*) to agricultural production is reckoned in terms of billions of dollars. Taking into account all plant based industries and wool, meat and dairy production, it is estimated that honey bees contribute directly to between \$4 billion and \$6 billion worth of agricultural production.² In its submission to the inquiry, the Australian Honeybee Industry Council (AHBIC), the honey bee industry's peak body, noted that:

Honeybee pollination provides significant value to Australian horticulture and agriculture with services being valued at \$3.8 billion per annum for the 35 most important honeybee dependent crops. When other crops, including pastures such as lucerne and clover, are added this estimate becomes even larger. If honeybee pollination were to stop completely, large losses would be felt in [the] horticulture sector. This is because approximately 65 per cent of horticultural and agricultural crops produced in Australia require pollination services from honeybees.³

- 1.2 Clearly, therefore, the prospects of the honey bee industry, the producers of honey bee products and providers of managed pollination services, are of vital interest to other primary producers, governments of all levels, and the Australian community generally. It might be an exaggeration to state

1 AHBIC, Submission no. 56, p. 28.

2 Ms Margie Thomson, RIRDC, *Transcript of Evidence*, 8 August 2007, p. 6.

3 AHBIC, Submission no. 56, p. 28.

‘no bees, no food’, but the food security and economic welfare of the entire community depend to a considerable degree on the humble honey bee.

Current state of the industry

- 1.3 In 2003, the Rural Industries Research and Development Corporation (RIRDC) released several reports looking at the state of the honey bee industry.⁴ These, along with the Centre for International Economics *Future directions for the Australian honeybee industry*,⁵ provide an overview of the current position of the industry and the issues it faces into the future.
 - 1.4 The *Honeybee industry survey* took a snapshot of the industry based on the 2000–01 financial year.
 - 1.5 In 2000–01 the industry produced an estimated 27,800 tonnes of honey.
 - 1.6 Gross value of the industry was approximately \$63 million, consisting of:
 - \$53 million for honey production
 - \$3.3 million for paid pollination services
 - \$3.3 million for queen bee sales
 - \$2.5 million for propolis, wax and honeycomb production
 - 1.7 Australia has around 9600 registered beekeepers, but the majority of honey is produced by a relatively small number of larger businesses. It is estimated that 62% of total honey production comes from businesses operating more than 500 hives – around 250 businesses.
 - 1.8 Most honey bee operations are small family owned and operated businesses operating fewer than 500 hives and depending on income sources other than beekeeping. Wages and salaries earned outside the honey bee business by operators were estimated to average \$12,899 per operator. Earnings for small operators were high, as was government sourced income.
 - 1.9 On average, family and other non-hire labour worked a total of 59 weeks a year in the business, while hired labour, permanent and casual, worked 6
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4 Veronica Boero Rodriguez et al., *Honeybee industry survey*, RIRDC Publication No. 03/039, May 2003; RIRDC, *Commercial Beekeeping in Australia* (2nd Ed.), RIRDC Publication no. 07/059, April 2007; Jenny Gordon & Lee Davis, *Valuing honeybee pollination*, RIRDC Publication no. 03/077, June 2003.

5 Centre for International Economics, *Future directions for the Australian honeybee industry*, CIE, Canberra, September 2005.

weeks. Small businesses were run almost entirely by family and non-hired labour, while for large enterprises non-hired labour provided about 70% of total labour input.

- 1.10 Around 51% of Australian honey bee producers are sole traders. Another 46% are partnerships, with partnerships being more common among larger businesses. Companies make up about 2% of businesses.
- 1.11 Total industry employment, excluding casual employees and family labour below 16 years of age, is estimated to be around 3000 people.
- 1.12 The average age of Australian beekeepers is 54 and those operators had on average 25 years experience as apiarists. This is similar to other agricultural industries. Their spouses were, on average, 48 years old with 10 years experience as apiarists.
- 1.13 Total cash receipts per enterprise averaged \$46,000, while average receipts from honey sales averaged \$32,800. Average prices per kilogram were \$1.80 nationally, but \$3.40 in Tasmania.
- 1.14 Cash costs per business averaged \$30,600, around 67% of total cash receipts, leaving a cash operating surplus of \$15,400. The most important cost items are labour and motor vehicle expenses, including fuel.
- 1.15 Non-cash costs, in particular depreciation on motor vehicles, were high relative to other agricultural industries. When non-cash costs, including depreciation and the value of the operator, partner and family labour are taken into consideration, the return to capital and management was an average *loss* of \$13,700 per business.
- 1.16 On average, businesses had an estimated \$236,400 worth of capital invested at 30 June 2001. The average rate of return was estimated to be *minus* 5%. However, around 10% of honeybee businesses, mainly larger businesses, generated rates of return of *more* than 10 per cent, which is *high*, particularly for agriculture.
- 1.17 Nationally, over 60% of beekeepers used public land for honey production. This proportion ranged from 100% in Tasmania to 33% in South Australia. The proportion of honey produced from state forests was estimated at 23%; and from national parks and other public lands, 3% and 4% respectively. Larger operations produced more of their honey from public lands than smaller businesses. (Note: few, if any, operators rely exclusively on public land for honey production).⁶

⁶ Veronica Boero Rodriguez et al., *Honeybee industry survey*, RIRDC Publication No. 03/039, May 2003, pp. vi–vii, 10–11, 15.

