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More Than Honey: the future of the Australian honey bee and pollination industries

**Report of the inquiry into the future development of the
Australian honey bee industry**

House of Representatives
Standing Committee on Primary Industries and Resources

May 2008
Canberra

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Foreword

The humble honey bee is one of the most important contributors to the success of Australian agriculture. Many crop and pasture species are heavily or totally reliant on bees for pollination. Commercial prosperity within the agricultural sector requires bees. So does the food security of Australian and the world.

Yet, the Australian honey bee industry faces a number of significant threats and challenges. A major challenge is resource security. The honey bee industry is dependent upon native forest for honey production and recovery from pollination operations. As native forests are locked away in National Parks, so the floral resources available to the industry have declined and will continue to decline. Bushfires and land clearing also have a significant impact on the availability of floral resources. Without access to floral resources, the potential of the honey bee industry to grow to meet the demands for crop pollination is compromised. The Committee has made a number of recommendations which, if implemented, will provide resource security for the honey bee industry and pollination dependent industries into the future.

This is especially important in the face of the biosecurity threats facing the industry, which have the potential to remove the pollination services provided by feral honey bees from the production cycle, making agricultural industries largely or wholly dependent upon managed bees. The potential for pests such as *Varroa destructor* to annihilate feral bee populations and decimate managed bees is real. Keeping such pests and diseases from Australian shores should be a priority for governments and industry. Investment in border security measures and research is vital. In this regard, Australia needs to lift its game. In particular, the Committee strongly recommends the creation of a new honey bee quarantine facility and increased funding for the National Sentinel Hive Program.

The industry is also being challenged by declining profitability in the honey production sector and the problems associated with modernising an industry

based on honey production to provide paid pollination services. Yet, for paid pollination services to be viable the honey production sector must also be viable. Import competition is having a significant impact upon returns to Australian producers – but much of this competition derives from low cost countries with poor quality control regimes. Australian exporters on the other hand often face a range of tariff and non-tariff barriers in accessing overseas markets. Clearly, there is no level playing field. In addition, lax labelling laws have allowed foreign honey to be ‘re-badged’, with serious implications for the reputation of Australian honey. These are issues which must be addressed.

Protecting the industry from biosecurity threats and preparing it for the future is a significant undertaking. In this vein, the Committee acknowledges the work of government and industry in creating Pollination Australia, an organisation designed to provide funding and leadership for Australia’s pollination providers and pollination users into the future. Nonetheless, the Committee believes that there is greater scope still for the promotion of research extension and training for the Australian honey bee industry and related industries. With this in view, the Committee has recommended that the Australian Government commit \$50 million per annum in pursuit of biosecurity measures and research in support of the Australian honey bee industry and pollination dependent industries; and that the Australian Government use this money to establish a national centre for honey bee and pollination industry research, training and extension.

My colleagues and I would like to thank all those who made contributions to the inquiry. The honey bee industry is made up of people with a real dedication to their craft, a genuine love for what they do, a fact reflected in the quantity and quality of evidence provided to the Committee. I would also like to thank the members of the former Standing Committee on Agriculture, Fisheries and Forestry for their contribution to the inquiry and what has been obtained through that work.

The Hon Dick Adams MP
Chair



Membership of the Committee

42nd Parliament

Chair The Hon Dick Adams MP

Deputy Chair Mr Alby Schultz MP

Members Mr James Bidgood MP

Mr Nick Champion MP

Mr John Forrest MP

Mr Barry Haase MP

Ms Kirsten Livermore MP

Mr Graham Perrett MP

Mr Sid Sidebottom MP

Mr Tony Windsor MP

41st Parliament

Chair Mr Alby Schultz MP

Deputy Chair The Hon Dick Adams MP

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Terms of reference

This inquiry will examine the honey bee industry in terms of:

1. Its current and future prospects.
2. Its role in agriculture and forestry.
3. Biosecurity issues.
4. Trade issues.
5. The impact of land management and bushfires.
6. The research and development needs of the industry.
7. Existing industry and Government work that has been undertaken for the honey bee industry.



List of abbreviations

ACCC	Australian Competition and Consumer Commission
AFB	American Foulbrood
AHA	Animal Health Australia
AHBIC	Australian Honey Bee Industry Council
AHGA	Australian Hydroponic and Greenhouse Association
APVMA	Australian Pesticides and Veterinary Medicines Authority
AQBBA	Australian Queen Bee Breeders Association
AQIS	Australian Quarantine and Inspection Service
BMP	best management practices
CALM	Department of Conservation and Land Management, Western Australia
CCD	Colony Collapse Disorder
CIE	Centre for International Economics
CMA	Catchment Management Authority
CPI	Consumer Price Index
CRC	Cooperative Research Centre
CSIRO	Commonwealth Scientific and Industrial Research Organisation

CVAA	Central Victorian Apiarists Association
CVO	Chief Veterinary Officer
DAFF	Department of Agriculture, Fisheries and Forestry
DAFWA	Department of Agriculture and Food, Western Australia
DEC	Department of Environment and Conservation, Western Australia
DPI	Department of Primary Industries, Victoria/NSW
DPIW	Department of Primary Industries and Water, Tasmania
EADRA	Emergency Animal Disease Response Agreement
EFB	European Foulbrood
EMAI	Elizabeth Macarthur Agricultural Institute
EMS	Environmental Management System
EPA	Environmental Protection Agency, Queensland
EPPRD	Emergency Plant Pest Response Deed
EU	European Union
FCAAA	Federal Council of Australian Apiarists' Associations
FFIC	Forests and Forest Industries Council of Tasmania
GM	genetically modified
GMO	genetically modified organism
GVP	gross volume of production
IPP	Industry Partnerships Program
IRA	Import Risk Analysis
MRL	Minimum Residue Level
NAQS	Northern Australia Quarantine Strategy

NCC	National Code of Conduct
NEVAA	North East Victoria Apiarists Association
NRS	National Residue Survey
NSHP	National Sentinel Hive Program
OTC	Oxytetracycline
PA	Princess Alexandra Hospital, Brisbane
PCR	polymerase chain reaction
PDB	paradichlorobenzene
PHA	Plant Health Australia
PIAPH	Product Integrity Animal and Plant Health Division, DAFF
QA	quality assurance
QBA	Queensland Beekeepers' Association
QPDI	Queensland Department of Primary Industries
R&D	research and development
RFA	Regional Forest Agreement
RIRDC	Rural Industries Research and Development Corporation
RTO	Registered Training Organisation
SEQFA	South East Queensland Forests Agreement
SHB	Small Hive Beetle
TBA	Tasmanian Beekeepers' Association
TCPA	Tasmanian Crop Pollination Association
UWS	University of Western Sydney
VAA	Victorian Apiarists' Association
WABA	Western Australian Beekeeper's Association



List of recommendations

1 Current and future prospects

Recommendation 1

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

2 Bees in Agriculture

Recommendation 2

The Committee recommends that the Australian Government fund research and training in the provision of paid pollination services as part of its contribution to Pollination Australia.

Recommendation 3

The Committee recommends that the Australian Government fund research into alternative pollinators as part of its contribution to Pollination Australia.

Recommendation 4

The Committee recommends that the Australian Government alter labelling requirements for agricultural chemicals to reflect their impact on honey bees and other pollinating insects.

3 Resource security

Recommendation 5

The Committee recommends that the Australian Government, in conjunction with State and Territory governments, establish guidelines for beekeeper access to public lands and leasehold lands, including national parks, with a view to securing the floral resources of the Australian honey bee industry and pollination dependent industries.

Recommendation 6

The Committee recommends that the Australian Government provide incentives for the planting and conservation of melliferous flora under Commonwealth funded revegetation projects and carbon credit schemes.

Recommendation 7

The Committee recommends that the Australian Government fund research into the impact of fire management on the Australian honey bee industry with a view to establishing honey bee industry friendly fire management practices.

4 Biosecurity

Recommendation 8

The committee recommends that the Australian Government maintain and enhance the National Sentinel Hive Program with a view to ensuring that:

- all major ports are covered by sentinel and bait hives;
- all beekeepers are brought under the program, with priority given to those operating in the vicinity of port facilities;
- arrangements are made for an effective program of pre-border security; and
- government provides funding adequate to achieving the above objectives.

Recommendation 9

The committee recommends that the Minister for Agriculture, Fisheries and Forestry request that the Australian Pesticides and Veterinary Medicines Authority fast track the pre-registration of pesticides and other chemicals necessary to combat a Varroa incursion.

Recommendation 10

The committee recommends that the Australian Government improve the nation's incursion response capacity by providing for:

- Better education of those charged with border protection;
- Improved diagnostic capacity for pests and diseases;
- The establishment of national diagnostic protocols;
- The establishment of a national integrated pest and disease management protocol; and
- The establishment of a comprehensive biosecurity research program for the honey bee and pollination dependent industries.

Recommendation 11

The Committee recommends that the Minister for Agriculture, Fisheries and Forestry establish a new honey bee quarantine facility as a matter of urgency, this facility to be commissioned prior to the closure of the current facility at Eastern Creek, and that:

- This facility is integrated into a national honey bee and pollination research centre;
- This facility have a containment laboratory for research on honeybee genomics and biotechnology;
- The Minister for Agriculture, Fisheries and Forestry enter into immediate negotiations with his New South Wales counterpart to establish the new honey bee quarantine facility at the Elizabeth Macarthur Agricultural Institute, Camden, or some other suitable location.

Recommendation 12

The Committee recommends that the Minister for Agriculture, Fisheries and Forestry direct Biosecurity Australia to complete the import risk analysis for drone semen by the end of 2008.

Recommendation 13

The Committee recommends that the Australian Government, in conjunction with State and Territory governments, establish and fund a national endemic bee pest and diseases control program.

Recommendation 14

The Committee recommends that the Australian Government, in conjunction with State and Territory governments, establish bee biosecurity regions based on natural boundaries, being:

- Eastern Australia, including New South Wales, Victoria, Queensland, Australian Capital Territory and South Australia;
- Tasmania;
- Western Australia;
- Northern Territory; and
- Kangaroo Island.

Recommendation 15

The Committee recommends that the Australian Government, in conjunction with State and Territory governments, establish a national system of registration for beekeepers, bee hives and apiary sites.

Recommendation 16

The Committee recommends that the Australian Government commit \$50 million per annum in pursuit of biosecurity measures and research in support of the Australian honey bee industry and pollination dependent industries.

5 Economic and trade issues

Recommendation 17

The Committee recommends that the Australian Government request the Australian Competition and Consumer Commission to investigate pricing practices for honey within the honey bee industry and the retail sector.

Recommendation 18

The Committee recommends that the Australian Government request the Productivity Commission investigate the long term viability of the Australian honey bee industry in respect of industry organisation, marketing structures and the financial viability of producers and packers.

Recommendation 19

The Committee recommends that the Department of Immigration and Citizenship look at the skilled migration program with a view to further refining opportunities for the honey bee industry and the emerging pollination industry.

Recommendation 20

The committee recommends that the Australian Government develop product standards for honey and other bee products with regard to food standards and chemical contamination in line with those in force in the European Union, and that all imported honey products are tested against this standard.

Recommendation 21

The Committee recommends that the Australian Government develop labelling standards to more accurately reflect the place of origin and composition of honey and honey bee products.

Recommendation 22

The Committee recommends that the Australian Government pursue the development of a uniform international standard for the testing and labelling of honey bee products and the removal of all tariffs on honey bee products.

Recommendation 23

The Committee recommends that the Australian Government, in consultation with industry, reduce inspection charges, if possible, for queen and packaged bees to make the export of this product more cost effective to producers.

6 Research, extension and training**Recommendation 24**

The Committee recommends that the Australian Government establish a national centre for honey bee and pollination industry research, training and extension, funded as per Recommendation 16.

Recommendation 25

The Committee recommends that the Australian Government alter research funding arrangements to allow for:

- voluntary contributions to research funding to be matched by government funding; and
- a levy on pollination services to be allowed under law.

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
-

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.

- 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.**

Bees in Agriculture

- 2.1 In evidence before the committee, Mr Lindsay Bourke, President of the Tasmanian Crop Pollination Association told the committee, 'in Australia and throughout the world the honey bee is the most important animal on the planet. You can do without any of the others, but you cannot do without the bees'.¹
- 2.2 The essential role of the European honey bee (*Apis mellifera*) in Australian agriculture is crop pollination. In its submission the Victorian Apiarists' Association pointed out that 'Australian horticulture and agriculture depends substantially on exotic crops and pastures. Many of these crops require the European Honeybee, *Apis mellifera*, to pollinate crop flora and thus effect fertilization'.²
- 2.3 In its submission, CSIRO detailed the important role of the honey bee in terms of both quantity and quality of production of crops and pasture, covering three-quarters of crop species and over one-third of food production:

Many crop plants require pollination if they are to produce seeds, fruits or nuts. For some plants pollination happens automatically within the flower, some require wind to move pollen (especially cereals such as wheat and rice) but many require flowers to be visited by insects. The degree to which crop production worldwide depends on insect pollination was the subject of a recent scientific study (Klein *et al.* 2007). This extensive review of the available data concluded that 76% of the major crop species worldwide benefit (in

1 Mr Lindsay Bourke, *Transcript of Evidence*, 3 September 2007, p. 21.

2 Victorian Apiarists' Association, Submission no. 71, p. 21.

crop quantity or quality) from insect pollination. However, because many of the very high volume crops (e.g. cereal crops) do not benefit from insect pollination, the proportion of global crop production (in volume) that benefits from insect pollination is approximately 35%. In other words, loss of insect pollinators would dramatically affect the viability of diverse plant industries, and by extension the diversity of the human diet, but would have a lesser effect on the production of staple food products. Further, this study confirms that honey bees are the most frequently identified pollinating insect for most of these crops.

It is also important to understand that benefits of pollination are felt not only in terms of volume of production. Efficient pollination can also have a strong influence on product quality, because many fruits grow larger and more symmetrically when well pollinated. Further, efficient pollination can shorten the time between flowering and harvest, creating savings in agricultural inputs. One key input is water: shorter flowering resulting from efficient pollination can see a significant reduction in the need for irrigation. In these ways efficient pollination can be part of an overall management system that increases profits and improves market access.

Pollination can also have significant impact on the animal production sector because of the importance of insect pollinated crops as fodder. Legumes, such as clovers, are important as a source of protein for livestock, and many legumes benefit from insect pollination. Bee pollination can influence the persistence of clover in pasture, therefore affecting grazing quality. A study of agricultural industries in the south island of New Zealand found that the economic benefits of bee pollination were even greater in the pastoral industry than in horticulture (Simpson 2003).³

- 2.4 Clearly, the European honey bee is vital to the future of Australian agriculture.
 - 2.5 In 2003, RIRDC published a report, *Valuing honeybee pollination*, which estimated the value of honey bee pollination services on the basis of the economic impact if those services were unavailable, such as in the case of a sudden and catastrophic outbreak of pests or disease (i.e. *Varroa destructor*). The estimate provided is based on the study of 35 crops for which data is available. In addition to the 35 crops for which data was available, a wide range of pastures, including lucerne and clover, are
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3 CSIRO, Submission no. 33, p. 7.

pollinated by honey bees; hence, this estimate understates the potential value of the pollination services.

- 2.6 The value of honey bee pollination services was estimated to be \$1.7 billion for 1999–2000 production, based on the direct cost of a loss of pollination services. The direct costs fall roughly equally on Australian consumers (\$839m due to higher prices and unavailability of certain products) and the producers of honey bee dependent crops (\$877m). 9500 jobs would be directly affected.
- 2.7 In addition to the direct effect upon the economy, flow-on effects *could* result in an *additional* \$2 billion loss in industry output and 11,000 jobs following the loss of *all* honey bee pollination services. These latter losses would not persist over time as unutilised resources will move to other industries in the longer term. They do however have significant implications for regions with high shares of honey bee dependent crops in the years immediately following a sharp drop in the honey bee population.
- 2.8 The large estimates of value come from the fact that the loss of a critical ingredient – the honey bee pollination service – renders all the other inputs valueless in the case of 100% honey bee dependent crops (such as almonds) and by a proportional amount for the less dependent crops. While these costs would adjust downwards over time, such a loss would see a major restructuring of agriculture in Australia.
- 2.9 However, the report notes that, in practice, even a problem such as *Varroa destructor* would not wipe out all honey bees immediately across Australia, so farmers will have time to adjust. So too will honey bee producers. It is likely that a market for pollination services would develop rapidly in heavily honey bee dependent industries, lowering the impact of exotic incursions largely to losses incurred while honey bee producers expanded their capacity to meet the demand for pollination services. The final outcome would depend on the costs to the honey bee producers of expanding production. These costs include the additional costs of disease control, access to areas to rebuild the health of hives, and the market for honey.⁴
- 2.10 The ability of the honey bee industry to meet the pollination workload is affected by a number of factors, including the viability of honey production and access to floral resources. In evidence before the committee, Mr Linton Briggs, one of the industry's foremost authorities,

4 Jenny Gordon & Lee Davis, *Valuing honeybee pollination*, RIRDC Publication no. 03/077, June 2003, pp. v–vi.

explained the link between honey production and the provision of paid pollination services:

The key dynamic of the Australian honey bee industry is the honey production sector. I say that because all the other sectors – queen rearing; honey processing, particularly for the Australian produced product, crop pollination and packaged bee exports – derive their impetus from honey production. They all depend on the central core of the honey production sector of the Australian industry. The sector itself, as you would have observed in the submission, faces significant challenges in sustainability and long-term pressure on disposable incomes. If that sort of pressure continues and the industry is unable to grow, it will lessen its ability to perform the very important role of pollinator of agricultural and horticultural crops throughout Australia.⁵

2.11 He continued:

The only place honey bee populations can be sourced from – the only place – is the honey production sector. I have heard it said, ‘We might forget about honey production and just become a pollination industry.’ That sounds fine but, in practice, it is no go because most of our crop pollination requirements are met very early in the season. These people, Robert and Ken, are very good examples of large commercial migratory operators who will be moving in the next couple of weeks to the almond pollination districts in the Murray Riverland. How do they keep their bees going all year round? They have to be honey producers. That is the only way in Australia to economically and feasibly maintain large, prosperous honey bee populations – by following the flow, whether it be 1,000 kilometres from your home base today, tomorrow, or 500 kilometres in the opposite direction.