- 1.18 A second RIRDC report, *Commercial Beekeeping in Australia*, the second edition of which was published in 2007, noted that:

The Commercial beekeeping industry in Australia comprises a relatively small number of professional beekeepers deriving most of their livelihood from beekeeping and a larger number of people who keep bees for profit but who do not depend solely on beekeeping for their livelihood.

There are about 600,000 hives in Australia which produce around 30,000 tonnes of honey each year. Usually 25–30% of annual production is exported.

The principal honey producing area of Australia is the huge swath of temperate land stretching from southern Queensland to central Victoria...

South Australia and Western Australia are both significant honey states, whilst Tasmania is the smallest producer...

- 1.19 The report noted the strength of the queen breeding industry and the expansion of packaged bee exports; the growing importance of paid pollination to the industry, the pest and disease issues faced by the industry; and the declining resource base. It also noted severe fluctuations in production and price over recent years.⁷

- 1.20 In its 2005 report, *Future directions for the Australian honeybee industry*, the Centre for International Economics (CIE) noted that the Australian honey bee industry has an overall gross value of production (GVP) of \$65 million, with honey production contributing about \$50 million, with other products, such as paid pollination services, beeswax production, queen bee and package bee sales and pollen production contributing the rest.

- 1.21 The report notes that given its gross value of production the industry should be classed as 'a relatively small industry', but that 'its value to the rest of agriculture and the economy through pollination services and, potentially, the value of honey and honey products in medicinal uses, far exceeds the value based on GVP estimates'.⁸

- 1.22 According to CIE:

There are around 9600 registered beekeepers with around 500 000 hives. However, over 70 per cent of hives are operated by

7 RIRDC, *Commercial Beekeeping in Australia* (2nd Ed.), RIRDC Publication no. 07/059, April 2007, p. 1.

8 Centre for International Economics, *Future directions for the Australian honeybee industry*, CIE, Canberra, September 2005, pp. ix.

commercial beekeepers with more than 200 hives. Most commercial apiarists operate between 400–800 hives but some have more than 3000 hives. A commercial apiarist with around 20 bee sites on an occasional basis would require a foraging area of native flora of around 16 000 hectares per annum. This emphasises the dependence of beekeeping on native flora on public and private land. About half the accessible apiary sites in native forests are on private land and half on public land.

New South Wales accounts for around 41 per cent of honey production in some years, whereas Tasmania, which relies on leatherwood honey, accounts for only 5 per cent of total production. About a third of honey produced is exported to over 38 countries. Key markets are the United Kingdom, Indonesia, and other South East Asian countries, North America and Saudi Arabia. Generally, honey imports are quite small but rose to 9000 tonnes in 2003 when there was a shortage of honey in Australia. Australian honey is mostly high quality and commands a significant premium over honey from other countries. Most honey is exported in bulk form, but there is a significant and increasing proportion of exports shipped as retail packs.

The drought in Australia throughout 2002 and 2003 coincided with high international honey prices, resulting in substantial increases in wholesale prices in Australia. These prices have now declined but in the longer term, honey prices have increased at a rate slightly more than the Consumer Price Index (CPI). Consumption of honey has followed an inverse relationship to honey prices.

Queen bee breeding is quite specialised and there are growing markets, especially in North America, for queen bees and package bees. This sector of the industry is quite profitable and there are good prospects for expansion – the major constraint is the number of queen bee breeders.

There is also a growing market for pollination services, especially with the expansion of the almond industry centred in South Australia and Victoria.⁹

1.23 The CIE report identified a number of key strengths and weakness within the Australian honey bee industry. Strengths include:

⁹ Centre for International Economics, *Future directions for the Australian honeybee industry*, CIE, Canberra, September 2005, pp. ix–x.

- Skills, enthusiasm and mobility of commercial beekeepers – perhaps one of the industry’s greatest strengths.
- The industry is free from Varroa mite.
- Australia has diverse national flora.
- A reasonable organisational structure.
- Reputation for high quality product: some good brands have been established.
- Some medicinal honey and honey products have medicinal uses that can be better exploited.
- Through pollination services, the industry provides major benefits to the rest of agriculture: there is strong demand for these services.
- Industry has a good quality assurance program: however, more beekeepers need to adopt this.
- Industry has good research capacity: there are several highly skilled researchers (but the industry needs to look to encouraging young researchers).¹⁰

1.24 Weaknesses include:

- Public relations between beekeepers and the public and with land managers could be improved.
- The industry lacks dynamics in selling its ‘good story’ image to the public and policy makers.
- Many beekeepers are not vigilant on controlling endemic diseases, especially American Foulbrood (AFB).
- The high mobility of the industry is conducive to spreading pests and diseases.
- Hive productivity is not as high as it could be. There is scope for greater adoption of best management practices (BMPs).
- The industry’s workforce is ageing. Not many young people are attracted into the industry, and there is some reluctance to pass on skills in a formal way.

¹⁰ Centre for International Economics, *Future directions for the Australian honeybee industry*, CIE, Canberra, September 2005, p. xi.

- There is a lack of standards that are adhered to in provision of professional pollination services.
- The industry is having difficulty in enhancing the supply of queen bees to meet growing demand.
- Industry cohesion and cooperation is not as strong as it could be.¹¹

1.25 The CIE report outlined key strategic directions for the future of the industry:

A risk-impact analysis clearly points to the industry needing to address two key issues as a matter of priority. These are: first, to ensure that everything possible is being done to protect the industry from an exotic incursion of varroa mite or other serious exotic diseases; and second, to influence governments to ensure that access to native flora resources is not further restricted and hopefully reversed. The latter will require a concentrated effort by industry leaders to influence policy makers on sound, professional and well-presented arguments and will also require the industry to establish its own environmental credentials through the adoption of an EMS [Environmental Management System].