Honey production will always have to be an important part of the industry to maintain the population, not only through each season but very importantly to provide sufficient stores of eucalypt honey to take the colonies over the winter to the next spring.⁶

2.12 In his submission, Mr Trevor Monson, a pollination contractor, identified the expansion in capacity required in the industry if it was to meet the growing demand for paid pollination services:

5 Mr Linton Briggs, *Transcript of Evidence*, 25 July 2007, pp. 1–2.

6 Mr Linton Briggs, *Transcript of Evidence*, 25 July 2007, p. 10.

As Australia's largest pollination contractor, I will be sub-contracting 120 beekeepers to supply 45,000 strong healthy hives of bees this year. By 2015 this figure will increase to 300 beekeepers supplying 180,000 hives. Double these figures and you will get an idea of the increasing pressure on the industry to keep up with numbers of healthy strong bees and to improve and plan their whole year's beekeeping around pollination.⁷

- 2.13 In his submission, Mr Peter Barnes, a Queensland beekeeper, observed that the industry was already having difficulties meeting demand:

Over the last few years in the months of August and September, the supply of beehives for pollination has fallen **well short** of demand. There are large areas of new plantings of orchards and crops that will require pollination in the August, September period within the next ten years. The demand of hives for pollination will continue to out strip number the number of hives available at that time of year. Under current Queensland State Government legislation on the future of managed hives in Native Forest Areas, there is no incentive for apiarists to increase hive numbers to meet the demands of the pollination **short fall**. This current legislation also discourages new investment in the industry.⁸

- 2.14 The Tasmanian Beekeepers' Association also highlighted the problems facing the industry in meeting demands for pollination services:

A key economic issue facing Tasmania's agriculture and horticultural growth prospects is the predicted shortfall of some 4500 hives in Southern Tasmania to cover the minimum stocking rate per hectare for various crops. This shortfall is largely due to the diminishing access to the prime resource base of Leatherwood trees from current logging practices and increasing access restrictions in other areas.⁹

- 2.15 In their submission, Marie and Colin Murley, Victorian beekeepers, noted that 'the increase in hive numbers required for almond pollination with the prediction of 160,000 hives by the year 2012 in North West Victoria will be unachievable if more access to forests is denied'.¹⁰

- 2.16 In his submission, Mr Don Keith, a former chairman of Capilano Honey Ltd, argued that:

7 Mr Trevor Monson, Submission no. 6, p. 3.

8 Mr Peter Barnes, Submission no. 5, p. 1.

9 Tasmanian Beekeepers' Association, Submission no. 63, p. 5.

10 Marie and Colin Murley, Submission no. 15, p. 1.

The anticipated giant leap in honey bee pollination requirements while honey production viability comes under pressure indicate a need for cross stakeholder planning, underpinned by significant Government support, in view of the community benefits derived.¹¹

- 2.17 Despite the importance of pollination, the Linkages Workshop identified a number of issues with the provision of paid pollination services. In its submission, RIRDC noted:

Firstly, there is a poor understanding on the role of honeybees in the pollination of crops. The honeybee industry and agricultural industry representatives need to educate growers on the benefits honeybee pollination can provide.

The workshop also recognised that there is a need for more professionalism in the provision of pollination services by beekeepers. This is because some pollinators provide poor quality services to growers, which reduces the reputation of the industry. It was suggested that the pollination industry should adopt pollination industry standards and quality control measures.

It was also agreed that paid pollination needs to become more of a cooperative venture between apiarists and growers. Beekeepers have a responsibility to provide the right hives when required, and growers have a responsibility to making their crops 'bee friendly' by protecting the hives, reducing the risk from insecticide use, and managing pollen sources.

There also needs to be more education within the honeybee industry, and particularly in the pollination industry. Beekeepers need to understand the intricacies of pollination and be more consistent in their business operations, especially in pricing their services. Growers need to be able to recognise paid pollination services that are managed well, and the additional benefits paid pollination can provide over feral bee pollination.¹²

Agricultural chemicals

- 2.18 One of the major problems inhibiting paid pollination is the impact of agricultural chemicals on managed hives. In its submission, the Queensland Beekeepers' Association observed:
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11 Mr Don Keith, Submission no. 26, p. 3.

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

Agricultural chemicals also impact heavily on honey bees. Some chemicals have a high residual effect and over time render a bee hive toxic. This is an increasing problem with the use of specialized seed treatments and other systemic chemicals. On a more positive note there are honeybee friendly products used by more discerning farmers who are aware of the increased yields provided by sufficient pollination.¹³

- 2.19 In its submission, the Tasmanian Department of Primary Industries and Water also highlighted the potential impact of agricultural chemicals:

Agricultural chemicals, particularly wetting agents are generally lethal to bees. Commercial apiarists report significant losses by such chemicals being applied to crops near their apiary sites without their knowledge. Obviously there is an education component to the solution of this problem but warnings need to be made clearer on chemical containers. The labels on the containers of many agricultural chemicals do not mention toxicity to bees but experience by local apiarists suggests such chemicals are lethal to bees. Toxicity of agricultural chemicals to bees perhaps needs to be more comprehensively addressed through the registration process. Agronomists recommending the use of agricultural chemicals need to be more bee focused and responsible when making recommendations.¹⁴

- 2.20 Two persons closely associated with crop pollination made extensive submissions on the problem of agricultural chemicals. In his submission, Mr Warren Jones, President of the Crop Pollination Association, noted that changes had occurred over time in the types of chemicals being used in agriculture and that research upon the effects of chemicals was often behind the times:

During the 1980s came the move to remove many chemicals found to be toxic to humans and the environment. Most of these were contact poisons with a very long half life in the environment as well as being retained in human and animal fat layers.

So departed the so-called bad chemicals, to be replaced with a group of chemicals that are neurotoxic in their action on insect pests and found to be not so bad on humans (how this testing of the effect on the human brain could be assumed I cannot understand). The bee industries world-wide have questioned the

13 Queensland Beekeepers' Association, Submission no. 67, p. 5.

14 Tasmanian Department of Primary Industries and Water, Submission no. 72, p. 5.

use of this group of chemicals referred to as neonicotinoids for a number of years.¹⁵

2.21 On the use of neonicotinoids in particular he noted that:

There has been a wide use of neonicotinoids to treat a large range of pasture seed and other seed prior to planting which includes most of our horticulture and vegetable production. Consequently our bees are continually in contact with neonicotinoids from the agricultural environment. We are finding it very difficult to maintain our hives at pollination strength, requiring an increase in use of young queens and replacement nucleus hives to maintain our hives.

Our domestic food supplies, both vegetable and animal, would all have some residual resulting from the use of neonicotinoids in agriculture. This brings me to bring to your concern [about] the overuse of neonicotinoids in agriculture. Any move to protect the community will also result in the protection of honey bees.¹⁶

2.22 Mr Jones cited research which indicated that:

...neonicotinoids where mixed with a fungicide increases the nicotoid toxicity up to 1000%. If this can occur this type of chemical should not be in agriculture as thousands of combinations are possible. As agriculture mixes chemicals that are so called compatible. If this research is correct then the practice should cease immediately.¹⁷

2.23 Mr Trevor Monson also expressed strong concerns about the potential impacts of agricultural chemicals:

Insects are often the prime target for chemicals. Before registering chemicals used for agriculture and the environment, their effect on honey bees and beneficial insects needs to be rigorously tested. Some chemicals need to be reviewed, and some never used. Chemical users, farmers and beekeepers, have to know what they are doing. Some chemicals require special training. And some simply can't be applied together. Are there other ways of control without using chemicals? Do we really know what these chemicals are doing?

15 Mr Warren Jones, Submission no. 52, p. 3.

16 Mr Warren Jones, Submission no. 52, p. 4.

17 Mr Warren Jones, Submission no. 52, p. 5.

Since the recent Colony Collapse Disorder in the USA, a warning has been issued to farmers to know their pesticides and fumigants and how to use them. “Growers...must maintain a delicate balance between protecting their crops from pests and pathogens, and protecting the insects that are necessary to pollinate their crops.” “Chemical contamination is one of the possible contributing factors that is being investigated” for CCD. Beekeepers may be using chemicals within the hive as well as farmers using chemicals on the crops the bees are visiting. The warning talked of the increased toxicity that certain chemicals have, when two or more chemicals were being used at the one time. An example was given of the common practice of combining certain insecticides and fungicides. It was found that some combinations could increase the toxicity of a component 1,000 fold. Some farm chemicals have a systemic effect, making the treated plants toxic to insects that collect their pollen and nectar. Foraging honey bees transfer these chemicals to the hive bees and queen, causing memory, navigation, orientation and feeding behaviour problems, even death.¹⁸

- 2.24 On the other hand, Mr Robin Thompson, of the Tasmanian Department of Primary Industries and Water, argued that there was little research to link agricultural chemicals to long term health issues:

We also heard a bit about the influence of agricultural chemicals on bees and their toxicity. There is a need to take a twofold approach to this.

The first issue is the labelling of agricultural chemical containers. That is currently not as expansive or descriptive as it could be – usually because the active ingredient is not actually toxic to bees but the solvent and some of the other additives probably are. Surfactants are a classic example of that. They stop bees breathing. So there is a labelling issue and a need to look at the whole composition of the chemical rather than just the active component. There is an extension program, which it is obviously important to keep going. Our minister gave a commitment to doing that when he met with members of the TBA [Tasmanian Beekeepers’ Association] a few weeks ago. There will be an education program which will be ongoing.

We hear a lot of claims about cause and effect with agricultural chemicals and some of the subclinical effects that we can see – for example, if a pre-emergent herbicide or insecticide is applied then

18 Mr Trevor Monson, Submission no. 6, pp. 4–5.

it gets translocated through the plant and can have a sub toxic effect on bees. A lot of that is conjecture. There is no good scientific evidence to say what is happening one way or the other. Often in these issues it is very easy to blame these things; they become whipping boys. We have to be a bit careful that we do not do that and that we keep the whole thing in perspective. So there is a need for better science to underpin the use of agricultural chemicals.¹⁹

- 2.25 Several beekeepers gave the committee first hand evidence of their experience with chemical spraying. In evidence before the committee, Mr Roy Barnes, a Queensland beekeeper, stated:

We did avocados last year, and Peter might have mentioned that we do macadamias heavily. Unfortunately, in the instance of the avocados last year we were doing the same property on two orchards and one of his neighbours was spraying other small crops, so we got very heavily sprayed, so much so that we will not do pollination work on that orchard again because it just cost us too much recovering those hives.²⁰

- 2.26 In his submission, Mr Gavin Jamieson, a Victorian beekeeper, told the committee that:

I used to produce bees for pollination services. I have not been involved recently due to the seemingly impossible task of avoiding pesticide damage and kills to hives. This issue is very poorly understood from a legal or residue perspective. I doubt if organic honey exists. If it's really deadly the hives are dead and will not produce honey. There are other situations that are not as clear cut as total mortality of all bees.²¹

- 2.27 In evidence before the committee, Mr Rodney Whitehead, a Victorian beekeeper, noted that 'there are some crops that we have done in the past that we will not do these days because of chemical problems and the time of year they come in – you need to allow the bees time to recover'.²²

- 2.28 In its submission, AHBIC argued for better labelling of chemicals and grower education:

Although paid pollination services represents a large opportunity for the honeybee industry, there are many risks that could inhibit

19 Mr Robin Thompson, Tasmanian Department of Primary Industries and Water, *Transcript of Evidence*, 3 September 2007, pp. 38–9.

20 Mr Roy Barnes, *Transcript of Evidence*, 10 August 2007, p. 66.

21 Mr Gavin Jamieson, Submission no. 10, p. 2.

22 Mr Rodney Whitehead, *Transcript of Evidence*, 25 July 2007, p. 75.

the development of this market. Chemical spraying is one such risk. Those who apply chemicals to crops need to be educated on the risk spraying can impose on bee colonies. Better labelling on chemical products would reduce the potential collateral damage from spraying.²³

- 2.29 In her submission, Mrs Elwyne Papworth, a Victorian beekeeper, made the following recommendations with regard to the use of agricultural chemicals:

All Chemical companies should be required to include extension research, before release of any new product, and to include “in use” products on growing plants, to determine if nectar and or pollen is being affected by residue of in ground or surface residual chemicals, weather applied by water delivery, aerial or conventional spray methods.

Better labelling of all types of chemical containers, to include a tested, proven statement if it is or is not harmful to bees, what the with-holding period, (if appropriate) is before bee visitation can be under taken for pollination services.

Education of Agronomists, Agricultural and Horticultural advisors to the grower sectors of the benefit and value adding by the informed use of chemicals to protect bees, managed or feral, educate Agronomists to recognize the use of bees.²⁴

- 2.30 She also noted that research was ‘required into the effect chemicals have on live plants intake/transfer to nectar and or pollen from soils previously used where chemicals are known to be used including pollen absorption [by] Honey Bees’.²⁵

- 2.31 In his submission, Mr Neville Bradford, a Queensland beekeeper, also argued for research into the impact of agricultural chemicals on bees and apiary products, including ‘the short and long term effects of agricultural chemicals on beehives, from overspray and systemic poisoning’.²⁶

- 2.32 In his submission, Mr Don Keith highlighted the need for research in this area, stating:

The Honey Bee Industry in Australia has had a constant focus on minimising the use of chemicals to manage diseases and pests.

23 AHBIC, Submission no. 56, p. 22.

24 Mrs Elwyne Papworth, Submission no. 74, p. 5.

25 Mrs Elwyne Papworth, Submission no. 74, p. 6.

26 Mr Neville Bradford, Submission no. 43, p. 3.

This provides the industry with genuine, clean, green credentials for promoting its products. There will be an ongoing need for *development of non-chemical controls for diseases and pests* if this clean, green status is to be maintained.²⁷

- 2.33 Closely related to the issue of chemical use is the need to educate growers on the needs of bees and the benefits of pollination. In his submission, Trevor Monson identified a need to educate farmers and other land managers on the needs of bees and the potential impacts of chemicals:

Farmers, especially, need to know the basics of beekeeping, so that their farming schedule can be adjusted to allow for the presence of pollinating insects. In other words they need to plan where bees are going to be placed during pollination, provide suitable access to sites, have all spraying and farm work finished, know what chemicals are safe to use and what chemicals they can eliminate. Farmers need to know about bees even if they do not use them for pollination, because in all probability their neighbours will.

Farm and land managers need a greater understanding of honey bees. And this doesn't just mean farmers of bee-dependent crops such as almonds, cherries, apples, stone fruits and vegetables, etc. For example, a rice farmer may grow canola, faba beans or safflowers as rotation crops to enrich the soil. Public Land Managers and most workers in agriculture come across swarms and incidents that involve honey bees. They need to understand the habits and basic needs of honey bees, such as water, and know how to handle them.²⁸

- 2.34 In a similar vein, Mr Neville Bradford, a Queensland beekeeper, stated in evidence before the committee:

I think there needs to be more education in relation to those people who are getting the pollination services and how they fit together and what their benefits are, because a lot of them do not understand. They do not understand how much increase in yield they will get and what sort of dollars that will mean to them. With chemical use, a load of beehives is worth nothing compared to their chemical bill. If the bees go, it is a case of saying, 'Oh well, we'll just get another beekeeper next year,' so there is a bit of an attitude there where they do not really see the true value being their increasing yield. If they keep doing that, they will get no bees

27 Mr Don Keith, Submission no. 26, p. 4.

28 Mr Trevor Monson, Submission no. 6, p. 4.

eventually because people will wise up to the fact that they do not care. I feel there has to be a lot of education, because there are too many people getting bees sprayed and they cannot do anything about it.²⁹

2.35 Mr Rodney Whitehead, a Victorian beekeeper, told the committee:

Then there are other farms where we have promoted the pollination aspect, the farmers are not prepared to do it – it is a lot of money – and quite often we have taken bees to the farm and said, ‘We’re not going to charge you this year. You come back and tell us whether it was worth while.’ We have found that those farmers have said, ‘Gee, we didn’t realise we would get a fruit set like that. Can we pay you?’³⁰

Alternative pollinators

2.36 Finding pollination alternatives to honey bees is another important and potentially significant area of research. In its submission, CSIRO stated:

Honey bees are not the only effective crop pollinators. Some crops are pollinated exclusively by insects other than honey bees, and for some crops it is known that other bee species are more effective than honey bees in terms of their effect on pollination. Most insect-pollinated crops are visited by a wide range of native insects, and studies have shown that for some crops species native insects are very effective pollinators. If the feral honey bee population was to decline, it is possible that native insects would compensate to some degree by continuing to provide a free pollination service to some crops. Unfortunately there is not enough data to be confident how effective this service would be. Nevertheless, an increasing number of studies from Australia and around the world show that native pollinators can provide a significant pollination service, and that this level of service is influenced by the habitat available for nesting and feeding. Maintaining these alternative native pollinators and determining how best to use them would provide a buffer for agricultural industries if the honey bee keepers cannot provide sufficient pollination services.³¹

29 Mr Neville Bradford, *Transcript of Evidence*, 10 August 2007, p. 52.

30 Mr Rodney Whitehead, *Transcript of Evidence*, 25 July 2007, p. 75.

31 CSIRO, Submission no. 33, p. 8.

- 2.37 CSIRO advocates research into the potential of native pollinators as a way of reducing the risk to agriculture of European honey bees being decimated by Varroa:

At present the bee keeping industry is primarily focused on *A. mellifera*. In addition, there has been some interest from the lucerne industry in leafcutter bees, but this is well short of becoming a sustainable industry. To reduce reliance on *A. mellifera*, and to broaden the product base for beekeepers, native pollinators that may be directly managed for crop pollination benefits should be considered. At present our knowledge in this regard is patchy and insufficient to provide a clear picture of the potential role of native species.³²

- 2.38 In her submission to the inquiry, Dr Anne Dollin of the Australian Native Bee Research Centre, highlighted the importance of research into native bees as alternative pollinators to European honey bees. She stated:

The development of alternative pollinators, such as native bee species, should have high priority in the future research and development of the honey bee industry.³³

- 2.39 Dr Dollin noted that research on the use of stingless social bees, such as *Trigona* and *Austroplebeia*, and the blue banded bee *Amegilla*, had produced positive results. She noted that:

The main constraint on the use of these Australian native alternative pollinators is a lack of research into their husbandry and effectiveness.