Because of its mobility and the large number of non-commercial beekeepers, the industry is vulnerable to spread of endemic diseases, particularly AFB. With state governments withdrawing resources in this area, the industry needs to address how it can minimise this risk. Better hive management and increased productivity is one way, but the challenge is to discipline the activities of the few who have high disease risk management practices. Control of AFB is also closely linked to the contamination issue. Any increase in use of chemicals or antibiotics to control broad diseases runs an increased risk of honey contamination.

On the market side, there are many opportunities and it is more of a question of there being sufficient supplies to meet demand. This applies particularly to queen bees and pollination. The industry's challenge on honey is to maintain or enhance its reputation as a supplier of top grade branded honey which is 'clean and green' – and so continue to command a premium on the domestic and international markets. This means being able to differentiate Australian honey by brand. Australia cannot afford to compete on

11 Centre for International Economics, *Future directions for the Australian honeybee industry*, CIE, Canberra, September 2005, pp. xi-xii.

price alone against honey from China and Argentina. Efforts by packers and marketers need to continue to export more honey in retail pack form and less in export bulk form. There are exciting prospects for developing and marketing medicinal honey.¹²

- 1.26 In its submission, also prepared by CIE, AHBIC updated and expanded upon some of these issues. The submission estimated the industry's GVP at around \$80 million (\$60 million from honey production; the rest coming from other products such as paid pollination services, beeswax, queen bee and packaged bee sales, pollen, bee venom, royal jelly and propolis). As already noted, the submission observed that honey bee pollination 'provides significant value to Australian horticulture and agriculture with services being valued at \$3.8 billion per annum for the 35 most important honeybee dependent crops'.¹³

Threats and opportunities

- 1.27 The Australian honey bee industry faces a range of threats and opportunities in the future. In 2005 the Centre for International Economics highlighted three major threats facing the industry which required immediate attention:
- The introduction of exotic pests and diseases, particularly the parasitic mite *Varroa destructor*;
 - Access to natural resources; and
 - Contamination and mislabelling of Australian honey bee products.¹⁴
- 1.28 Other significant threats, constituting issues of high risk and potentially high impact included:
- Continued low honey prices; and
 - Increase in endemic diseases.¹⁵
- 1.29 In its submission to the inquiry, RIRDC reiterated these findings, highlighting the potential threat posed by *Varroa*. The submission stated:

12 Centre for International Economics, *Future directions for the Australian honeybee industry*, CIE, Canberra, September 2005, pp. xii–xiii.

13 AHBIC, Submission no. 56, p. 7.

14 Centre for International Economics, *Future directions for the Australian honeybee industry*, CIE, Canberra, September 2005, pp. 136–7.

15 Centre for International Economics, *Future directions for the Australian honeybee industry*, CIE, Canberra, September 2005, pp. 136–7.

Varroa is already in all Australia's neighbouring countries and it is almost certainly only a matter of time before it arrives here. If, or when, it does the effects on our European honeybees will be devastating. It is expected that the Varroa mite will virtually wipe out all feral European honeybees and cause significant damage to the managed honeybee industry. This means there will be large costs to agriculture in terms of loss of output and quality of production.

Varroa has never been successfully eradicated from any country it has invaded (apart from the counties of Semily, Jablonec and Liberec in Czechoslovakia in 1982). It is essential that Australia have a viable, well-organised, well-supported honeybee industry that can cope with a Varroa incursion and be there when feral bees are no longer around.¹⁶

1.30 RIRDC also noted that there are also other significant threats to the industry, which have not been adequately addressed – the ageing of the beekeeping workforce and difficulties attracting people into the industry, and a lack of skills and training.¹⁷

1.31 In its submission, the Queensland Government saw limited prospects for future growth in the industry there, observing that it may even contract:

In the short term the ongoing drought is having a significant impact on production. Longer term it is not expected that the industry will significantly expand and may even contract as prices decrease in real terms and input costs continue to grow. The number of hobbyists should remain stable. However there could be a decline in the number of part time producers due to cost pressures.

Pollination services will continue to expand slowly but will not be a significant part of the Queensland industry in the short to medium term.¹⁸

1.32 Submissions from within the honey bee industry itself highlighted similar issues – poor returns from honey production, the loss of resource security, and the imminent biosecurity threat represented by Varroa and other exotic pests. In its submission, Wescobee Limited noted:

16 RIRDC, Submission no. 54, p. 16.

17 RIRDC, Submission no. 54, p. 16.

18 Queensland Government, Submission no. 25, p. 4.

Future – Very dependant on world honey supply conditions, weather patterns in Australia and keeping free of such exotic pests as Varroa. With these and other factors considered the honeybee industry does not seem to have an extremely bright future in Australia. This is in part because the current basic economics found in the industry are not brilliant and are coupled with an ever ageing producer population. If continued access to native forest reserves can be maintained and Varroa or other pests that are injurious to the industry can be held out of Australia, then there is better chance that industry will survive. The two previously mentioned points are critical to Australia’s horticulture and agriculture industries for their wellbeing. Critically better returns are required by the producing sector here in WA and Australia.¹⁹

- 1.33 In similar vein, Mr Peter McDonald, a Victorian apiarist, noted in his submission that:

The current outlook for the beekeeping industry as a whole is dim. This is mainly due to a combination of factors which include fuel prices; poor honey & pollination prices; the possibility of imminent incursion of the major honeybee threat, the Varroa Mite; lack of support from government to the resource requirements of beekeeping, specifically in Qld; climate change.²⁰

- 1.34 The Central Victorian Apiarists Association (CVAA) noted in its submission that the ageing of the industry and the inability to attract new entrants was a potential threat to the industry’s future:

The future of the honey bee industry in Australia will be limited unless we can attract more young people and retain those already in the industry. The population of Apiarists is ageing with a limited number of young participants. Increased learning opportunities may assist to increase interest in entering the apiary industry. More extension staff in Government roles or programs in schools to increase learning in all agricultural industries may assist to increase participation in beekeeping.²¹

- 1.35 The CVAA also expressed concern about the impact of low prices and reduced access to native flora:

Current prospects for CVAA members are depressed due to recent low honey prices being paid and the ongoing effects of drought

19 Wescobee Limited, Submission no. 34, pp. 2–3.

20 Mr Peter McDonald, Submission no. 45, p. 1.

21 CVAA, Submission no. 22, p. 1.

and bushfires on the honey and pollen flora. Pollination has provided a positive outlook for some apiarists; however, to be able to provide pollination services, apiarists need secure access to reliable native flora resources, to maintain condition of bees to undertake effective pollination. The main concern for future viability of apiarists is the continued access to the Public Land resources that they rely on for their income.²²

- 1.36 Diversification into areas other than honey production was seen by many who gave evidence to the inquiry as the way forward for the industry. In its submission, AHBIC highlighted opportunities for diversification through paid pollination, and the export of queen bees and packaged bees:

Although the majority of revenue in the honeybee industry comes from the production of honey, there are some significant prospects in the future for the industry to diversify their revenue source and increase profitability. This includes the development of a professional honeybee pollination industry, and exports of queen bees and packaged bees to the US. The US represents a particularly large opportunity as its honeybee industry is currently under pressure by the Varroa mite and Colony Collapse Disorder, both of which are not present in Australia.²³

- 1.37 AHBIC also noted the potential for growth of the medicinal use of honey:

Medicinal honey represents a large opportunity for the honeybee industry due to the ageing population and the increased amount spent on health care, with over a billion dollars spent on wounds alone in Australia. Due to its unique properties and Australia's competitive advantage in the production of medicinal honey, there is an opportunity for producers to command a high price premium and to diversify its farm income by tapping into a potentially huge world health care market.²⁴

- 1.38 In its submission, the NSW Apiarists' Association identified a number of opportunities for diversification within the honey bee industry, stating:

Medicinal and Therapeutic values of Australian honeys are emerging as a way of obtaining premiums for some of Australia's honey. There is research being carried out at present, but much more can be done if funds were available. This is a major contribution to society.

22 CVAA, Submission no. 22, p. 1.

23 AHBIC, Submission no. 56, p. 21.

24 AHBIC, Submission no. 56, p. 21.

Commercial pollination is emerging as a larger part of the Honey Bee Industry with approximately 60-70,000 hives being used at present, with potential for 400,000 hives to be required just for Almond pollination alone over the next few years.

Commercial Queen Bee and Package Bee production is another emerging diversification within the Honey Bee Industry, some 45,000 packages and 60,000 queens were exported this year, with potential growth of between 10-20% [per] year over the next few years, provided Australian honey Bee genetics can keep pace with markets.

Royal Jelly, Pollen, and Propolis production are also small additional diversification ventures which could grow, depending on the economics (labour costs, returns etc.).²⁵

- 1.39 In its submission, the Queensland Beekeepers' Association also emphasised the virtues of diversification:

Diversification is clearly the way forward for the honey bee industry. Multiple income streams will facilitate the growth to a more financially robust industry. Commercial pollination has the potential to become the foundation of the honey bee industry into the future.

Package bees and queen bee exports also have the ability to grow at a substantial rate, providing the Australian environment remains free of exotic pests and diseases and the improvement in honey bee genetics continues.

In our world today, antibiotic resistance organisms seem to be on the rise. Australian honey with therapeutic and medicinal properties has proved to be an extremely successful weapon against these seemingly unstoppable bugs. The benefits this honey affords to the greater community warrants Government funded research to better assess the potential of this wonder product.²⁶

- 1.40 In its submission, the Tasmanian Crop Pollination Association (TCPA) noted the potential for growth in the paid pollination, queen bee exports and packaged bee exports areas. Regarding paid pollination, the TCPA noted that:

- Pollination has a huge potential to increase in strength as more producers realise the significant increase it makes to the bottom line; and

25 NSW Apiarists' Association, Submission no. 65, p. 2.

26 Queensland Beekeepers' Association, Submission no. 67, p. 4.

- The industry provides major benefits to the rest of agriculture through pollination services. There is strong demand for these services and the fast growth of the horticulture industry and industries that are 90 per cent reliant on honeybee pollination (for example, cherries, watermelons, blueberries, pumpkins, almonds and Australia's own macadamia nut) will ensure strong demand for pollination services in the future.²⁷