Given the serious threat posed by exotic pests and diseases to honey bees in Australia, it is urgent that research and development funds be allocated to the development of alternative native insect pollinators in Australia.³⁴

- 2.40 In its submission, the Centre for Plant and Food Science at the University of Western Sydney stated:

There is increasing interest in Australia and overseas in understanding and exploiting native bee pollinators, or even the importation of exotic species, such as bumblebees (*Bombus terrestris*). There is a significant potential for non-*Apis* bees in

32 CSIRO, Submission no. 33, p. 16.

33 Dr Anne Dollin, Australian Native Bee Research Centre, Submission no. 9, p. 1.

34 Dr Anne Dollin, Australian Native Bee Research Centre, Submission no. 9, p. 2.

pollination, particularly in the rapidly expanding protected cropping (greenhouse production) industry.

An incursion of Varroa mite into Australia is predicted to devastate feral *Apis mellifera* colonies, and thus, incidental crop pollination by them. Such a situation will increase the role for non-*Apis* species in crop pollination. Research to better understand the behaviour and ecology of native bees is therefore essential.

A proportion of the pollination research will need to take place in tropical areas of Australia, particularly for field pollination by native bees, although, as discussed earlier, the rapidly expanding protected (greenhouse) cropping industry will provide further opportunities for research and training. This will become even more essential in the event of the introduction of bumblebees into mainland Australia for greenhouse pollination.³⁵

- 2.41 In its submission, the Australian Hydroponic and Greenhouse Association (AHGA) urged the introduction of bumblebees as alternative pollinators for suitable crops, in particular greenhouse tomatoes. The submission noted:

...bumblebees are used in every developed country in the world except Australia to improve the pollination of a wide range of crops, both in the greenhouse (tomatoes, capsicums, eggplant, strawberries, berry fruit) and in the field (almonds, apples, stone fruit, avocados). They do not replace honeybees, but operate in concert with them or in situations where honeybees are not able to adequately pollinate the crop. This particularly applies to solanaceous crops such as tomatoes, which require a good buzz pollinator. Their use overseas over the last 20 years has resulted in substantial yield increases, enhanced crop quality, major labour savings and greatly reduced pesticide use. Bumblebees are managed in similar ways to honeybees, with commercially available hives. These differ from those of honeybees in that each contains a single queen and an initial 50 workers, with a hive life span of only 4–8 weeks. They are then exchanged for new ones, using them only during the pollination period, which is crop specific.³⁶

- 2.42 AHGA argued that bumblebee would have little if any impact on the natural environment. The submission stated:

35 Centre for Plant & Food Science, University of Western Sydney, Submission no. 90, p. 5.

36 Australian Hydroponic and Greenhouse Association, Submission no. 57, p. 2.

In the same way that environmentalists applied the so-called 'precautionary principle' to restrict honeybee access in State and public parks, they have actively and successfully lobbied the public and State governments to have bumblebees refused entry onto mainland Australia under any circumstances. An assumption of serious negative environmental impact has been made on even flimsier 'evidence' than exists for honeybees. A concerted scaremongering campaign over many years has labelled the innocuous bumblebee a flying cane toad, another European wasp, the next rabbit, a threat to one's children and a carrier of *Varroa*, which it most certainly is not.³⁷

2.43 According to AHGA, bumblebees had a limited capacity to survive in the natural environment:

In Israel, bumblebees are used in irrigated crops where they do not naturally occur and could not and do not survive once the commercial hives are removed. A similar system could work very well in Australia. Unlike honeybees, feral *Bombus terrestris audax* would be very limited in its ability to survive most of the climate extremes in Australia, and may not survive the predation of ants and birds even in climatically suitable areas.³⁸

2.44 However, there was no support for the introduction of bumblebees within the honey bee industry. In its submission, AHBIC stated:

Bumblebees were introduced into Tasmania in 1992 by accident and have since been contained in Tasmania. However some industries such as the tomato industry and those that are grown under similar hydroponics are calling for the introduction of the bumblebee to pollinate their crops. Currently the majority of tomato pollination is done by mechanical vibration.

However there are some concerns held by the honeybee industry regarding the introduction of bumblebees to mainland Australia. Firstly it is unknown whether the bumblebee harbours pests that are dangerous to the honeybee industry (such as the *Varroa* mite). Nor is it known what other parasites or pathogens bumblebees might carry that are as yet unknown to the honeybee industry.

In addition, the industry is concerned that the bumblebee will compete for nectar and pollen with the honeybee, and because the bumblebee can forage at lower temperatures and can start foraging

37 Australian Hydroponic and Greenhouse Association, Submission no. 57, p. 3.

38 Australian Hydroponic and Greenhouse Association, Submission no. 57, p. 4.

earlier in the morning, they have a competitive advantage over the managed honeybee. Bumblebees would also increase competition with native species that forage earlier in the day than honeybees.

The industry is also concerned that feral bumblebee colonies might be dangerous to the environment. This is because bumblebees specialise in pollinating certain types of flora, which contain many agricultural weeds. This means these weeds become more prolific, thereby invading native plants and in some cases choking rivers.

It is therefore the position of the industry that bumblebees should not be introduced on the mainland of Australia.³⁹

- 2.45 Likewise, the Tasmanian Crop Pollination Association argued against the introduction of bumblebees onto the Australian mainland.⁴⁰

Genetically modified (GM) crops

- 2.46 Another issue of concern to the honey bee industry is the interaction of honey bees with GM crops. In its submission, Capilano Honey Limited noted that 'the release of GM crops and detection of GM products in honey pose a marketability and consumer confidence risk for the honey industry to overcome'.⁴¹ According to Dr Ben McKee of Capilano Honey Ltd, the possible contamination of honey with GM pollen is a real issue for the industry:

Before too long, we are going to wind up with a situation where there is going to be considerable inadvertent contamination of our honey across the board with GM products, and that is originating from the pollen. There will be a GM product that may result in some kind of protein, or a factor or something that is present on a plant. That may be in the nectar. Who knows? That is something that I am sure is not going to be very well thought about in the process. It is something that we as an industry are going to have to resolve – hence I am saying it is one important thing we have to be prepared for.

The second thing is that the bees gather the pollen, the DNA is in the pollen, and anyone can do what is called a PCR [polymerase chain reaction] test and identify that DNA and say, 'That honey

39 AHBIC, Submission no. 56, pp. 38-9.

40 Tasmanian Crop Pollination Association, Submission no. 70, pp. 16-17.

41 Capilano Honey Limited, Submission no. 55, p. 6.

there contains GMOs.' It is a DNA fragment that has been inserted into the genome of a plant that is coming through in the honey. How do we respond to that? There are a number of strategies that we as a company are looking at. Do we remove all the pollen and filter our honey to a much higher degree and, at the same time, potentially reduce some intrinsic benefits that people talk about with honey, such as enzymes and so on – because they will all go at the same time – to ensure that we do not face a marketing crisis on the shelf? I am sure that someone at some stage is going to say, 'We don't like the widespread use of these GMs. We'll use this to highlight that GMs get in everything,' and the honey industry will face that.⁴²

- 2.47 In its submission, the Tasmanian Beekeeper's Association associated GM crops with potential loss of Australian honey's clean-green image, and cited GM crops as a possible cause of Colony Collapse Disorder:

Tasmanian honey like other Tasmanian products currently has a clean green image. This image maybe challenged with the potential introduction of GM crops. The State Government is reviewing the prohibition of GM crops in Tasmania. Bees are very sensitive to the environment. Colony Collapse Disorder, CCD, is an epidemic sweeping the bee populations of Europe and America. It has resulted in beekeepers incurring huge losses of stock and reduced production. As yet the cause is unknown; GM crops are one of the many suspected risk factors under investigation.⁴³

- 2.48 In his submission, Mr John Edmonds, a Victorian beekeeper, argued that 'GMO crops should be studied more before plunging into possible problems with toxic pollens killing honeybees'.⁴⁴
- 2.49 In its submission, Capilano argued that 'industry needs to develop localised testing capabilities for GM products and pollen DNA in honey, to further research and to implement identification and control testing procedures'.⁴⁵

42 Dr Ben McKee, *Transcript of Evidence*, 10 August 2007, pp. 6-7.

43 Tasmanian Beekeepers' Association, Submission no. 63, p. 5.

44 Mr John Edmonds, Submission no. 23, p. 6.

45 Capilano Honey limited, Submission no. 55, p. 6.

Committee conclusions

- 2.50 The evidence presented to the committee during the course of its inquiry has highlighted the importance of the honey bee, *Apis mellifera*, to Australian agriculture. Bees are vital to the commercial production of a significant range of crops. Managed pollination is important in terms of productivity and quality of crops. Moreover, with the imminent threat of Varroa on Australia's doorstep, it is clear that managed pollination will be necessary to crop production in the future. It is essential that effective pollination management systems are put in place now.
- 2.51 To be successful, managed pollination requires three things:
- An understanding of the pollination requirements of individual crops;
 - Professional expertise on the part of the provider of pollination services; and
 - An understanding by the primary producer of the requirements of bees and the factors mitigating successful pollination, such as misuse of pesticides.
- 2.52 Managed pollination will therefore require investment in research on crop pollination and training for pollination providers and users. The committee notes that these needs have been identified as part of the Pollination Australia project, as discussed in chapter 1.
- 2.53 Furthermore, to meet the threat of Varroa, the Australian honey bee industry will need to develop the capacity to provide pollination services to a range of industries on a large scale. This, in turn, will require professional development within the industry, a higher level of coordination between industries, a sustained research effort to minimise the impacts of pests and diseases and maximise the impact of paid pollination services, and increased access to floral resources to maintain hive numbers and strength for pollination.
- 2.54 The committee notes the evidence received concerning the impact of agricultural chemicals, especially pesticides, on honey bees. Clearly, better labelling of chemicals is required to prevent the accidental poisoning of bees involved in pollination. It is also evident to the committee that more research into the short and long term effects of agricultural chemicals is required.
- 2.55 The committee supports the need for research into alternative pollinators and pollination systems such as self-pollinating plants. The use of alternative pollinators such as leaf-cutter bees or native bees will make

agriculture less reliant on honey bees, thus mitigating the potential impacts of a pest or disease incursion. On the basis of the evidence presented, however, the committee opposes the introduction of bumblebees to mainland Australia.

- 2.56 The committee also notes concerns over the introduction of GM crops and their potential impact on the honey sector. The potential presence of GM pollen in natural honey raises real difficulties for honey producers, especially as bees cannot differentiate between GM crops and other plants. There is real potential for GM products to inadvertently enter the food supply through honey bee pollination. This represents a real commercial risk for the industry.

Recommendation 2

- 2.57 **The Committee recommends that the Australian Government fund research and training in the provision of paid pollination services as part of its contribution to Pollination Australia.**

Recommendation 3

- 2.58 **The Committee recommends that the Australian Government fund research into alternative pollinators as part of its contribution to Pollination Australia.**

Recommendation 4

- 2.59 **The Committee recommends that the Australian Government alter labelling requirements for agricultural chemicals to reflect their impact on honey bees and other pollinating insects.**

Resource security

- 3.1 Resource security – access to the floral resources upon which the honey bees depend – is one of the two most critical issues facing the honey bee industry and, therefore, those industries which rely on honey bees for pollination. It is estimated that 70 per cent of honey production is derived from native flora species.¹ Much of this is located on public lands. However, native forest also plays a significant role in conditioning hives for pollination, and recovery afterwards. Thus, beekeeper access to native forests is essential to both the honey bee industry and those industries depended on honey bees for pollination. As AHBIC stated in its submission:

Without access to native flora the commercial beekeeping industry would not exist. Continued access to native flora on private but more especially public land is the essence of the Australian beekeeping industry.²

- 3.2 In its submission, the Victorian Apiarists Association emphasised the importance of native vegetation to the viability of the industry, and the conservation ethic of beekeepers:

Eucalypt forest and woodland systems represent the most important melliferous (nectar and pollen producing) resource for beekeeping in Australia. In Victoria about 85% of honey production derives from species of eucalypts.

1 Centre for International Economics, *Future directions for the Australian honeybee industry*, CIE, Canberra, September 2005, p. 1.

2 AHBIC, Submission no. 56, p. 49.

Native forests and woodlands on public and freehold land therefore play a critical role in maintaining prosperous commercial honeybee populations essential not only for efficient apiary production, but for the maintenance of managed honeybee populations that are deployed to assist production of much of the human and animal foods that are successfully grown, harvested, sold and consumed by Australian and overseas customers. The men and woman of the Victorian beekeeping industry are a resourceful and resilient group of people vested with a considerable body of practical knowledge of the bush. They are driven by a deeply ingrained philosophical ethic to conserve the bush. They spend a good part of their livelihood and working lives in the bush.³

3.3 In its submission to the inquiry, Western Australian honey packer Wescobee Limited identified the following threats to resource security:

From a forestry perspective continuous threats to the floral resources accessed by beekeepers in Western Australia include:

- land clearing for urbanization or agriculture;
- forestry activities that remove flowering and/or mature trees;
- replacement of felled trees with pine and low pollen yielding eucalypt plantations like blue gums;
- fire, including the back burning practices of the State department and natural bushfires;
- environmentalists/conversationists demanding beekeeping not to take place in native reserves, wilderness areas and parks.⁴

3.4 Thus the exclusion of beekeepers from native forests and the destruction of native forests for agriculture, urban development or through burning, has a direct impact upon the honey bee industry.

Access to public lands

3.5 Beekeeper access to public lands is seen by the honey bee industry as essential to the future of the industry, as public lands contain the bulk of the remaining forest and woodland vegetation upon which beekeepers depend. In its submission, AHBIC stated:

3 Victorian Apiarists' Association, Submission no. 71, pp. 25–6.

4 Wescobee Limited, Submission no. 34, p. 3.

Access to native forests on public land is essential for the honeybee industry – state forests, national parks, Crown lands, stock routes, etc contain the majority of remaining native forest which provide most of the floral resource on which the industry depends for honey flows, a ‘safe harbour’ and clean rehabilitation. Honeybees are rested in native forest on public lands after completing the pollination services which generate very little honey and on which Australian agriculture and horticulture depend for food production.⁵

- 3.6 However, beekeeper access to public lands has been declining with the growth of national parks and conservation reserves to protect native forests. In its 2005 report, *Future directions for the Australian honeybee industry*, the Centre for International Economics noted:

All states have experienced increasing areas of public lands transferred into various state conservation reserves, such as national parks or nature reserves or wilderness areas.⁶

- 3.7 As CIE further noted, this trend has resulted in the exclusion of beekeepers from public land:

Within this increasing protectionist framework, managed honeybees are seen by some to be a land management activity which is no longer appropriate without a thorough understanding of the interactions between introduced honeybees and ecological processes. Some ecologists and conservationists have taken the position that as managed honeybees are exotic insects they have no place in any conservation reserve at any time.⁷

- 3.8 As a matter of policy, governments are excluding beekeepers from public conservation reserves. In its submission to the inquiry, the New South Wales Government acknowledged the importance of public land access to the honey bee industry, noting that ‘the honey bee industry is heavily reliant on access to apiary sites, mostly on public land, to harvest nectar flows and maintain hives during cool weather, drought, or following bushfires’. Nonetheless, the New South Wales Government has placed restrictions upon access to apiary sites on public lands and designated feral honey bees as a key threatening process:

5 AHBIC, Submission no. 56, p. 49.

6 Centre for International Economics, *Future directions for the Australian honeybee industry*, CIE, Canberra, September 2005, p. 86.

7 Centre for International Economics, *Future directions for the Australian honeybee industry*, CIE, Canberra, September 2005, p. 86.

Under existing Government policy, access to apiary sites on public land such as State Forests, National Parks, and travelling stock routes and reserves, will continue, but it will not increase. Apiary sites in NSW National Parks are managed under the *National Parks and Wildlife Act 1974* which gives conservation objectives precedence over other management objectives. Other jurisdictions such as Queensland and Victoria have a similar approach.