1.41 CSIRO argued in its submission that the future of the honey bee industry lay with the provision of paid pollination services, and that this would require a major shift in focus for the industry:

The long term sustainability of the honey bee keeping industry requires that it adjusts to a model in which provision of pollinator services is the primary business. To do so will require not only a shift in the business practices of beekeepers, but also a recognition by the plant industries that depend on insect pollination that the use of managed pollination services provides an economic benefit that these industries should pay for.²⁸

1.42 Eminent entomologist and bee expert Dr Max Whitten also highlighted the strategic importance of paid pollination to the future of the honey bee industry:

There will be a bright and secure future for commercial beekeeping in Australia once Governments, research and training providers, funding agencies and the pollination dependent industries accept the strategic importance of pollination services. If that happens then commercial beekeeping will look very different to today's community of honey producers.²⁹

1.43 He noted, however, that the threats facing the industry were of such magnitude and such importance, that the honey bee industry could not be expected to face the burden of these threats alone. The creation of a pollination industry would require the input and resources of governments and pollination dependent industries:

No longer is it reasonable for commercial beekeepers to be expected to bear the burden of ensuring the delivery of the wider pollination benefits to agriculture. They should not be responsible for arguing the case and providing the levy funds from honey production to address the R&D requirements for pollination services. They should not be held solely responsible for

27 Tasmanian Crop Pollination Association, Submission no. 70, p. 3.

28 CSIRO, Submission no. 33, p. 4.

29 Dr Max Whitten, Submission no. 38, p. 2.

challenging public policy decisions such as access to nectar and pollen resources on public lands; and certainly they should not bear the financial responsibility for doing the related research on impact of migratory beekeeping (or feral bees) on flora and fauna on public lands. The appropriate level and quality of quarantine services and surveillance should not be judged on the direct value of the honey industry, but on the strategic importance of the pollination services that commercial beekeepers will be increasingly required to provide – especially if feral bee populations collapse – if and when *Varroa* takes a foothold in Australia. And, finally, the training and skills maintenance for beekeepers should give appropriate emphasis to pollination services; and the level of financial support for training and skills maintenance should reflect the much higher value that efficient and effective pollination provides to horticultural and pastoral industries. It should also be recognised that primary producers who will increasingly depend on pollination services will benefit from a solid understanding of the role of pollination in sustainable production.³⁰

- 1.44 In evidence before the inquiry, Mr Don Keith, former Chairman of Capilano Honey Ltd, highlighted the need to explore the apicultural potential of northern Australia:

I would like to suggest that there are probably significant areas of flora that would be useful for beekeeping in Northern Australia that have not been utilised. The reason that they have not been utilised is because of the nature of the climate in Northern Australia, with a short wet and a very long dry, and no doubt beekeepers have tried to establish businesses in that area but they have not been able to. I would like to suggest, Mr Chairman, that the possibility of moving some beekeeping investment into those areas of Northern Australia where the rainfall is increasing should be investigated, and, along with that, the issues pertaining to the management of bees in those areas need to be researched, because if we move significant amounts of agriculture into those areas that are becoming wetter, they are going to need a bee industry there. At the moment, in most of those areas a bee industry does not survive.³¹

30 Dr Max Whitten, Submission no. 38, p. 2.

31 Mr Don Keith, *Transcript of Evidence*, 10 August 2007, p. 27.

- 1.45 On this point the committee notes the submission of the Northern Territory Department of Primary Industry, Fisheries and Mines, which anticipated growth in pollination services for melon growing but that ‘other than melons and other cucurbits there is no other demand or anticipated demand for pollination services’.³²
- 1.46 These issues will be dealt with in more detail in subsequent chapters.

The Linkages Workshop

- 1.47 In an effort to map out the honey bee industry’s future, and allow it to meet the threats and opportunities facing it in the future, in conjunction with other industries and government, in April 2007, RIRDC convened the Honeybee Industry Linkages Workshop. The workshop was:

...convened to respond to recommendations from the Australian Parliament Inquiry into Rural Skills, Training and Research was the first time that all key stakeholders in pollination (horticulture, crops and pasture industries) and the honeybee industry had been brought together on a national basis. The workshop provided a unique opportunity for stakeholders to develop solutions to address priority issues and to provide these solutions to the Department of Agriculture Fisheries, and Forestry (DAFF) and RIRDC.³³

- 1.48 In evidence before the committee, Ms Margie Thomson, Research Manager, Honeybee Research and Development Program, and General Manager, Established Rural Industries, RIRDC, explained:

We were going to hold a pollination workshop – we being RIRDC – in November last year. Our advisory committee met with the Minister for Agriculture, Fisheries and Forestry who invited RIRDC to increase the size of that workshop so that we could bring through as many of the horticultural and plant base industries as possible. We held that workshop in April this year with 75 to 80 delegates who encompassed a number of industries, not just the honeybee industries but everything from lucerne pasture seeds to major horticultural crops. It was not easy bringing those industries to the table. A lot of legwork was required through the process in

32 Northern Territory Department of Primary Industry, Fisheries and Mines, Submission no. 29, p. 1.

33 RIRDC, Submission no. 54, p. 17.

explaining why they needed to be there. Most of them did not realise the impact that varroa would have, let alone that varroa actually existed.