Future access to NSW National Parks is limited because the honey bee is an exotic species and competition from feral honey bees has been listed as a key threatening process under the NSW *Threatened Species Conservation Act 1995*.⁸

- 3.9 The position of the Queensland Government, as stated in its submission to the inquiry, is that ‘beekeeping is inconsistent with the management principles of National Park tenure’. The Queensland legislation, the *Nature Conservation Act 1992*, ‘provides for authorised beekeeping activities on some protected areas including conservation parks and resource reserves’. Nonetheless:

Beekeeping is not normally allowed on National Parks. However, where a new National Park is declared on land used for beekeeping, this activity can be allowed to continue for the unexpired term of existing apiary permits up to a maximum of five years.⁹

- 3.10 The submission further notes, however, that transitional arrangements have been enacted to allow beekeeping to continue until 2024 on lands covered by the South-East Queensland Forests Agreement (SEQFA) and Wet Tropics lands being transferred from Forest Reserve to National Park or National Park (recovery) tenure. These arrangements allow for ‘the continuation of existing apiary sites for beekeepers while alternative resources were found for the industry by 2024’.¹⁰

- 3.11 The Queensland Government submission observes that the ‘investigation of freehold land for honey production in south east Queensland indicates that there is almost 19 000 hectares of high honey yielding forest areas located on freehold land, which may be available as an alternative resource when access to SEQFA lands ceases in 2024’.¹¹ In the meantime, some 800 000 hectares of land will be taken out of production:

8 Government of New South Wales, Submission no. 79, p. 5.

9 Queensland Government, Submission no. 25, p. 11.

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

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

In 1999, the signing of the South-East Queensland Forests Agreement (SEQFA) provided for protection of important forest ecosystems in south east Queensland through the immediate transfer to forest reserve and termination of any further timber harvesting on 425 000 ha of former State Forests, and the future transfer of a further 375 000 ha of State Forest once timber harvesting was phased out. As of January 2007, 188 594 ha has been converted to protected area, with much of this area being dedicated as National Park.¹²

- 3.12 As the Queensland Government's submission acknowledges, the cessation of timber harvesting is likely to impact on beekeepers even before total exclusion occurs as forestry roads and fire trails degrade from lack of maintenance:

The discontinuation of timber harvesting in forest areas means that harvesting roads used by beekeepers to access sites may not continue to be maintained where they are not required for management of the protected area. Remaining management roads, including fire management trails, may not be maintained to a standard suitable for beekeepers' use. In these cases, it may be possible to relocate sites to suitably maintained access roads, in keeping with a commitment to preserving the total number of apiary sites on the areas of previous forest reserves through to 2024.¹³

- 3.13 A number of submissions and witnesses contradicted the evidence of the Queensland Government, emphasising the probable impact of current policies upon the honey bee industry in that State, and the apparent contradictions within the Queensland Government's position on this issue. In evidence before the committee, Dr Max Whitten stated:

It is unfortunate that the Queensland government are not here to defend their position. I do not believe, when you look at their submission, that it stacks up. I draw attention to one item which they call 'Key issues impacting on the industry'. They list four key issues: drought, profitability, industry skills and disease management. What is not on that list is what you will hear from beekeepers here today: the question of access...

I just want to show that they then proceed to demolish their own position, because the very next item they deal with is the question

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

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

of 'Future prospects', and in that, just in relation to south-east Queensland – and the group here can talk about Queensland more broadly – they talk about the areas of land that are currently in state forests which will then move across into reserves and protected land. It actually adds up to one million hectares, and this is a statement of fact: that they are moving one million hectares just in south-east Queensland. They then go on to say:

Investigation of freehold land for honey production in south east Queensland indicates that there is almost 19 000 hectares of high honey yielding forest areas ...

I think that people here would challenge even whether that land exists. But, more importantly, they go on to say, 'We need an education program to educate those freeholders about the importance of the industry and the value of providing access to that land' – which probably does not exist. The education program clearly should be aimed at the Queensland government, because on the one hand they are talking about the importance of the industry and the importance of access and yet, as the owner of the bulk of that land, they are denying access. So it is a shame that they are not here to defend their position. That is in their submission.¹⁴

3.14 Dr Whitten noted:

We desperately need a viable honey industry, and the Queensland government does not distinguish adequately between the possible impact of feral bees in those parks as against migratory beekeeping.¹⁵

3.15 In his evidence before the committee, Mr Don Keith also highlighted problems with the Queensland Government's approach to resource access:

With regard to land management, the Queensland government have made quite an extraordinary decision with regard to removal of honey bees from the majority of the forests in south-eastern Queensland. I am aware that there are quite a number of submissions that address this issue, and I will try to be brief in my discussion of it. However, the Queensland government are removing honey bees from about 70 per cent of south-east Queensland's honey bee resources. In doing so, they took the attitude that there were plenty of resources for bees and they also said that, if there were not the resources there, it would replace

14 Dr Max Whitten, *Transcript of Evidence*, 10 August 2007, p. 17.

15 Dr Max Whitten, *Transcript of Evidence*, 10 August 2007, p. 17.

them by planting melliferous resources for the beekeeping industry. I think a very minor level of due diligence would have shown that there are no other resources. In their submission they recognise an area in the tens of thousands of hectares, well below 400,000 hectares, that they have decided in parliament that our industry would be excluded from.

In the process of deciding about the south-east Queensland forests, there was originally a comprehensive regional assessment for a regional forest agreement process, which was the intergovernmental agreed process for determining the needs and uses for forests. Unfortunately, whilst the comprehensive regional process was proceeded with, the Queensland government decided to bypass that and take a different course for deciding on what should happen to the forests, and the decision was made really between the conservationists and the timber industry, and an enormous amount of data in the comprehensive regional assessment was not utilised. Because of that, the knowledge about the linkage between the forest, the honey bees and pollination was totally ignored. If Queensland were an island standing on its own, the decision that the Queensland parliament took to exclude honey bees from the south-east Queensland forests would ensure that Queenslanders would have to eat imported honey and that our horticultural industries would be decimated.¹⁶

- 3.16 In his submission, Mr Peter Barnes, a Queensland beekeeper, expressed the view that under current arrangements the future of the industry was under threat:

The **future of the honey bee industry** in Queensland is grim. The Queensland State Government has put in place legislation to stop beekeeping in most Government controlled Native Forest areas in South East Queensland after the year 2024. The **Western hardwood** areas that are government controlled **are just as important** to the honey bee industry as our other South East Queensland sites. We may get locked out of Western hardwoods sooner than the year 2024. **80% of honey that is produced** in Queensland comes from Queensland Government controlled Native Forest. Over half of the time spent in these Native Forest Areas is not for honey production, but for strengthening bee hives for pollination or a honey flow later on in the season. For example the Spotted Gum Tree which in our industry is vital for strengthening hives in the

16 Mr Don Keith, *Transcript of Evidence*, 10 August 2007, p. 15.

autumn and winter months by shifting to different areas we can work this tree for 4-8 months of the year (in the right year). An area of trees only flowers well once in 5 years. Huge areas of Native Forest are required to sustain the beekeeping industry over that 5 year cycle. One of the **factors is a drought** and that cycle may go out to once in ten years or more.

Under current legislation the honey industry in Queensland has no future beyond the year 2024. We cannot survive on pollination alone as pollination is NOT all year round. No business can survive a loss of 80% of their income e.g. honey production. The loss of a large part of the honey bee industry in Queensland will be devastating for horticulture industry and the effects will flow through to the wider community.¹⁷

- 3.17 Queensland was not the only state where beekeepers faced declining access. In his evidence before the committee, Mr Linton Briggs outlined the experience of the industry in Victoria, stating:

...in 1996 in Victoria – and remember that at that time only about nine per cent of the public land estate was vested in national parks – we had upwards of 600 sites vested in national parks out of a total of something like 3,000-odd sites across the state as a whole. We find today that there has been an attrition, with successive management plans having been implemented throughout the state for certain national parks; we have been losing bee sites. As the VAA has described in its submission: it is death by a thousand cuts. We find that, today, we have about 91 fewer sites than we have had in the past, in raw figures.

If you have a look at the number of reserved forests containing bee sites which have been transferred to the national park estate you will see that, since 1996, sites have disappeared. So there is an unknown number of sites that have disappeared off the map. That issue is on the table between the Victorian Apiarists Association and the state government as we speak. We are informed that, when management plans in the national park estate go through their 10-year cyclical reviews – which is about to start now – this issue can be addressed at that time, and we are looking at that process very carefully.¹⁸

17 Mr Peter Barnes, Submission no. 5, p. 1.

18 Mr Linton Briggs, *Transcript of Evidence*, 25 July 2007, p. 3.

3.18 Mr Briggs saw the precedent being set in Queensland as a potential threat to the industry nationwide:

We as an industry have been very concerned to observe, for example, the Queensland government's position. They have said, 'We would like all managed honey bees to be out of our conserved forest, our national park estate, by 2024.' That is a precedent that does worry us. We all love our environment and we all want to care for our environment, and we have no problem with that. Beekeepers are themselves men and women of the land, of course, and we have a real conservation ethic. Coming back to the challenges I was talking about a little while ago, we see this precedent established in Queensland as a challenge that could gather moss as far as the rest of Australia is concerned and it could make it harder to maintain access to our national parks.¹⁹

Land management

3.19 Aside from the question of access to public lands, there are a number of land management issues having a significant impact on the Australian honey bee industry. These include forest management, land clearing, rural subdivision and urban sprawl. In its submission, AHBIC noted that:

In addition to erosion of access to resources on public lands, the following are also threats to floral resources accessed by beekeepers:

- land clearing for agriculture;
- forestry activities that remove honey producing trees;
- replacement of felled trees with pine and low honey and pollen yielding eucalypt plantations;
- fire, including natural bushfires;
- reduction in vehicle access to potentially high yielding apiary sites;
- competition with loggers as forest resources contract;
- salinity affecting the health of the available flora;
- droughts which reduce flowering and interrupt growth cycles;
- control of weed species that provide pollen and nectar for honeybees;
- urban sprawl;

¹⁹ Mr Linton Briggs, *Transcript of Evidence*, 25 July 2007, p. 3.

- access to native flora on private lands because of a perception by some landholders that managed honeybees are harmful to the ecosystem; and
- ageing and dying of mature eucalypt trees across the general landscape in temperate Australia.

Long term climate change that may have the impact of increasing drought durations and frequency will equate to reduced reliability of the floral resources within Australia to regularly and reliably flower. These long-term dry periods may also equate to an escalation in fire events, which potentially remove a floral resource for many years until regrowth is mature enough to return to a regular flowering pattern.²⁰

3.20 As the Fewster family (Kuyan Apiaries and West Coast Honey) of Western Australia pointed out in their submission, all these issues have the potential to limit the viability of the industry:

Honey and Pollen in shorter supply due to removal and death, due to lack of water and burning of large old trees and bushland eg – Tuart trees, Redgums, Whitegum, Jarrah – Banksia, Mallee trees and Wildflowers – (coastal heath country).

Older trees produce larger canopies equating to larger collections of honey and pollen – necessary for the hives to survive and for beekeepers to work them.

The coastal heath country – the loss of this country would have a significant effect on our bees. It is ideal country for wintering our bees with the flowering of many smaller plants that produce enough pollen to carry the bees over until spring when more pollen producing plants contribute to building up our hives ready for shifting onto eucalypt flows and pollination...

Urban sprawl – moving further into the country each decade.

Natural wetland that we are seeing being filled in the city is sacrilege. The powers to be should be leaving natural bushland belts, which would make fantastic areas for our native flora and fauna, e.g. Those who had the foresight to protect and keep Kings Park (WA) as it is today need to be commended.

We have seen so much natural bushland flattened for housing and spread some 20 odd kilometre's in the past 30years.

Subdivisions of rural land in Regional areas – We are seeing large parcel of farming land being subdivided for small intensive

20 AHBIC, Submission no. 56, pp. 10–11.

farming e.g. Olives Vineyards Citrus and people looking for alternative lifestyle.

Once again Natural nature strip should be kept. Only land that has already been cleared should be used for market gardens etc. No more clearing of natural bushland should be allowed.

Goats should be banned on coastal fragile areas.

Clearing – agricultural lands and clear felling of natural forest areas. The old system of removing mature suitable trees for timber is the best practice.²¹

3.21 Victorian beekeeper, Mr John Edmonds, painted a similar picture in Victoria:

Access to farmer's properties is becoming a greater problem as they worry about occupational health and safety issues.

Housing development along perimeters of forests has reduced the areas available for beekeeping on private land.

Acquisition by state governments of parcels of private land from within forests and National Parks has reduced beesites.

Farming practices have changed and the use of herbicides is revolutionising farming with no longer fallow paddocks with weeds to sustain honeybees and has resulted in the elimination of blackberry, gorse, and boxthorn.

Clearing streams of non native plants. Although this may be seen as good for the streams it is removing a valuable source of early spring pollen and nectar from the Willows.²²

3.22 In evidence before the committee, Mr Rodney Ruge, President of the Queensland Beekeepers' Association, highlighted the problems caused by subdivision of rural lands for urban and semi-rural development. He told the committee:

I have done an addition to my submission with regard to the access to private land or the use of private land [Submission no. 85]. It was brought to my attention only just last week. I visited one of my regular farmers. I suppose I would have had bees there every four to five years; quite a large holding. When I first met him, he had about 20,000 acres of freehold country, plus about 40,000 acres of leasehold country. But in the last 10 to 15 years he

21 Kuyan Apiaries and West Coast Honey, Submission no. 58, pp. 2-3.

22 Mr John Edmonds, Submission no. 23, p. 3.

has sold something like 1,000 hectares of the freehold land to developers; 700 hectares have gone since I was there two years ago.

This is just one issue that we have to face. It is right across the board. These are cut up into lifestyle blocks, ranging from 16 hectares, which is 40 acres, down to 1,300 square metres approximately, which are your quarter- or half-acre house blocks. I made a comment to a gentleman the other night on the phone, saying, 'Well, we've lost that as a beekeeping resource.' His comments were, 'No, it's still there. You've just got to see more owners.' But we have actually lost it as commercial producers because 40-acre blocks or 16-hectare blocks are not viable, as, with your duty of care, it is not safe to put bees there.²³

- 3.23 Mr Ruge also highlighted the issue of land clearing, which continues to be a problem from the perspective of beekeepers:

I know that the present government has legislation to stop that. But it created a huge problem. Word got out that that was coming in. Many farmers said prior to this happening, 'If legislation looks like coming in, we've got the dozers fuelled up ready to go, and they will run 24 hours a day.' As we drive around in Queensland, we see evidence of that.²⁴

- 3.24 Forest management was an issue across Australia: in their submission, the Fewsters noted that 'clear felling practices have had a devastating affect on our natural resources and the environment'. They further noted that:

The woodchip industry are rather cunning leaving belt of timber close to main roads for I am sure if the general public were to drive past and see the effects of clear felling there would be more objections to it. To woodchip our beautiful trees is sacrilege.

It is 41 years since we have been to a Karri flow. The Karri did have the reputation of heavy flowering every five years. (There has only been very small area's that have flowered on odd occasions in the past 41 years).²⁵

- 3.25 Looking at the Victorian experience in his submission, Mr Gavin Jamieson, a Victorian beekeeper, advised the committee:

23 Mr Rodney Ruge, *Transcript of Evidence*, 10 August 2007, p. 40.

24 Mr Rodney Ruge, *Transcript of Evidence*, 10 August 2007, p. 40.

25 Kuyan Apiaries and West Coast Honey, Submission no. 58, pp. 7-8.

Forests other than the Gippsland Apiary/Forest Plan do not take into account the age class stands that best ensure sustainability of wood production and honey and beeswax at the same time.

This plan should be considered and implemented across all forests types where wood utilization and honey production can be integrated.

The Forests Act of Victoria sets out this dual purpose but seems not to be practiced.

The Gippsland R.F.A. Investigation was provided with evidence that an 80 year harvest cycle produced revenue for the state from wood royalties that were exceeded by apiary royalties (site fees) over the same 80 year cycle.

Apiarists pay their way in the forests. We provide a heavily subsidized service to agriculture. We are largely free of freebies but this will not last if the future threats come to bare. We don't need "Tree Pull" packages just a fair shake.²⁶

- 3.26 The committee received evidence in the form of detailed submissions and bore witness to robust discussion on the issue of forest management in Tasmania. There the key conflict is between harvesting timber commercially and the preservation of Leatherwood for honey production and the conditioning of hives for pollination. The Forests and Forest Industry Council of Tasmania (FFIC) has worked to harmonise the interest of beekeepers, foresters and government agencies. In its submission, the FFIC noted that the critical issue was the locking up of leatherwood resources in parks and reserves:

Much resource is now inaccessible to apiarist. There has been an enormous expansion in the area of national parks and wilderness areas, accompanied by a corresponding reduction in the area of State forests. One of the effects of the reduction in the area of State forests and the increase in the area of conserved land is the gradual disappearance of access roads. In most national parks, and in all wilderness areas, former logging roads are not maintained and in some instances are deliberately made impassable to vehicular traffic.²⁷

- 3.27 The consequence of this decline in access was that the Tasmanian honey bee industry was effectively at its productive limits in terms of honey

26 Mr Gavin Jamieson, Submission no. 10, p. 2.

27 Forests and Forest Industry Council of Tasmania, Submission no. 80, p. 3.

production and provision of pollination services. This has significant implications for agriculture and public land management:

If most multiple use forest is now accessed to the productive limit of apiarists, and if the pollination industry is entirely dependent on leatherwood to raise hives to efficient pollinating capacity as is claimed by some, there appears to be a limit to which horticulturalists can intensify cropping. Only two changes are possible – more retention of leatherwood during harvesting to sustain the industry at current levels, or making the large areas of leatherwood in reserves more accessible to commercial beekeepers. Currently, more than 60% of leatherwood lies within World Heritage Area or other Reserve boundaries. It follows that consideration must be given to making these boundaries more porous for legitimate beekeepers and to finding ways to lessen the impact of harvesting patches of leatherwood in public forests coupes. Both of these points require serious consideration and the topic of mitigating harvest impacts is being addressed.²⁸

- 3.28 Both apiarists and Forestry Tasmania emphasised the good working relationship between beekeepers and the forestry industry. In evidence before the committee, Mr Julian Wolfhagen, President of the Tasmanian Beekeepers' Association and member of FFIC, told the committee:

There has been close communication between Forestry Tasmania and Tasmanian beekeepers, particularly over the last few years. Obviously it has been ongoing...but in my involvement in the last three years as president and some years before that heading up the TBA's resource subcommittee, we have had good and meaningful communications with forestry. They have been redressing coupe boundaries in certain areas to minimise the impact on leatherwood. That has been a significant benefit to us; however, I believe their remit does not allow them to facilitate our industry as much as the timber industry, of course. That is a matter of debate because of the size of the industries, but for the future benefit of the industry we need to see leatherwood getting formal recognition within the Forest Practices Code.

We are seeing a move in harvesting away from clear fall. We are seeing in the Community Forest Agreement a reduction in the amount of clear fall, which has to be a benefit. Managing the coupes with apiaries in mind under the selective harvesting program will benefit the beekeeping industry, but we need to see

28 Forests and Forest Industry Council of Tasmania, Submission no. 80, p. 20.

leatherwood getting some sort of regulatory recognition. At the moment it comes down to the goodwill of the planners and harvesters to see that after the implementation of the plan leatherwood is protected.²⁹

3.29 Mr Graham Sargison, of Forestry Tasmania, explained in turn:

I would like to make a few comments from the point of view of Forestry Tasmania. Forestry Tasmania does have a very good working relationship with most of the state's beekeepers. We signed a Community Forest Agreement with them in November 2000. Part of that agreement contained some guidelines by which we manage beekeeping on state forests and it includes mostly the protection of the leatherwood-rich forest.

As you know, we have a very rigid planning scheme for forestry. When all of our planners are planning for harvesting they take into account what we call special management zones specifically for apiary, which surround every beehive site on state forests. So every planner, when they are planning a harvesting operation within an apiary protection area, knows that it will come up flagged for special management. So they know they have to take special account of any leatherwood-rich forest in that zone. That is not to say they protect every tree, but they try to protect the leatherwood-rich areas and streamside reserves; they amend boundaries to try to protect it.

But, as we have heard already, there are some 777,000 hectares of leatherwood-rich forest in this state and only 260,000 of those are on state forest. The formal reserve system has expanded fourfold over the past four decades so a lot of that leatherwood-rich forest has been placed in reserves. The beekeepers access multiple state forests via our network of forestry roads free of charge. They have been built by the timber industry. So we have contributed towards the growth of the leatherwood honey industry by making more hive sites available during the last decade.³⁰

3.30 The problem is, as both Mr Wolfhagen and Mr Sargison admitted, the relative importance placed on apiarists needs by those responsible for forest management. Mr Wolfhagen, from the point of view of the honey bee industry, explained:

29 Mr Julian Wolfhagen, *Transcript of Evidence*, 3 September 2007, p. 7.

30 Mr Graham Sargison, *Transcript of Evidence*, 3 September 2007, pp. 24-5.

One of the core issues in the broader sense is that in the state we have an issue that forestry at times does not necessarily see itself constitutionally as responsible for agriculture. We have been told this in the past. I appreciate the work and the communication that has happened, but structurally there is an issue that their remit does not, I believe, cover the responsibility that they have to our industry in a holistic sense.³¹

3.31 Mr Sargison, from the point of view of Forestry Tasmania, stated:

It is all down to the value. From our point of view, forestry gets returns from the timber industry of about \$50 million. Our return from the beekeeping industry is \$30,000 a year. So when it comes to management we try to do our best but, as Julian says, we are there to manage the forest for all its values. My concern is that the true value is not placed on the pollination services. If the true value of pollination services was recognised that could be reflected right back through the chain and we could all get a reasonable return. After all, forestry is a business.³²

3.32 Mr Sargison advocated opening up reserves to the honey bee industry:

I think that is an absolutely crucial issue. On state forest, as I said earlier, we manage for multiple use so that beekeepers will always be welcome on state forest. But, as we said earlier, although we may differ somewhat on the percentages of leatherwood-rich forest, the majority is in reserves. Leatherwood is so critical to this industry, for both honey and pollination, that if we do want to move ahead I think we do have to make access available into those reserves for the beekeepers.³³

3.33 He could see little merit in continuing to exclude them:

I certainly cannot understand the reasoning. We have got wasps in there and bumblebees and, as Julian said earlier, we have got honey bees that overfly the boundary – they do not know where the boundary is – so it seems farcical to exclude them. In fact, our parks have withdrawn access. In some cases we have had existing roads into what are now reserve areas and they have actually pulled up those roads and withdrawn access in a couple of cases. We have supported the beekeepers in trying to reopen that access – without success. I think one of the management guidelines

31 Mr Julian Wolfhagen, *Transcript of Evidence*, 3 September 2007, p. 28.

32 Mr Graham Sargison, *Transcript of Evidence*, 3 September 2007, p. 28.

33 Mr Graham Sargison, *Transcript of Evidence*, 3 September 2007, pp. 42–3.

in the World Heritage area was to close any unnecessary road access. But when the road is already there it does seem rather strange to me.³⁴

Plantations

- 3.34 While plantation timber has been seen as a potential resource for the honey bee industry, the industry itself sees plantations as a poor substitute for mature native forest. In her submission, Mrs Elwyne Papworth explained that:

There is a trend to try to replace denied access to public lands with plantation timber, no plantations are being planted to replicate the natural mixes of flora, (eucalypt and ground flora), not enough land is available to replace the same quantity of denied native flora, planters have no understanding of industry needs to maintain hives or to produce honey, plantations already in ground mostly flower during the winter and are not of mainland species. From May to August, managed honey bees go into hibernation, and have to [be] encouraged through specific management techniques to be prepared for Almond pollination in early August.³⁵

- 3.35 In its submission, the Amateur Beekeepers Society of South Australia decried the 'unnecessary clearing of remote or inaccessible areas of land for alternative plantings of softwoods or wood chip products. Those responsible for land management need to understand the irreplaceable resources yielded from a Eucalypt tree 50 years or older...'³⁶

- 3.36 In its submission, the Tasmanian Department of Primary Industries and Water stated:

Eucalypt plantation forests are not likely to be a significant source of honey for the apiary industry because the trees are generally harvested before they reach floral maturity. Native forests are an important source of nectar.³⁷

- 3.37 However, in its submission the South Australian Government advocated planting trees for bees as part of revegetation programs:

34 Mr Graham Sargison, *Transcript of Evidence*, 3 September 2007, pp. 43.

35 Mrs Elwyne Papworth, Submission no. 74, p. 7.

36 Amateur Beekeepers Society of South Australia, Submission no. 19, p. 4.

37 Tasmanian Department of Primary Industries and Water, Submission no. 72, p. 4.

Access to privately managed areas of native flora is declining. This access problem could be rectified by making future access to Federal funds for revegetation and conservation activities on private land provisional on the inclusion of local pre-European “bee friendly” vegetation and that such vegetation is available to the honeybee industry. Similar consideration could also be given to plantations intended for use in the event of carbon trading.³⁸

3.38 The South Australian Government recommended:

Review[ing] the potential to make Federal Government funds for revegetation land conservation activities provisional on the inclusion of local pre-European “bee friendly” vegetation that is available to industry.³⁹

Environmental impact of the honey bee industry

3.39 The environmental impact of the honey bee industry has two facets – the environmental impact of the European honey bee in the Australian environment; and the environmental impact of managed bees upon the natural environment.

3.40 In its submission, CSIRO identified three classes of potential impacts of European honey bees in the Australian environment:

- Competition with native species for floral resources;
- Changes in reproduction by native plants; and
- Competition with native species for nesting sites.

3.41 On the first point, CSIRO notes:

There have been numerous studies from around the world showing that when honey bees are present, native bee visitation rates are reduced. Unfortunately, this research does not answer the fundamental question regarding the long term survival of these native species in response to honey bee competition. Only by looking at reproduction, survival, or population levels can one really answer this question. Recently researchers have focused on the reproduction of native bees when honey bees are present. Two studies, one of which was conducted in Australia, show a negative

38 Government of South Australia, Submission no. 73, p. 8.

39 Government of South Australia, Submission no. 73, p. 8.

impact of honey bees on natives (Paini and Roberts 2005; Thomson 2004), and two others found no impact (Paini *et al.* 2005; Spessa 1999).

Honey bees might also compete with large animals, such as nectar-feeding birds. Paton (1993) showed that honeyeater feeding behaviour is affected by the presence of honey bees, such that birds travelled further to collect nectar. To our knowledge no researcher has investigated the impact of honey bees on native marsupial pollinators.⁴⁰

3.42 On the second point, CSIRO notes:

Honey bees have distinctive behaviours that mean they may cause patterns of plant pollination that differ from the native pollinators. Studies of different plant species have shown different kinds of effects, with honey bees diminishing pollination of some species and enhancing pollination of others (Gross & Mackay 1998). Honey bee pollination can also affect patterns of gene flow, such that their pollination increases the frequency of mating over short distances rather than long distances (England *et al.* 2001) which could lead to inbreeding effects.⁴¹

3.43 On the third point, CSIRO notes:

It has been shown that bees select similar hollows to some endangered species (Oldroyd *et al.* 1994), and some endangered vertebrates are limited by the availability of hollows (Lindenmayer *et al.* 2002). There have been two cases reported where nests of the white-tailed cockatoo failed as a result of swarming honey bees (Saunders 1979). Honey bees are also known to occupy caves, where they could affect roosting of bat species.

Whereas affects on plant reproduction and competition for floral resources might occur with managed or feral bees, competition for nesting sites is exclusively linked to feral honey bees. From a management point of view, bees in commercial hives can be withdrawn if problems arise. The feral population, however, is more or less entrenched. While feral honey bees obviously derive from the domestic managed population, there is very little data available to show whether the managed bee population continues to support the feral populations. It might be that placing bee hives in native vegetation significantly increases the size and stability of

40 CSIRO, Submission no. 33, pp. 14–15.

41 CSIRO, Submission no. 33, p. 15.

the feral bee population, but more research is needed on this matter.

The scientific literature shows that negative biodiversity impacts of honey bees have been documented in some cases. In addition, it shows that negative effects will not be felt in all sites at all times. Indeed some studies suggest that in some times, particularly when nectar is very abundant, competition with native fauna is low (Paton 1999). In other words it is false to suggest honey bees will never have negative effects on nature conservation, just as it is false to suggest that they will have serious negative impacts in all circumstances. The key question for the future is to determine where and when the risk of negative impact is such that it is incompatible with nature conservation, and conversely where the impacts likely to be compatible with the designated land use.⁴²

- 3.44 The extent of the impact, if any, of the European honey bee in the Australian environment has been the subject of some debate in the evidence put to the committee.
- 3.45 In his submission, Mr John Tadman, a Queensland beekeeper, questioned the relevance of this issue, arguing that honey bees had been in the environment for so long that any damage they were going to do had already been done and that honey bees were now a part of the Australian environment. He stated:

The important points out of all this are:

- Feral *Apis mellifera* had spread throughout Australia wherever the vegetation and water supplies have suited them, by the mid-1800s.
- Any adverse effect on the native flora and fauna caused by the honey bee *Apis mellifera* has had at least 150 years in which to occur.
- In all probability any conceivable damage has already happened, so there is little point in banning honey bees from conservation areas.
- Conversely, there could well be an advantage in keeping either feral or managed hives of *Apis mellifera* in conservation areas for the benefit of native flora in case the natural pollinators of some native flora have been displaced by *Apis mellifera*.
- Where vegetation types have been fragmented, *Apis mellifera* with its foraging radius of five kilometres, is better able to carry pollen between remnant fragments of forest than any of the

42 CSIRO, Submission no. 33, p. 15.

native insect pollinators. It could therefore be critical to the survival of endangered plant species.

- Consequently, there could well be an advantage in keeping either feral or managed hives of *Apis mellifera* in conservation areas for the benefit of native flora in case the natural pollinators of some key native flora have been displaced by *Apis mellifera*.
- Feral bees have been providing free pollination to crop growers in most regions for the best part of 150 years, but this is beginning to change as the habitat for ferals is being removed. Also, the free pollination service of the ferals could disappear suddenly if biosecurity is breached.
- The failure of native insects to pollinate the early settlers' crops (when cultivations were surrounded by bush) holds out little hope that alternative pollinators can be found within Australia.
- The introduction of new exotic species is always fraught with danger.⁴³

3.46 In his evidence before the committee, Mr Trevor Weatherhead, a beekeeper from Queensland, noted that in his experience native bees and honey bees co-existed happily. He argued that the biggest threat to native bees was habitat destruction:

With the native bee – the trigona – there are records of people rescuing hives out of trees and finding native bees and European honey bees working out of a hole in a tree, using exactly the same entrance. It is not uncommon to find them in the same tree together. When I kept native bees before the drought, when they died off, we had situations where native bees were living side by side with honey bees. I see no real threat to either one. They certainly coexist. There are plenty of cases of beekeepers who have both. They keep the trigona basically as a hobby. There are no published papers that I am aware of that show that there are any problems with having one or the other. They always bring up the competition angle with it. The biggest threat to the native bee population in Queensland is clearing. There is a service in Ipswich where fellows go out and rescue native beehives from trees before subdivision and before people cut down trees for firewood. They like to get the dead, high trees for firewood, and that is where the bees are. From the point of view of a threat to the native bee – the trigona – the honey bee, in my opinion, is not a threat.⁴⁴

43 Mr John Tadman, Submission no. 30, pp. 11-12.

44 Mr Trevor Weatherhead, *Transcript of Evidence*, 10 August 2007, p. 60.

- 3.47 In his evidence before the committee, Mr Des Cannon, beekeeper and chairman of RIRDC's Honeybee Research and Development Committee, noted that the European honey bee might actually be benefiting native flora. He stated:

...studies have been done that show that in some cases native pollinators do not pollinate eucalypts as effectively as European honeybees. There is less seed set per tree and the seed that is set is more viable when European honeybees are used as the pollinators.⁴⁵

- 3.48 In a similar vein, the Department of Agriculture and Food, Western Australia, noted in its submission:

Honeybees are recognised as important pollinators of Western Bluegums (*Eucalyptus globulus*) which provide seeds to grow large numbers of seedlings the private and state forestry operations. The use of the Jarrah forest belt of WA by beekeepers ensures the trees have plenty of seed to disperse. The benefit of bees to forest trees requires further research to quantify that interaction. A recent DAFWA project has shown that honey from the Jarrah forest has effective levels of antimicrobial activity and therefore there is an additional community health benefit associated with bees having access to forests.⁴⁶

- 3.49 In evidence before the committee, Mr Weatherhead downplayed the role of honey bees in the cross-pollination of native flora, noting that there was evidence of hybridisation predating the presence of European honey bees:

They say that bees will cross-pollinate in things like eucalypts, but in a previous life I worked in the forestry department, and I know that there are many records of botanical identification of trees within Australia back in the 1800s where they named new species of trees and later on found out that they were hybrids between trees. Taking into account that the first European bees came into Australia in 1822, and those trees in the 1800s would have been hundreds of years old, it certainly was not honey bees that caused those trees to hybridise. There is certainly plenty of other native fauna out there that contribute to the crosspollination of particular species and hybridisation of species without needing any help at all from the honey bees.⁴⁷

45 Mr Des Cannon, *Transcript of Evidence*, 8 August 2007, p. 7.

46 Department of Agriculture and Food, Western Australia, Submission no. 24, p. 3.

47 Mr Trevor Weatherhead, *Transcript of Evidence*, 10 August 2007, pp. 60-1.

3.50 Mr Allan Baker, a Western Australian beekeeper, observed that ‘in badly fragmented landscapes where natural pollinators have been lost Honey Bees may now be the only way that many native plants in remnant bush can reproduce’.⁴⁸

3.51 However, Mr Baker also emphasised that feral honey bees had a significant impact upon the environment, especially in competing with native birds for nesting sites:

Bee-keeping has an environmental impact and much of it occurs on public land. As such the industry should be responsible and accountable for the sustainable use of the natural resources upon which it depends. Currently the industry has a “head in the sand” attitude with respect to environmental issues. An environmental (Environmental Management System) needs to be introduced (complementing BeeQual on the food safety side) as a condition of access to apiary sites on crown lands.

Feral Honeybees are becoming a significant conservation issue, usurping tree hollows normally used by native wildlife including threatened species such as our Black Cockatoos. This problem has become more serious recently due in part to the impact of Canola crops on bee swarming behaviour and possibly on genetic changes in feral populations. Genetically poor domestic bees are also more likely to swarm and behave aggressively.

Living in the area for a number of years, I have removed over seven hundred colonies from all sorts of objects and situations. I have developed a passive method of extracting worker bees from wild hives in tree hollows thus eradicating the feral hives. I am now actively involved in programs to manage feral bees in important natural habitat areas using my knowledge of bee behaviour. This includes working with the Cockatoo Care Program, removing bees from tree hollows which are nesting areas for Cockatoos with Mr Ron Johnson from the Western Australian Museum.⁴⁹

3.52 The Department of Environment and Conservation, Western Australia, took the view that feral bees were an environmental pest that had to be managed. In an attachment to its submission entitled *Development of a Feral bee Control Strategy for Western Australia*, the department noted:

48 Mr Allan Baker, Submission no. 53, p. 2.

49 Mr Allan Baker, Submission no. 53, pp. 1-2.

The European honey bee (*Apis mellifera*) is an exotic species that was introduced into Western Australia in the 1840s. Although they are the same species, feral bees differ from managed bees. Feral bees are those that have escaped from a managed apiary hive to establish unmanaged hives in many areas of the State. Feral bees are generally aggressive, have a tendency to swarm and they are of little value for commercial honey production or for pollination of crops.

In Western Australia feral bees compete with native birds, mammals and invertebrates for floral resources (nectar and pollen), disrupt natural pollination and seed set processes, aid in the spread and establishment of introduced weeds and compete with a range of native birds and mammals that are dependant on hollows in trees for shelter or nests. Feral bees also compete with managed bees for nectar and pollen resources and represent a considerable risk to the commercial apiculture industry in the event of the introduction of any one of a range of exotic diseases that affect honeybees and that are not currently present in Western Australia or Australia.