As a result, the workshop was very successful in educating a number of key industries on the significance of the problem and the implications that will not only be faced by the honeybee industry itself but through a number of key industries...the impact and the flow-on effects move right through not only in terms of the crops that are dependent on honeybees for pollination, but for livestock industries such as our dairy and our meat based industries, and even the wool industry, anything that is dependent on white clover or other pollinated pasture. From that, we had some key outcomes that were endorsed by all the industries in attendance at the workshop. I should add that most of those industries wrote letters of support to us stating how successful the workshop had been.

Most of them would agree with one key delegate that got up at the workshop and stated, 'This is a bigger issue than water.' As a result, we were asked to approach the minister to see if we could get some further funding to develop an alliance of the various industries to get them to work together and to develop a business plan that we could deliver to that alliance so that they could move forward. We have just received that funding, for which we are very grateful.³⁴

- 1.49 In its submission, RIRDC outlined the seven key outcomes of the linkages workshop. The first was to establish an entity to represent and coordinate the activities of all those interested in the pollination industry:

The primary strategy to address the issues discussed within the workshop was to establish an entity that represents all interests and beneficiaries across the value chain in order to form a co-ordinated and collaborative approach. The entity should have an R&D focus and set R&D priorities. The key stakeholders should be collaborators and deliverers such as:

- Beekeepers and pollination providers;
- Horticulture, grains, pasture industries, and plant breeders;
- RIRDC, Grains Research and Development Corporation, Cotton Research and Development Corporation, Land and Water Australia, Meat and Livestock Australia, Australian Wool Innovation and Horticulture Australia Limited;

34 Ms Margie Thomson, RIRDC, *Transcript of Evidence*, 8 August 2007, pp. 3–4.

- The Australian Government Departments of Agriculture, Fisheries and Forestry and Environment and Water Resources, and relevant state departments;
- CSIRO;
- Universities, TAFEs, and Registered Training Organisations (RTOs);
- Quarantine and biosecurity sectors; and
- The New Zealand honeybee industry.

A committee should be established to design a working model and gather funding commitments. Other duties should include the establishment of guidelines and scope for the entity, development of a timetable for its creation and submission of a case, resolve education and training model needs, and determine where the entity should fit in the current research and development structure.³⁵

1.50 The second key outcome was recognition of the need to increase industry access to floral resources:

It was agreed by workshop participants that increasing access to floral resources in order to improve the profitability and sustainability of the honeybee and pollination industry, and to improve hive health in order to supply pollination service, is absolutely critical.

In order to achieve this, it was suggested that beekeepers should head up communication to the Federal Minister with the assistance of pollination stakeholders. They should also continue with their development of a national code of conduct for beekeepers on public land, lobby for bees to be included in ecological services for remnant woodland, and develop a honeybee industry profile through membership on Catchment Management Authorities (CMAs) and similar land management strategies. Beekeepers should move forward on these issues through a consensus position with other stakeholders.³⁶

1.51 The third key outcome was to develop the business skills of the honey bee industry:

Develop the business skills of the honeybee industry through management education and training and benchmarking of the industry. Although it was recognised that additional funding is

35 RIRDC, Submission no. 54, p. 18.

36 RIRDC, Submission no. 54, p. 18.

required to undertake this strategy, workshop participants also suggested that the honeybee industry should try and gain some funding from education programs that have already been established.³⁷

1.52 The fourth key outcome was to establish public and political support for the industry:

Establishing public and political support for the honeybee industry and pollination services needs to be driven by all honeybee pollination stakeholders, including industries, research and development organisations, research funders, and federal and state government departments and agencies. It was also suggested that a working group should be established to develop the economic case for the creation of a research and development entity.³⁸

1.53 The fifth key outcome was to determine additional R&D priorities:

Workshop participants noted that an entity supported by all stakeholders should determine research and development priorities to reduce the impact of honeybee pests and disease on the honeybee industry. Other avenues include research and development into breeding Varroa mite resistant bees and to reduce the development of resistance by mites to insecticides. Workshop participants suggested the following areas should be investigated:

- Beehive health, production, ecology (environment), climate change, and pollination;
- Higher education - Undergraduate/Postgraduate;
- Training Vocational, RTOs, and other;
- Extension -Staff development, employment opportunities;
- Biosecurity, including quarantine, state issues, and policy development; and
- Industry development and value adding.³⁹

1.54 The sixth key outcome was to increase communication and extension between pollination dependent industries:

Workshop participants noted that communication and extension between pollination dependent industries needed to be improved. Issues that should be focused on include the value of honeybee pollination to industry, community, economy, environment, the

37 RIRDC, Submission no. 54, p. 19.

38 RIRDC, Submission no. 54, p. 19.

39 RIRDC, Submission no. 54, p. 19.

creation of pest and disease awareness, and building of political and public support for the honeybee industry.

It was also noted that communication resources needed to be developed such as websites and public relations capabilities. This is to ensure news and stories can be effectively communicated on topics such as science, business, and human interest.⁴⁰

1.55 The seventh key outcome was to increase the viability of the honey bee industry:

Throughout the workshop, it was noted on a number of occasions that to develop a honeybee pollination industry that has the capacity to meet pollination demand in the future, the honeybee industry itself needed to be viable. This is because most beekeepers cannot survive on the revenue earned from supplying pollination services alone.