Research conducted in New Zealand showed that feral bees could effectively be controlled by using a small amount of pesticide presented with a sugar solution in a specially designed bait station. The study found that depending on the season, feral bees within a 500m radius were attracted to the bait stations quickly and in large numbers. The study also found that if an average 11% of the bees in a nucleus colony consumed a sugar solution containing pesticide, the entire colony would die.⁵⁰

3.53 In its submission, the Department of Environment and Conservation, Western Australia, noted its progress with the Feral Bee Control Strategy:

Stage One has been completed in partnership with the Water Corporation. DEC trials are continuing, using remote poisoning for large scale programs and in situations where the location of feral hives cannot be determined or accessed. Baiting trials have been conducted at three sites, with effective control of feral hives being observed. The Department has developed a Standard Operational Procedures (SOP) manual for feral bee control based on the results of the trials conducted during the program. The SOP considers the impact and risks to non-target species and the relevant

50 Department of Environment and Conservation, Western Australia, Attachment to Submission no. 84, *Development of a Feral Bee Control Strategy for Western Australia*.

occupational health and safety requirements for efficient baiting of feral bees using the pesticide.⁵¹

- 3.54 The other aspect of the question is the environmental impact of managed bees upon the natural environment. In his submission, Mr John Edmonds, a Victorian beekeeper, referred to research which indicated that managed bees had little or no impact upon the natural environment:

Research will prove that when the trees are in full flower and weather is suitable nectar secretion is unlimited and there is more nectar available than can be used by native birds, bees and the honeybees. Research conducted by Latrobe University in approx 1990 at Cobobonee State Forest proved that managed honeybees did not reduce available nectar for native bees; in fact the greater numbers of native bees were where the largest commercial apiaries were located. The main reason this occurs is because the insect eating birds and insects prefer to catch and eat the honeybee, and the species do not compete as they have differing preferences for nectar sugar composition. As far as I know because this research did not suit the environmentalists it has never been published.⁵²

- 3.55 In evidence before the committee, Mr Linton Briggs elaborated:

...as far as research targeted specifically to the operations of migratory commercial beekeepers is concerned, not much work has been done. The most important work that has been done in that regard was in south-western Victoria in the early nineties, where the World Wildlife Fund, cooperating with the La Trobe University in Victoria and the Victorian Apiarists Association, cooperating with what was in those days the department of conservation, forests and lands put together a design which, if implemented, would test the hypothesis for honey bees being managed according to the migratory principle. Bearing in mind that our operations are tuned to the sporadic flowering behaviour of eucalypts in particular, you might be in there for only six weeks for a particular eucalypt and then maybe every third, fourth or fifth year, or whatever. So the design was specifically tailored to accommodate that – usually when there is a super-abundance of nectar and pollen in any case.

Within the body of the document I have described and will seek permission to table you will see where that research is discussed.

51 Department of Environment and Conservation, Western Australia, Submission no. 84, p. 1.

52 Mr John Edmonds, Submission no. 23, p. 2.

The outcome of that research showed that it was expected by the scientific community that an adverse impact would be recorded, particularly in the native bee population – and there are four specific species in the south-western Victoria environment. That environment was selected because native bees and their reproduction were seen to be a very sensitive indicator of an adverse impact.

The outcome of that research showed that there was no adverse impact and, in fact, that the reproductive success of those four native bee populations was improved. Why? It was something that the members of the beekeeping industry, who work so closely with nature and are so tuned in to the dynamics that affect the biota, anticipated that this would be the case. Why? There are a couple of things. One is that there was a super-abundance of nectar. In the year of that research study, when *Eucalyptus obliqua* flowered – we have all heard of the Messmate eucalypt – it produced copious quantities of nectar and pollen. The contention in the industry was that the bringing in of many apiaries, thousands of colonies, into that particular forest system, for that specific nectar flow, took off only a portion of the crop and that, with the super-abundance of nectar and pollen, the presence of the honey bees nipping off a portion of the nectar had no effect on the biota – the native bees, all the rest of the native invertebrates and nectar feeding birds.

The other issue was that we anticipated that the honey bee populations coming into that forest system would bring in many hundreds of thousands of insects. Many honey bees die out in the field on their last flight and the predation that would normally be there chewing away at the native bee population was suddenly eased by the presence of a lot of additional food in the environment, so much so that the outcome was quite astonishing to the researchers but not to the industry. That is an example of why it is important to get the design right, certainly not to do research when there is a dearth of nectar out in the forests. It is very important that you do not bring honey bee apiaries into a research project and superimpose them on the environment when there is very low nectar production – because the eucalypts are not flowering – because you would be creating a bias or skew which could hurt you. We noticed one of the conclusions from the rural skills inquiry was that there should be a national group of stakeholders convened to have a look at this whole question of access around Australia with the view that policies may be

developed. We are all aware of the inherent problems with state and federal governments, more today perhaps than at any other time in our recent history. That is why we are very determined to put together a group of stakeholders and have a look at this with a view to developing harmonious policies around Australia.⁵³

- 3.56 Nevertheless, the industry recognised that in order to justify access to public lands it needed to develop a National Code of Conduct (NCC) and an Environmental Management System (EMS) for the industry. In its submission, AHBIC stated:

In order to reduce the risk from declining access to public lands, the industry has already developed an action plan to drive it towards a national code of conduct and then on to an Environmental Management System (EMS). This includes the establishment of a management industry steering committee, an industry reference group (made up of various industry participants across the entire supply chain), and an industry scientific environmental advisory group. Furthermore the industry held a workshop with industry representatives to discuss the development and implementation of a national code of conduct and the subsequent introduction of an EMS once the code has been implemented. In June 2006, the industry received funding from stage two of the Industry Partnership Program (IPP) to develop a national code of conduct for those working on public land, and has been developing such a code for the last nine months.⁵⁴

- 3.57 In its submission, the Department of Agriculture and Food, Western Australia, also highlighted the need for an EMS for the industry:

Western Australian beekeepers had a 'no new sites' policy implemented in 1992. A moratorium on the issue of new sites had been in place five years and at the time beekeepers were given an assurance that a decision would be made after research had been concluded on the subject of honey bees in the environment. The moratorium is still in place 15 years later.

The apiculture industry will require sound, professional and well-presented arguments and will need to establish its own environmental credentials through the adoption of an Environmental Management System (EMS) to halt further

53 Mr Linton Briggs, *Transcript of Evidence*, 25 July 2007, pp. 6–7.

54 AHBIC, Submission no. 56, p. 26.

restrictions on access to the national parks and nature reserves and to demonstrate that the current policy can be reversed.⁵⁵

- 3.58 In evidence before the committee, the Commonwealth Department of Agriculture, Fisheries and Forestry pointed to the importance of the National Code of Conduct to the future viability of the industry:

One of the purposes of this environmental code of conduct project is to provide assurances of the environmental sustainability of the industry and, therefore, to help access to public land so beekeepers can demonstrate their environmental credentials and I guess reduce some of the concerns that the keepers of those public lands may have about having beekeepers on that public land. That is one part of it. It is probably not the whole solution, but it is certainly part of the solution there.⁵⁶

- 3.59 In its submission, the South Australian Government argued for more research into the impact of managed bees on the natural environment to underpin the environmental credibility of the industry:

To ensure that future negotiations for land access are based on scientific data, research funds are needed to measure the impact of managed beehives on different ecosystems. It is arguable that the South Australian honeybee industry's relatively stable access to crown land is the result of such research undertaken in the Ngarkat Conservation Park.⁵⁷

- 3.60 In its submission, CSIRO also argued for more research into the impact of bees on native flora and fauna:

A key issue confronting beekeepers is the environmental concern around the perceived impact of honey bees on native flora and fauna and weeds. However, the knowledge upon which this is based has been drawn from a narrow range where vested interests have exposed the process to accusations of framing, context dependence and motivational bias. This opens the area to bias and misleading prioritisation. A key set of questions needs to be answered before issues such as access to floral resources can be dealt with effectively. These questions include, what are the population dynamics of the feral honey bee population? How much will varroa change this? To what degree are feral

55 Department of Agriculture and Food, Western Australia, Submission no. 24, p. 3.

56 Ms Victoria Anderson, General Manager, Industry Leadership and Development Branch, DAFF, *Transcript of Evidence*, 13 June 2007, p. 6.

57 Government of South Australia, Submission no. 73, p. 8.

populations dependent on the managed populations for re-colonization? What plant communities and animal species are most vulnerable to negative effects of feral honey bees?⁵⁸

- 3.61 However, the committee notes that the question of researching the impact of honey bees on the natural environment is an issue of some controversy. In his submission, Mr John Tadman, a Queensland beekeeper, argued that the 'question of environmental impacts of bees in National Parks is a giant red herring. Feral bees have been in National Parks for 150 years, and any considerations of good or harm are now purely academic'. He urged that research funding be concentrated on other areas rather than trying to prove a negative – that bees have had no serious or irreversible effects on the environment in which they are now an established fact.⁵⁹
- 3.62 Mr Robert McDonald, a beekeeper and President of the Beekeepers Branch of the Victorian Farmers Federation was also sceptical of the value of research into the impact of bees in the environment:

I am not prepared to say much off the top of my head as to which lines of research, except that I have got huge problems with pouring a lot of money into research into the effect of European honey bees on our native ecosystem. In my opinion, there have been quite a few good research projects done that have proved fairly conclusively that there is no effect. Generally land managers will not accept the results of such research. The attitude seems to be, when the land managers talk about doing further research, that 'we want to do some research until we can find a negative impact so we can limit your access'. In some submissions that I have done in relation to management plans, I note they always say in these management plans that there is a need for more research into the impact of European honey bees on the native ecosystem. So in my submissions I always say, 'So you should accept the results of the research that has already been done and which we have put in front of you quite often. You won't accept them, so I cannot feel any need for any more research.'⁶⁰

58 CSIRO, Submission no. 33, p. 16.

59 Mr John Tadman, Submission no. 30, p. 23.

60 Mr Robert McDonald, President, Beekeepers Branch, VFF Horticulture Group, *Transcript of Evidence*, 25 July 2007, pp. 18–19.

Bushfires

- 3.63 Bushfires have a significant effect on the Australian honey bee industry. As the Victorian Apiarists' Association noted in its submission, loss of honey producing flora and viable bee sites through fire is a major issue for apiarists:

Since 2002–03, major bushfires in North Eastern Victoria, Central Victoria and Gippsland have impacted in some cases severely on native flora and beekeeping industry prospects.

Impacts on preferred nectar yielding forest flora range from little crown damage, severe crown damage, to destruction of mature eucalypts. Where little crown damage has occurred, potential for production could return in 2–3 years. Where severe crown damage has occurred, full recovery could be as far away as 8–10 years. Where mature trees have fallen, replacement species regenerating will not be useful for production for something like 25–30 years.⁶¹

- 3.64 The evidence presented to the committee indicates that fire management is a major source of contention between the honey bee industry and land managers. Solutions to the problems of how and when to conduct controlled burns of native bushland and management of wildfires seemed to have defied agreement in all States. Mr Peter McDonald, a Victorian beekeeper, explained in his submission:

Bushfires affect us greatly. The loss of the flora to everyday Australians is only temporary, they generally recover relatively quickly. However, they take much longer to recover in terms of beekeeping and we may be unable to use the resource again for 10 or more years and the trees re-grow.

We are the same as all other forest users in that we want the forest managers to keep the forests safe from bushfires. They must ensure that clear communication of fuel reduction burns to achieve this aim is given and be prepared to listen to beekeepers that request changes to these plans if they conflict with major flowering events occur. Whilst fuel reduction can be flexible at times, we are at the mercy of the weather and climate and trees for the timing of honey flows.⁶²

61 Victorian Apiarists' Association, Submission no. 71, p. 38.

62 Mr Peter McDonald, Submission no. 45, p. 4.

- 3.65 In his evidence to the committee, Mr Peter Barnes, a Queensland Beekeeper and member of the Queensland Beekeepers' Association (QBA) executive, highlighted problems in that State with fire management:

...it is a widespread problem. You now have guys coming out of university, the EPA and National Parks, and they get to manage the large areas of forest. We find that Forestry do an exceptional job when it comes to burning and that sort of thing, but the problem is that there is a history of a lot of these places going from Forestry to National Parks. I will give you an example. About six years ago, we had a load of bees burnt on Kandanga State Forest, which is at the back of Gympie. That fire had been reported to National Parks on 10 separate occasions over 15 days before the humidity got down to 10. We actually had our bees on burnt ground and it got them as well. This is not uncommon.

Another case was in the Condamine area. They did a controlled burn and the wind got up the next day. It is just lack of preparedness, we find quite often, on the part of the rural fire brigade where you have a major fire. You have blokes that, on paper, have lovely fire credentials but when you come down and question them they are from the marine park part of the government or other areas, and they are shipped in from other places to fight these fires and they know nothing about the vegetation or areas. This in my opinion is the reason why these fires are getting away.

We have large areas of jelly bush down in Tinnanbar that were control burnt during conditions when it should not have been, and those areas were wiped out for eight to 10 years because of very poor management. The government has a policy that they only burn between certain months in the year. I believe that is all fine and good until you come to the stage where it might be a very dry year and they still conduct their burning. If they have a bad reputation in burning, it has to be looked at in terms of, 'What can we do to burn these areas in the right conditions, no matter what time of year it is?' and in consultation with the beekeepers.⁶³

- 3.66 In its submission, the Western Australian Beekeepers' Association noted:

In WA the industry maintains a very good relationship with the state Department of Environment and Conservation, (DEC), who are responsible for management of our state forests and the

63 Mr Peter Barnes, *Transcript of Evidence*, 10 August 2007, p. 49.

conservation estate. Generally very few problems arise that can't be resolved to our mutual satisfaction. Perhaps the one area causing most angst relates to fire events; both controlled hazard reduction burns and wildfires. Given the rainfall reductions WA has experienced in the past decade, this situation is more likely to worsen than improve. DEC has a very good system of prior written notice to beekeepers about planned hazard reduction burns affecting apiary sites, which enables forward planning for sites that will be available during particular honey flows, (although it is not a rare event for this system to break down!). Depending on the vegetation type, some flexibility in timing of the burn can usually be negotiated. However as our landscape becomes drier with time, recovery of some burnt areas is taking longer. This same drying phenomenon places even greater emphasis on the importance of hazard reduction burns to the wider community, and to a degree restricts the ability of the agency to be flexible towards beekeepers' desires for these burns to not proceed at the scheduled time. This will remain an issue for negotiation between the industry and DEC.⁶⁴

- 3.67 In his submission, Mr Allan Baker, a Western Australian beekeeper, told the committee:

Bushfires and burning policies have also had a significant impact on the bee-keeping resource in my area.

The fighting of fires has left much to be desired and the defence of active apiary sites during fires has not been a priority.⁶⁵

- 3.68 In its submission, the New South Wales Government acknowledged the concerns of beekeepers, but highlighted the conflicting priorities of land managers and differences within the honey bee industry over timing and methods for controlled burning:

Bushfires can devastate an area for many years regarding its potential productivity for bees. Banksia heath country may take seven years to recover, eucalypts possibly several decades.

It is notable that the industry is divided over the impacts of bushfire. Some apiarists prefer long un-burnt heath, claiming it contributes positively to the production of royal jelly, while others prefer more frequently burnt foraging areas.

64 Western Australian Beekeepers' Association, Submission no. 32, pp. 14-15.

65 Mr Allan Baker, Submission no. 53, p. 3.

Whilst the NSW Government supports the honey bee industry, conservation of the natural environment, flora and fauna is the primary objective of land management in nature reserves and National Parks, and at times may impact on beekeeping. Fire management planning in National Parks involves managing the risk of wildfire, as well as optimising the likelihood of achieving ecologically appropriate fire regimes. Hazard reduction regimes to achieve these goals may not always be consistent with apiarists' preferred outcomes. Where possible, apiarists are notified in advance of proposed hazard reduction burning and trail maintenance.

In the event of a wildfire, apiarists with sites in National Parks are notified where possible but priority is given to conserving park values and protecting life.⁶⁶

3.69 In its submission, the Department of Environment and Conservation, Western Australia, highlighted the importance of prescribed burning for fire management:

- Western Australia has a very fire prone climate;
- there is a high incidence of fires due to human causes (70+% and lightning (up to 40%);
- fire is a natural and integral factor in the landscape, which has and will continue to influence the nature of vegetated landscape and biodiversity;
- in the absence of adequate fuel reduction by prescribed burning, the incidence, extent, severity and impacts of wildfires on community assets, natural values, biodiversity (and the honey production industry) would be significant;
- the prescribed burning program applied by DEC has ensured that the impact of wildfires on honey production is very low. On average the area of State forest/timber reserves affected by wildfires each year is less than 15,000 hectares or only 0.06% of the DEC-managed estate;
- DEC will attempt to accommodate the needs of honey producers in peak honey flow years by either modifying or delaying some burns that are of lower priority for community protection;
- the Spring burns are generally of very low intensities and have little impact on the tree crowns;
- in its 2004 review of CALM's [Department of Conservation and Land Management] fire policies and management practices, the Western Australian Environmental Protection Authority

66 NSW Government, Submission no. 79, pp. 7-8.

recognised that a fuel reduction programme is a key strategy used by CALM (now DEC) to reduce the extent and damage to biodiversity and other assets, which might otherwise be caused by wildfires.⁶⁷

- 3.70 In its submission, the Department of Agriculture and Food, Western Australia, highlighted the impact on apiarists of prescribed burning for fire management:

Bushfires are mainly started by lightening strikes. But the concern of beekeepers is the way prescribed burning of the forests and other bushland by conservation agencies to reduce fuel loads and thereby minimise risks of more severe fires. Often the prescribed burns are conducted in spring when the understorey plants are providing a source of pollen and nectar for the honeybees and when it's an 'on year' for some of our forest tree species. The majority of the eucalyptus species flower biennially. There is a light flowering one year followed by a heavy flowering in the second year. Prescribed burning may coincide with the year when trees are in heavy bud. The heat from fires forces the tree to drop buds and beekeepers (and wildlife in general) miss out on the expected heavy flowering. The cost to beekeepers can be significant. There seems to be no provision for variations in times of burning, so that heavy nectar flows can be exploited, before burning is undertaken, or arranging for burns to be conducted in light flowering conditions.⁶⁸

Committee conclusions

- 3.71 In the committee's view, a critical challenge facing the Australian honey bee industry is resource security. Access to floral resources underpins the viability of the honey bee industry. The principal sources of nectar and pollen for the production of honey and the maintenance of hive health are native forests species – especially eucalypts and leatherwood (Tasmania) – and some weed and crop species. Despite this, beekeeper access to native flora is under increasing pressure from land use change, declining access to public land, land clearing and the impact of bushfires.
- 3.72 The committee notes, and wishes to highlight, that the level of access to floral resources limits the size of the industry and therefore the capacity to

67 Department of Environment and Conservation, Western Australia, Submission no. 84, p. 2.

68 Department of Agriculture and Food, Western Australia, Submission no. 24, p. 5.

provide pollination services. Access to native flora is therefore essential to crop pollination in Australia. Much of our native flora is on public land, which is increasingly being locked away in national parks and nature reserves. *In the event of a Varroa incursion, beekeeper access to public land will be essential to the maintenance of many agricultural and horticultural industries.*

- 3.73 The committee therefore believes that giving beekeepers access to public lands is essential to the future of the honey bee industry and pollination dependent industries. Governments must ensure this to maintain the viability of major agricultural industries and to ensure the nation's food security.
- 3.74 In turn, access to public lands requires the industry to uphold environmental standards which protect the natural environment and minimise the impact of the industry upon it. The committee notes and endorses the industry's work towards a National Code of Conduct and the development of an Environmental Management System, supported by funding from the Australian Government. This is essential to beekeeper access to public land.
- 3.75 The committee also notes that the evidence for the environmental impact of honey bees on native flora and fauna is at best equivocal. There is evidence for both positive and negative impacts, but the overall picture is of a species that has become naturalised within the Australian environment and is now endemic to Australia. There is a case for managing certain environmental impacts, such as is happening in Western Australia, but no case for excluding the industry from public lands. The committee is of the view that the 'precautionary principle' should be reversed in the case of bees – that their exclusion should only be justified by positive evidence of environmental harm.
- 3.76 The committee also believes that revegetation schemes under the Natural Heritage Trust and plantations established for the purpose of obtaining carbon credits could be established under multi-use principles that would allow for 'bee friendly' plantings. The committee is of the view that the public investment is best justified by obtaining the broadest possible public benefit.
- 3.77 The committee is also concerned about the impact of bushfires and fire management upon the honey bee industry. While recognising the responsibility of land managers to a range of stakeholders, it would appear to the committee that land managers and beekeepers could quite easily coordinate and communicate with each other as to their respective needs, and that public lands could be better managed to protect the floral resources available to the industry and, therefore, to industry more widely.

Recommendation 5

- 3.78 The Committee recommends that the Australian Government, in conjunction with State and Territory governments, establish guidelines for beekeeper access to public lands and leasehold lands, including national parks, with a view to securing the floral resources of the Australian honey bee industry and pollination dependent industries.

Recommendation 6

- 3.79 The Committee recommends that the Australian Government provide incentives for the planting and conservation of melliferous flora under Commonwealth funded revegetation projects and carbon credit schemes.

Recommendation 7

- 3.80 The Committee recommends that the Australian Government fund research into the impact of fire management on the Australian honey bee industry with a view to establishing honey bee industry friendly fire management practices.

Biosecurity

- 4.1 The threat of pest and disease incursions is the most significant issue facing the honey bee industry and honey bee pollination dependent industries. Incursions of exotic bee pests and diseases have the potential to not only severely disrupt the honey bee industry, but also many of our agriculture and horticulture industries. Preventing the introduction of exotic pests and diseases must be a priority of governments and industry. Effective border security measures and strategies to deal with incursions are critical. Investment in research and development to identify and manage biosecurity threats is essential.
- 4.2 Furthermore, the industry faces a number of significant endemic disease threats. Endemic pests and diseases add considerably to the cost of production of honey, impact on the capacity to export live bees and other apiary products, create the need to impose domestic quarantine measures to prevent the spread of pests and diseases across Australia, and pose a threat to the industry's clean-green image through inappropriate use of antibiotics or chemical controls.

Exotic threats

- 4.3 The committee notes that there are a range of exotic pest and disease threats facing the Australian honey bee industry. The most immediate threat is an incursion of *Varroa destructor*. In its submission, AHBIC highlighted the potential costs of a *Varroa* incursion for the Australian honey bee industry:

Should the Varroa mite become established in Australia it would continue to spread rapidly unless very expensive control measures were enforced. Most colonies not treated with acaricide would be killed. Control costs for the pest would very substantially add to costs of production and would have a devastating effect on the industry. Most small beekeepers would probably find it uneconomic to continue beekeeping. This pest is to the beekeeping industry what foot and mouth disease is to the livestock industry.¹

4.4 AHBIC also highlighted the potential impact of Varroa on the Australian economy:

There are substantial costs to the Australian economy from a Varroa mite incursion. Rather than wiping out honeybees in one fell swoop, it is expected that the Varroa mite will decimate feral honeybee colonies but will spread more slowly through managed honeybee populations as apiarists, agriculturalists and horticulturalist change their behaviour in an attempt to minimise the loss. It is expected that despite these efforts, the cost to the agriculture and horticulture industries will be between \$21.9 million and \$51.4 million per annum (Cook et al, 2005).²

4.5 In its submission, CSIRO gave evidence on the nature and scale of the Varroa threat. CSIRO noted that:

The Varroa mite is considered the most serious global threat to beekeeping and is without question the most serious threat to the viability of the Australian honey bee industry. The mite is parasitic and feeds on the blood of adult and larval honey bees and reproduces on the bee brood. The mite also transmits viral and other pathogens, which rapidly kill entire bee colonies.³

4.6 The submission continues:

Varroa mite has been highly invasive around the world. It originated in the Japan - Korea region in 1950 and spread to Europe in the 1970s. In 1987, it turned up in the USA and in 1990 in South America followed by Africa in 1997 and New Zealand in 2000. The only agricultural regions in the world free of Varroa mite are Australia and PNG. Varroa is, however, in Indonesia. In countries where Varroa mite is established, feral honey bees have

1 AHBIC, Submission no. 56, p. 26.

2 AHBIC, Submission no. 56, p. 30.

3 CSIRO, Submission no. 33, p. 9.

been largely wiped out. In New Zealand feral bees virtually vanished from the North Island within four years of the invasion.

Australia is one of the few remaining regions in the world still free of this destructive mite. Since switching from its primary host, the Asian honey bee (*Apis cerana*) some 50-60 years ago, the mite has spread around the world. It entered New Zealand in 2000 and is also now threateningly close to Australia in east Indonesia. In all regions where the mite has become established hived honey bee colonies have been reduced by about 25%, feral honey bees have been eliminated and managed pollination services severely damaged and unable to meet the demand for pollination services.⁴

- 4.7 The submission notes that Australia is particularly vulnerable to a Varroa incursion because our agricultural industries are particularly reliant on pollination by feral honey bees:

The heavy reliance on feral honey bees has meant there has been a reduced demand for managed hives and, as a consequence, the managed pollination industry, by international standards is quite small and under developed. Given that the more numerous and sophisticated providers of managed hives in the USA and New Zealand have failed to keep pace with demand it is probable that those in Australia will be even less able. As a consequence the economic/market shock is likely to be greater and last longer.⁵

- 4.8 Besides the impact on agriculture, Varroa has other implications for the Australian honey bee industry. In her submission, Mrs Jodie Goldsworthy noted that:

Should this pest be introduced into Australia there would be significant management required to ensure new food safety risks associated with products used to control for this disease were properly managed and did not threaten the current perception of Australian honey as healthy food.⁶

- 4.9 Chemical contamination of honey and other apiary products was also raised by beekeepers Frank Malfroy, Tim Malfroy and Lewin Goodwin-Brickhill in their submission. They noted that the arrival of Varroa would have a significant impact on packaged bee exports and Australia's 'clean-green' status as a honey producer:

4 CSIRO, Submission no. 33, p. 9.

5 CSIRO, Submission no 33, p. 9.

6 Mrs Jodie Goldsworthy, Submission no. 69, p. 7.

The current boom in live bee exports is due primarily to the fact that we have healthy mite-free honeybee stock. The ability of Australian beekeepers to supply replacement colonies for overseas commercial pollination has enormous potential at present. This trade advantage would be lost if *Varroa* becomes established.

In addition, we are at present capable of supplying a chemical free honey (and other related bee products) to a discerning market both here and overseas. The current trend of consumers worldwide is towards buying 'organic' and chemical free produce. If *Varroa* enters Australia, beekeepers will need to start treating their hives with miticides, thereby greatly reducing our competitive advantage on the world market and the overall value of Australia honey and bee products.⁷

- 4.10 Dr Max Hunter, a Victorian beekeeper, highlighted the implications of Varroa for hobby beekeepers and home gardeners:

The catastrophic impact of an incursion of varroa mite to the side-line beekeeper needs to be highlighted, despite its slow spread through such managed beehives. Side-line beekeepers could lose their entire bee stock and therefore find it very difficult to recover because new stock would need to be purchased with no rebate from government. There is, however, a more devastating consequence to a varroa mite incursion. Feral beehives would die out and this could lead to a serious outbreak of hive robbing causing the uncontrolled spread of mite and disease to managed beehives, and also the incidental pollination by such feral hives would not be enjoyed by orchardists or field-crop farmers. Thus these growers would need to buy in honeybee hives for their crop pollination. Home gardeners mostly enjoy the incidental pollination (at no cost) of their fruit trees and vegetables by honeybees from neighbouring back-yards where side-line apiarists mostly keep their hives. Lack of honeybees from whatever cause will most likely result in this vegetation generating inferior or even no produce.⁸

- 4.11 CSIRO has done economic modelling to estimate the cost of a Varroa incursion to the Australian economy, stating in its submission:

Expressing results as an annual average, CSIRO estimates that the process of *V. destructor* naturalisation would cost Australian plant

7 Messrs Frank Malfroy, Tim Malfroy & Lewin Goodwin-Brickhill, Submission no. 35, p. 2.

8 Dr Maxwell Hunter, Submission no. 46, pp. 1-2.

industries between \$21.3 million and \$50.5 million per year over the next thirty years if no response were mounted after an incursion. This analysis focuses specifically on the costs not the value of losses directly attributable to varroa, taking into account the expected spread of the mite over time. It is important to note that this analysis is not attempting to put a figure specifically on the total value of production by crops pollinated by honey bees, but rather that it is estimating the amount that could be afforded to be spent each year in keeping varroa out of Australia.⁹

- 4.12 Aside from Varroa, there are a number of other significant exotic pest and disease threats facing Australia. The Asian bee mite, *Tropilaelaps* (*Tropilaelaps clareae*), represents a threat as great in magnitude as Varroa, although an incursion is less likely. Tracheal mite (*Acarapis woodi*) is another potential pest threat. Other exotic bee species such as the Asian Honey Bee (*Apis cerana*) and the Giant Honey Bee (*Apis dorsata*) also represent a significant threat, both as a vector for pests and diseases and as competitors for *Apis mellifera*. Incursions by African honey bees (*Apis mellifera scutellata*) or aggressive Africanised hybrids also represent a threat. Incursions of all three species have been detected in Australia (all were destroyed and there is no evidence of established colonies). Another significant and growing threat is from the still ill-defined Colony Collapse Disorder.
- 4.13 In its submission to the inquiry, CSIRO identified the Asian bee mite, *Tropilaelaps*, as the 'second most important threat to the viability of the Australian honey bee industry'. The primary host of *Tropilaelaps* is the Giant Honey Bee (*Apis dorsata*), which has been intercepted at Australian ports in the past, and is present to our near north. The mite is present in western New Guinea, having been introduced with colonies of *Apis mellifera* from Java. Attempts to eradicate the mite from New Guinea have failed.¹⁰
- 4.14 The Asian bee mite, like Varroa, is a parasite that feeds on the blood of bee larvae and reproduces on bee brood. According to CSIRO, 'the impact of the Asian bee mite establishing in Australia will be similar to that of the varroa mite, but worse, as the Asian bee mite is able to multiply and kill European honey bee colonies much faster than the varroa mite'. However, the risk of entry of the Asian bee mite is less than

9 CSIRO, Submission no 33, p. 10.

10 CSIRO, Submission no. 33, p. 13.

- that of *Varroa* as it cannot live and spread by attaching itself to adult bees, the most likely vector for pests and diseases entering Australia.¹¹
- 4.15 Tracheal mites (*Acaparis woodi*) live in the airways of adult bees feeding on bee blood. Infected bees die through suffocation or micro-organisms entering their blood through damaged airways. Severe infestations reduce the life span of individual bees and cause the death of entire bee colonies. The principal effect of a successful tracheal mite incursion would be economic hardship for beekeepers and the need to use chemicals to control infestations. The most likely vectors for an incursion are European or Asian honey bees arriving on a vessel at a port.¹²
- 4.16 Exotic bee species have the potential to have a significant impact on the Australian honey bee industry should a successful incursion occur. Incursions of a number of significant pest species have been detected and destroyed, the latest and perhaps most significant being the discovery in Cairns in May 2007 of several colonies of *Apis cerana*.
- 4.17 The African honey bee (*Apis mellifera scutellata*) is notorious for its aggressive behaviour. It also interbreeds readily with European honey bees, producing aggressive hybrids known as 'killer bees'.¹³ Keeping *Apis mellifera scutellata* and its hybridised progeny out of Australia requires not only careful border security, but diagnostic capabilities to detect africanised genes in imported breeding stock.¹⁴
- 4.18 Another African species, *Apis capensis*, has highly adaptive reproductive strategies which allow it to infiltrate European bee colonies and replace these populations with its own species.¹⁵
- 4.19 The Giant honey bee (*Apis dorsata*) is a native of Asia, a pest in its own right and host of *Tropilaelaps*.
- 4.20 The Asian honey bee (*Apis cerana*), is the original host of the *Varroa* species from which *Varroa destructor* evolved. According to the submission of the CSIRO, 'only populations from the Korea-Japan region carry the damaging forms of *Varroa destructor*. Other populations carry mites that are harmless to European honey bees.'¹⁶ *Apis cerana* is therefore unlikely to be the vector for the entry of *Varroa destructor* into

11 CSIRO, Submission no. 33, p. 13.

12 CSIRO, Submission no. 33, p. 14.

13 Victorian Apiarists' Association, Submission no. 71, p. 27.

14 CSIRO, Submission no. 33, p. 16

15 Victorian Apiarists' Association, Submission no. 71, p. 27.

16 CSIRO, Submission no. 33, p. 13.

Australia. It is nonetheless a significant pest in its own right. In its submission, CSIRO notes:

The establishment of the Asian honey bee in Australia would have a serious impact on Australian beekeepers. In Papua New Guinea and the Solomon Islands the bee has reduces hived European honey bee colonies through its aggressive foraging and robbing behaviour. Male Asian honey bees can also mate with European honey bee queens and reduce hive productivity. The bee has also become a major pest around cities and towns and, because it can nest in cavities much smaller than needed by swarms of the European honey bee, it has environmental concerns.¹⁷

4.21 The CSIRO submission further states that the ‘present incursion of the Asian honey bee at Cairns, together with almost annual arrivals of the bee at Australian ports since the late 1990s, shows just how real the risk of invasion by this bee is’.¹⁸

4.22 **The most significant exotic bee threat, however, is from incursions of *Apis mellifera* itself.** In its submission, the Victorian Apiarists’ Association noted that the ‘most likely conduit for incursions of *Varroa destructor* and *tropilaelaps clareae* to occur in Australia are through *Apis mellifera* arriving at Australian ports from South East Asia and pathogens remaining undetected, or through illegal smuggling of *Apis mellifera*’.¹⁹

4.23 Two other exotic threats also pose significant challenges for the Australian honey bee industry. The first is Colony Collapse Disorder, an as yet ill-defined condition which has blighted the honey bee industry in North America. In its submission, CSIRO noted:

Colony collapse disorder, or CCD, is a recent disorder of US honey bees. It was first reported in late 2006–early 2007 and, since then, it has been estimated to have wiped out up to a quarter of the US honey bee population. The disorder is characterized by the sudden disappearance of the worker bee population from a single bee colony followed by rapid collapse and death of the colony. The cause is not yet known, and several suspected causes are currently being investigated, including environmental stresses, malnutrition, unknown pathogens, mites, pesticides, emissions from cellular phones and genetically modified crops. There is no doubt that the

17 CSIRO, Submission no. 33, pp. 13–14.

18 CSIRO, Submission no. 33, p. 14.

19 Victorian Apiarists’ Association, Submission no. 71, p. 27.

impact of CCD on managed hives is quite severe, however to date the etiology remains undetermined and as a consequence it is not possible to assess the level of threat posed to the bee keeping industry in Australia.²⁰

- 4.24 In its submission, AHBIC noted that CCD represented a real threat to the Australian honey bee industry:

Although Australian beekeepers have not experienced colony collapse disorder, the unknown nature and the gradual spread of the disorder means it will be very hard to stop coming into the country or to control if there is an incursion. The impact this disorder has had on the US means any incursion into Australia is likely to significantly cost the industry and horticulture and agriculture industries that rely on pollination from honeybees.²¹

- 4.25 The other major risk is the apple disease fireblight. While bees are not affected directly by fireblight they are carriers of the disease. Bees found in fireblight affected areas are subject to destruction, a fact having significant implications for beekeepers providing pollination services. Several submissions alerted the committee to the issue of importation of apples from New Zealand, where fireblight is endemic, and the potential impact on Australian beekeepers should an outbreak occur. In her submission to the inquiry, Mrs Elwyne Papworth, a Victorian beekeeper, called for a plan of action to deal with outbreaks of fireblight and a scheme to compensate affected beekeepers.²²

Meeting the threat

- 4.26 The committee notes that the threat of an incursion by exotic pests and diseases, and their potential to wreak havoc upon the apiary industry and other parts of the agriculture sector, raise serious issues about Australia's ability to prevent incursions and manage them effectively once they occur. This is particularly the case with Varroa. In its submission, the Victorian Apiarists' Association highlighted the need for industry and government to prepare for a Varroa incursion:

20 CSIRO, Submission no. 33, p. 14.

21 AHBIC, Submission no. 56, p. 38.

22 Victorian Apiarists' Association, Submission no. 71, p. 31; Tasmanian Beekeepers' Association, Submission no. 63, p. 10; Mr Michael Leahy, Submission no. 61, p. 15; Mrs Elwyne Papworth, Submission no. 74, p. 6.