In order to increase the viability of the industry, workshop participants developed a strategy that first required the discovery of what was stopping beekeepers from being viable. Once this had been achieved, research and development, and education should be used to solve the problems, although workshop participants did note that the solutions would depend on the industry priorities for viability being addressed.⁴¹

Pollination Australia

1.56 Following the workshop, the Australian Government provided \$330 000 under the Advancing Agricultural Industries Programme to fund the development of the Pollination Industries Alliance.⁴² RIRDC used this funding to advance the development of the industry alliance – Pollination Australia – and commissioned studies in three areas of urgent need:

- Biosecurity risk management;
- Potential areas of R&D required to support risk management; and
- Education and training.⁴³

40 RIRDC, Submission no. 54, p. 19.

41 RIRDC, Submission no. 54, p. 20.

42 DAFF, Submission no. 83, Attachment A.

43 RIRDC, Pollination Australia, background paper for industry workshop 18–19 March 2008, Canberra, p. 15.

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- 1.57 The key objective of the Pollination Australia project is to develop a business plan that has the full backing of the pollination industry and pollination dependent industries.⁴⁴
- 1.58 On 18–19 March 2008, RIRDC convened an industry workshop with a view to moving Pollination Australia from concept to reality. A further meeting will be held in May to achieve final agreement between the alliance partners with a view to establishing Pollination Australia on 1 July 2008.⁴⁵
- 1.59 The findings of the three studies commissioned as part of the Pollination Australia project were presented at the March workshop. The prime focus of the risk management strategy was the risks posed by an incursion of an exotic pest or disease of significance to the pollination industry, in particular *Varroa*. The study found that the pollination industry should have a broader view of pests and diseases than might previously have been anticipated, including:
- Pests and diseases of honey bees that would impact upon the cost and availability of supply of pollination services;
 - Pests and diseases of major pollination crops or floral resources that would affect demand for, and provision of, pollination services;
 - Pests and diseases of plants that are vectored by bees, which if they occurred in Australia could result in restrictions on movement of bees, thus impacting upon the ability of beekeepers to provide pollination services; and
 - Other pests and diseases of plants and animals that, if they occurred in Australia, could give rise to spill-over effects that restrict the movement of bees.⁴⁶
- 1.60 The study identified five strategies to manage biosecurity risks:
- Minimise the risk of incursion of exotic pests and diseases;
 - Manage incursions of pests and diseases;
 - Enhance the capability and performance of the pollination industry;
 - Secure necessary floral resources; and
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44 RIRDC, Pollination Australia, background paper for industry workshop 18–19 March 2008, Canberra, p. 9.

45 RIRDC, Pollination Australia, background paper for industry workshop 18–19 March 2008, Canberra, p. 7.

46 RIRDC, Pollination Australia, background paper for industry workshop 18–19 March 2008, Canberra, p. 16.

- Identify and develop additional pollination options.⁴⁷
- 1.61 The focus of the R&D study presented at the workshop was the development of an R&D program to provide research, development and extension that will secure the pollination of Australia's horticultural and agricultural crops into the future. The study identified seven project areas prioritised according to three criteria – protection against incursion, anticipation of incursion and post incursion. The seven project areas are:
- Surveillance best practice;
 - Resource access – landscape management for pollination;
 - Improving the economics of pollination;
 - Pest and disease management to ensure the ongoing supply of pollination services;
 - Living with Varroa;
 - Alternative pollinator research/reducing insect dependency; and
 - Pollination best management practices.⁴⁸
- 1.62 The review of education and training requirements for the pollination industry found that:
- There is little documented material reviewing the current education, training and competency standards for beekeeping;
 - Education and training for beekeeping is primarily focussed on beekeeping courses rather than pollination;
 - Horticultural and agronomy courses cover pollination to varying degrees;
 - With the exception of the voluntary BQual quality assurance program, there are no standards or examinations administered by any beekeeping association in Australia;
 - A specific gap in industry quality management protocols is consideration of the standards to achieve effective and efficient pollination;

47 RIRDC, Pollination Australia, background paper for industry workshop 18–19 March 2008, Canberra, p. 18.

48 RIRDC, Pollination Australia, background paper for industry workshop 18–19 March 2008, Canberra, pp. 19–20.

- Enhancing the status of pollination and its biosecurity management in such programs would contribute to an improvement in the standards of pollination management and would assist in minimising the incidence and impact of pests and diseases on the pollination industry; and
- There are no pollination-specific courses in Australia.⁴⁹

1.63 The study concluded that:

- While procedures followed by providers and purchasers of pollination services are covered under the respective Animal Health Australia and Plant Health Australia deeds in respect of exotic diseases, there is another set of issues which become relevant if a pest or disease, such as *Varroa*, were to become endemic;
- There is a need for a strategy to be developed within the CSIRO and universities with entomological teaching and research capability to take responsibility for the training and development of young scientists capable of undertaking future opportunities for research;
- Pollination Australia should identify the most important and unique skill sets for pollination service providers, growers and brokers and ensure that these reflect the requirements of industry quality assurance programs and are included in the relevant nationally endorsed training packages;
- There is a relatively low demand for training across all jurisdictions in Australia. It would be practical that one institution was accorded a national role in the training of apprenticeships in beekeeping. The consolidation of a critical mass of teaching and industry expertise in one institution would also support training in managed pollination, although this may be achieved satisfactorily through subsidiary virtual arrangements;
- Against the background of industry trends, including possible disease incursions, development of endemic disease training and education issues will need to be addressed as a high priority;
- All future agricultural personnel should be educated on the value and importance of pollination. All agricultural, horticulture and agronomy courses should cover the key knowledge areas of insect/plant interactions, role of honey bees in crop pollination and the adverse effects on honeybees of some farm chemicals used for crop protection.

49 RIRDC, Pollination Australia, background paper for industry workshop 18–19 March 2008, Canberra, p. 23.

- Particular education programs need to be developed and implemented to improve grower and farmer awareness of the issues confronting managed honey bee pollination. This will need to involve a range of issues and recognise relevant opportunities for technology transfer in these industries, including awareness through general media and specific conferences and field days.⁵⁰
- 1.64 The estimated funding to carry out the programs identified in the studies was \$4.37 million in 2008–09 and \$2.23 million per annum for the following four years.⁵¹ The funding request made to date from various sources total some \$810 000.⁵²
- 1.65 A number of options for the organisation of Pollination Australia have been canvassed. These include:
- Establish a R&D Corporation;
 - A new CRC;
 - Expanded RIRDC Honeybee R&D program;
 - Pastures Australia model;
 - Weeds research model; and
 - Joint venture between RIRDC, Horticulture Australia Limited and the Grains RDC.⁵³
- 1.66 At the conclusion of the workshop, the following outcomes were identified:
- The purpose of Pollination Australia is to ensure that Australia is able to maintain an internationally competitive, environmentally sustainable and resilient agricultural sector by addressing the imminent opportunities and risks confronting the pollination dependent industries.
 - The context is that—
 - ⇒ The pollination industry is still in its infancy in Australia;

50 RIRDC, Pollination Australia, background paper for industry workshop 18–19 March 2008, Canberra, p. 23–4.

51 RIRDC, Pollination Australia, background paper for industry workshop 18–19 March 2008, Canberra, p. 25.

52 RIRDC, Pollination Australia, background paper for industry workshop 18–19 March 2008, Canberra, p. 31.

53 RIRDC, Pollination Australia, background paper for industry workshop 18–19 March 2008, Canberra, pp. 32–3.

- ⇒ Growing demand and national benefits in ensuring a professional pollination service;
 - ⇒ The value of honey bee pollination is estimated at \$3–4 billion per annum;
 - ⇒ Significant risks facing the pollination dependent industries of Australia, especially biosecurity risks;
 - ⇒ Difficult to address the key risks as individual industries;
 - ⇒ Forming an alliance is the most effective mechanism to ensure vibrant, resilient industries dependent on pollination can be sustained.
- Key messages from the workshop are:
 - ⇒ Necessity for a collective group to be formed to prepare an integrated response to address the immediate risks;
 - ⇒ New Zealand experience reinforces the high risk of an incursion and the need for a proactive approach;
 - ⇒ Modelling shows that preparedness will reduce the impact of an incursion;
 - ⇒ Identified the need for a professional pollination service to meet exponentially growing demand.
 - Key workshop outcomes are:
 - ⇒ Alliance will form immediately and initial seed funding will be provided by industry;
 - ⇒ Focus will be on finalising the risk management framework underpinned by R&D and education and training priority actions;
 - ⇒ Alliance will deliver a strategy to address biosecurity risk, both pre and post incursion;
 - ⇒ Alliance will ensure that pollination industry plans for a professional service can be delivered;
 - ⇒ Pollination dependent industries have agreed to drive the alliance in collaboration with pollinators;
 - ⇒ Agreed that a statutory levy and matching of any voluntary contribution be pursued.
 - The following key ways forward were identified:
 - ⇒ Critical to bring Plant Health Australia and Animal Health Australia together to develop a joint pollination risk management plan IMMEDIATELY;

- ⇒ Alliance members will have their first meeting in April 2008 to finalise the business plan to develop and implement the action plan, including:
- Minimise the risks of incursion of exotic pests and diseases
 - Management of incursions of pests and diseases
 - Enhance the capability and performance of the pollination industry
 - Secure necessary floral resources
 - Additional pollination options.⁵⁴

Committee conclusions

- 1.67 It is clear from the evidence presented to the committee that the Australian honey bee industry, and the pollination industry more widely, faces significant and interrelated threats and challenges. These will be dealt with in more detail in subsequent chapters.
- 1.68 It is also clear from the evidence presented, and the work done by government and industry, that the honey bee industry is aware of the challenges facing it and the need to address those challenges.
- 1.69 The committee is impressed by the work done by and through RIRDC, by way of the Linkages Workshop and the Pollination Australia project, to address these issues. The formation of an industry alliance, drawing together the honey bee industry and pollination dependent industries is vital to the future of both. The committee endorses the establishment of Pollination Australia, and urges all those industries involved in crop pollination to play their part in the success of Pollination Australia.
- 1.70 It should be remembered that the establishment of Pollination Australia is not only about addressing problems, such as the threat of *Varroa destructor*, but about creating opportunities – making agriculture and horticulture more efficient and productive, and thereby increasing their earning potential.
- 1.71 With this in mind, and given what is at stake should Pollination Australia fail to meet its objectives, the committee urges the Australian Government to ensure that the funding and organisational resources necessary to establish and run Pollination Australia are made available, and that the

54 Pollination Australia workshop, 18–19 March 2008.

Australian Government provide leadership to industry through the commitment of funding and resources to the project.

Recommendation 1

- 1.72 The Committee recommends that the Australian Government provide the necessary leadership, funding and organisational resources to establish and run Pollination Australia.**