Australia is the only continental inhabited land mass in the world to remain free of *Varroa destructor*. Drawing from the experience of overseas beekeeping and agricultural communities, of necessity trying to cope with the parasite's impacts, the challenge can be seen to be formidable. It would not only be sensible, but the VAA considers imperative that Australian stakeholders sooner rather than later should begin to prepare for the day when this country has to contend with endemic *Varroa*. The primary goal of such effort has to be the development and implementation of strategies that will maintain Australian managed honeybee populations, a key primary dynamic of much of the nation's future food production, till the end of time. Australia will not be alone in this endeavour. The world beekeeping and agricultural communities and governments, bound by common need, are already working hard though research, training and other means in this endeavour. It is a challenge that will be successful, for it must be successful.²³

- 4.27 In its evidence to the committee, DAFF highlighted the various layers of biosecurity protecting the honey bee industry in Australia. DAFF plays a crucial role in the prevention and management of incursions of pests and diseases through quarantine and risk management. Areas of DAFF involved in biosecurity issues include Biosecurity Australia, the Australian Quarantine and Inspection Service (AQIS), the Product Integrity Animal and Plant Health (PIAPH) Division (including the Office of the Chief Veterinary Officer) and the Australian Biosecurity System for Primary Production and the Environment (AusBIOSEC) Taskforce.²⁴ Two other critical areas of government activity are the National Sentinel Hive Program (NSHP) and the bee quarantine facility (These will be dealt with separately below)
- 4.28 AHBIC is a member of both Animal Health Australia (AHA) and Plant Health Australia (PHA), which are the custodians of the Emergency Animal Disease Response Agreement in the case of AHA, and the Emergency Plant Pest Response Deed. The honey industry has also signed up to the Emergency Animal Disease Response Agreement (EADRA) for dealing with either competitor bees or diseases and so on, but it is not a party to the Emergency Plant Pest Response Deed.²⁵

23 Victorian Apiarists' Association, Submission no. 71, p. 23.

24 DAFF, Submission no. 20, p. 2.

25 Mr Steve McCutcheon, Executive Manager, Product Integrity Animal and Plant Health Division, DAFF, *Transcript of Evidence*, 13 June 2007, p. 10.

4.29 In its submission to the inquiry, DAFF explained the honey bee industry's place within the framework of the EADRA:

AHBIC is a party to the Emergency Animal Disease Response Agreement (EADRA) which commenced in 2002. The EADRA provides certainty in funding for emergency animal disease threats to Australia and the infrastructure to facilitate rapid and effective responses. The Australian Government, state and territory governments and affected animal industry members share the eligible costs incurred in responding to emergency animal diseases. Other industries party to the EADRA include: sheep, cattle, dairy, egg, chicken, goat, and pig.

AHBIC's funding liabilities under the EADRA are met through a statutory levy on honey – the Emergency Animal Disease Response levy (EADR levy). The operative rate for this levy is currently 0.5c/kg on honey, which is held in reserve by AHA on behalf of the industry.

The costs of responding to emergency animal diseases (EADs) are shared by the affected parties. Under the EADRA, EADs are classified into four categories and a cost sharing formula is applied to each category ranging from Category 1 (very high public benefits with 100 per cent government funding) to Category 4 (low public benefits with 20 per cent government funding and 80 per cent industry funding).

The EADRA is currently being reviewed in accordance with a requirement under its provisions. Issues being addressed include whether the EADRA is meeting its objective, coverage, and whether any changes are needed to address present and future needs. The AHBIC has asked that consideration be given to expanding the provisions of the arrangements to include honey bee pests. Currently the EADRA only covers emergency animal diseases, not pests.

The consultant carrying out the review is to report to all parties to the EADRA with recommendations. These recommendations will be considered by the parties in late May 2007 at a meeting convened by AHA.²⁶

4.30 The honey bee industry is also covered by the National Residue Survey (NRS):

26 DAFF, Submission no. 20, pp. 16–17.

The National Residue Survey (NRS) programme for honey, together with the increasing use of quality assurance testing by the industry and the establishment of a code of practice, provide assurance to Australia's trading partners and domestic consumers of the high level of compliance of Australia's honey with national and international standards. NRS results are the basis for the AQIS certification for compliance with the residue requirements of importing countries and Australian standards.

The NRS honey residue testing programmes cover a range of pesticides, metals, nitrofurans and chloramphenicol. Approximately 170 samples of honey will be collected in 2006-07. Sampling is conducted in each state on the basis of production volumes.

Residue testing programmes are managed in accordance with agreed arrangements between AHBIC, AQIS and NRS.²⁷

4.31 The industry is also protected by the Northern Australia Quarantine Strategy (NAQS):

The Northern Australia Quarantine Strategy (NAQS) programme carries out surveys in coastal areas from Cairns to Broome and overseas in Indonesia, Papua New Guinea and Timor Leste to identify targeted pests and diseases that may enter through natural movements. Exotic bees, *Apis cerana*, *Apis dorsata* and *Apis florea* and exotic bee parasites *Varroa destructor*, *Tropilaelaps clareae* and *Acarapis woodi* are included on the NAQS targeted list.

Surveillance for exotic bees and bee parasites is usually conducted in the course of general plant health surveys. During these surveys, bees are sampled when they are foraging flowering plants to check for exotic species and any parasitic burden. Bee swarms and tended hives are checked for bee parasites.²⁸

4.32 Despite the range of measures in place to protect the Australian honey bee industry from exotic pest and disease incursions, there is a strong sense within the industry that these measures are inadequate. In their submission, Queensland beekeepers Trevor and Marion Weatherhead highlighted two recent biosecurity failures impacting directly on the industry:

27 DAFF, Submission no. 20, p. 17.

28 DAFF, Submission no. 20, p. 20.

Australia has had two (2) breaches of quarantine in the past that have affected our industry. In the early 1990's chalkbrood (*Ascopheara apis*) was found in Queensland and has since become endemic in most of Australia. In 2002, the small hive beetle (*Aethina tumida*) was found in New South Wales and Queensland. These breaches have resulted in quarantine lapses of some kind and have been costly for our industry.²⁹

- 4.33 The discovery of Asian honey bees (*Apis cerana*) in Cairns in May 2007 also raised questions about the effectiveness of border protection measures. Mr Rex Carruthers, vice-president of the Queensland Beekeepers' Association, told the committee:

In May this year, *apis cerana* was discovered in Cairns. It is not my intention to criticise the Queensland government with regard to the way that this matter was handled, but rather that both government and industry should learn from the experience we had. I was directly involved with that incursion and a fair few things were done wrong.

The facts were that the Asian honey bees had arrived in Cairns undetected. They had set up in the port region for six months before they were discovered. If this hive of bees had been carrying varroa mites, the task ahead confronting government and industry would have been very expensive, not only in dollar terms but also in man-hours. Border security issues must be taken more seriously by all concerned. History shows that varroa, once in a country, is impossible to eradicate. So from an industry point of view – and, no doubt, from the broader community point of view – it makes sense to try to stop this pest crossing our borders rather than trying to deal with it when it gets here.³⁰

- 4.34 In evidence before the committee, Dr Max Whitten argued that the events in Cairns demonstrated that government agencies are simply not ready to effectively respond to an incursion:

So that you really understand what happens with the Asian honey bee situation: when a colony was detected like it was in Cairns, the electrician and the owner rang up the department, to be told, 'Go find a beekeeper,' or, 'Here's the name of a beekeeper to remove that,' because it was a nuisance hive. Luckily, that beekeeper was able to identify that it was the Asian honey bee. It was then a long

29 Trevor and Marion Weatherhead, Submission no. 42, p. 6.

30 Mr Rex Carruthers, *Transcript of Evidence*, 10 August 2007, p. 39.

weekend. You can talk to people here who were directly involved in that process. There was no preparedness. Nobody knew how to control that swarm. Nobody knew what to do with the material: where it was to go; how it was to be analysed. There were turf wars within the department here over advice from one part of the department to the other. AQIS at the time did not want to know about it because they regarded it as a post-entry issue and not their concern.³¹

- 4.35 For Dr Whitten and others the critical issue here was that if it had been an incursion of European honey bees, possibly carrying *Varroa*, it would have remained undetected. Dr Whitten explained:

The Asian honey bee I think was a minor risk compared to the European honey bee, and there are examples of detections of swarms in the Port of Brisbane where it was assumed that they came from local hives. If the mite is going to come into Australia it is likely to come in on the European honey bee. The empirical evidence is that we are not well prepared. Worse still, you will not get, I believe, honest and open advice from any of those organisations.³²

- 4.36 Mr Trevor Weatherhead also argued that the experience in Cairns emphasised serious weaknesses in Australia's border security measures. In a supplementary submission to the inquiry, he explained:

It has been recognised that the major threat to the beekeeping industry in Australia is the introduction of *Varroa destructor* and the most likely way is on our European honey bee *Apis mellifera*. There have been several instances at the Port of Brisbane where there have been swarms of European bees reported to the Queensland Department of Primary Industries (QDPI) and they have referred the enquirer onto a beekeeper to come and collect these bees. They assumed the bees had swarmed from a local hive or a feral hive in the mangroves.

I would submit that this is a high risk practice as these swarms could have come off a ship, from say New Zealand, and be carrying the *Varroa* mite. The action of the beekeeper helping out by collecting the swarm and taking it home would mean that the *Varroa* is spread immediately and this then reduces dramatically the chance of any eradication. In one instance, it was only the

31 Dr Max Whitten, *Transcript of Evidence*, 10 August 2007, p. 20.

32 Dr Max Whitten, *Transcript of Evidence*, 10 August 2007, p. 21.

beekeeper ringing me that alerted me to the situation and I was able to put appropriate actions in place.

There was also another occasion where there was swarm which established itself under a container at the port. The QDPI were sampling adult bees from this colony for mites. I raised the point that by the time they found phoretic mites, the mites would be at very high levels and would have already spread to other hives in the area. After consulting with an expert from New Zealand, they then destroyed this hive.

This shows that there is a lack of recognition of the threat to our industry by these swarms which appear at ports. I would submit that any swarms, or feral hives, found in the vicinity of a port in Queensland should be treated as suspect and be immediately sampled and destroyed. The present practice of asking beekeepers to collect these is not a good Biosecurity practice.

The same should apply in other ports in Australia.³³

- 4.37 Other concerns have been raised about the effectiveness of customs and quarantine services. In its submission, the South Australian Farmers' Federation expressed concern over perceived shortcomings in the Northern Australia Quarantine Strategy:

It has come to our attention that the NAQS is not adequately resourced and maintained, especially in the Northern Territory. One Apiary Officer for the entire NT is manifestly inadequate and it appears that the 'Readiness Team' of beekeepers (those who respond quickly to any incursion in NT) have left the industry.

We would recommend a thorough review of the Northern Australia Quarantine Strategy, specifically as it relates to bees, which would include resourcing and incursion response issues.³⁴

- 4.38 In evidence before the committee, Mr Julian Wolfhagen, president of the Tasmanian Beekeepers' Association, related an incident on returning to Australia from New Zealand of AQIS staff who were apparently ignorant of Varroa and the threat it posed,³⁵ an incident corroborated by Mr Peter McDonald, a Victorian beekeeper. Mr McDonald wrote in his submission:

33 Mr Trevor Weatherhead, Submission no. 87, p. 2.

34 South Australian Farmers' Federation, Submission no. 14, p. 3.

35 Mr Julian Wolfhagen, *Transcript of Evidence*, 3 September 2007, p. 9.

To assist in preventing an incursion in the first place, AQIS staff education is critical. When we returned from NZ, myself and a beekeeper from Tasmania had to explain and educate the AQIS staff there about what the Varroa Mite was and its potential impact on our industry. It astounded us that they didn't already know. They need to, now.³⁶

- 4.39 In evidence before the committee, Dr Ben McKee, representing Capilano Honey Limited, highlighted the potential impact of the loss of key personnel in biosecurity agencies, citing the example of AQIS:

An essential component of trade issues is the ongoing expertise and resources which are present within AQIS devoted to assisting companies such as Capilano with facilitating export and dealing with regulatory issues in international markets. I can recount many occasions on which we have had to seek the support of the Australian Quarantine and Inspection Service to support our positions on facilitating export. At present, a lady by the name of Jenny Barnes is a great resource for this industry. She is at retirement age, and I have some simple questions. Will she be replaced? What is the succession plan for that position? That position provides not only advice on quarantine issues but a significant commercial gain for the industry, and industry has to provide the incumbent or replacement a lot of education about some of the details of the industry so that AQIS can assist us in fighting battles overseas with regulatory authorities.³⁷

- 4.40 In their submission, Messrs Frank Malfroy, Tim Malfroy and Lewin Goodwin-Brickhill adverted to holes in Australia's biosecurity management at the state level, citing the management of the Small Hive Beetle (SHB) incursion:

There is great concern in the beekeeping community about the capabilities of Australian Quarantine to properly prevent and manage an outbreak. This outlook is a result of recent past failures to properly address the introduction of Small Hive Beetle.

The structure and capabilities of Bio-Security services is inadequate and needs to be reviewed. Currently AQIS contracts State DPI offices to carry out its Bio-Security duties, and at present there are not enough resources available for these agencies to carry out this function.

36 Mr Peter McDonald, Submission no. 45, p. 3.

37 Dr Ben McKee, *Transcript of Evidence*, 10 August 2007, p. 2.

In the case of the introduction of SHB, NSW DPI failed at every stage in dealing with this issue. To begin with, there were no staff trained to identify SHB which resulted in a 4 month delay in any initial response. Once it was formally identified, there was no clearly defined 'plan of action'. As if to cover their poor response, NSW DPI issued misleading information on the potential severity of SHB, causing confusion in the beekeeping industry and further hampering the control of SHB. There was also no clearly defined plan for compensation if the destruction of a beekeepers hives were necessary to limit the spread of SHB.

An enquiry into the gross failings of NSW DPI could have provided valuable information, and established a framework for the management of future incursions. We feel that Bio-Security is too important an issue to be left to the resources of State agencies. A separate Federal body needs to be established to manage such important issues.³⁸

- 4.41 The need to prepare for the arrival of Varroa through pre-registration of chemicals was also raised in several submissions. In its submission, the Central Victorian Apiarists Association stated:

As discussed, safe control options need to be developed and approved for use before these pests/diseases reach Australia. The industry will not have time to wait for them to be developed and approved for use once the problem is already in Australia. Although, there are control options for Varroa, most are based around chemical use in the hive. Most Australian apiarists would like to avoid using chemicals in the hive to maintain our "clean, green" product image and would therefore support further research into other possible control options – such as traps outside the hive for Small hive beetle.

Future costs of treating pest/disease could make many apiarists unviable. Financial support may be needed for apiarists to treat future pest/disease outbreaks such as Varroa mite to maintain a viable apicultural industry.³⁹

- 4.42 In their submission, Trevor and Marion Weatherhead informed the committee that:

Many years ago, Trevor worked with the late Dr. David Banks of Biosecurity Australia to have in place approvals for certain

38 Messrs Frank Malfroy, Tim Malfroy and Lewin Goodwin-Brickhill, Submission no. 35, p. 3.

39 CVAA, Submission no. 22, pp. 2-3.

treatments if varroa did happen to arrive in Australia. When varroa was found in New Zealand in 2000, it took so long for the approvals of the acaricides to be approved that many more hives, than were necessary, were lost to the mite.

Dr. Banks put in place the necessary paperwork so that if varroa did turn up in Australia, it would only have taken the stroke of a pen to have these acaricides approved for use by the beekeepers.

Trevor has recently made enquiries of the Australian Pesticides and Veterinary Medicines Authority (APVMA) to make sure this was still the case. The reply received was that it was not the place of APVMA to do this but it was Biosecurity Australia that would put this in place. Enquiries to Biosecurity Australia say this is not their job. So where do we now stand? It would seem that the process Dr. Banks put in place is no longer in existence. It would also seem that Australian beekeepers will suffer the same way that New Zealand beekeepers did in approvals not being at the ready to put in place when varroa arrives.

There are current approvals with APVMA for fluvalinate (Apistan), flumethrin (Bavaryl) and thymol (Apiguard) to be used in a diagnostic and surveillance mode but there is no approval for general use which is understandable as we do not have the mites at the present time.

We would ask that this Committee recommends that a pre approval process be put in place so that, if varroa arrives, immediate steps can be taken to start coping with this pest.⁴⁰

- 4.43 Information on response planning was also needed at the grassroots level. In its submission, the Central Victorian Apiarists Association stated:

Apiarists require information on what will occur if an outbreak occurs to better prepare them for an incursion. Decisions on whether or not eradication will be initiated should be made with protocols in place to follow. These decisions should be being made now and advertised to the Apiary industry so that everyone is aware of the policy that will be followed. For example, if moving of hives will be restricted or prohibited then apiarists can be factoring this into their management decisions. If eradication is not successful apiarists will need control measures which have already been approved for use in beehives in Australia. Research needs to

40 Trevor and Marion Weatherhead, Submission no. 42, p. 8.

be increased so that Apiarists have options available and the best advice to deal with any possible new problems.⁴¹

- 4.44 In his submission, Mr Lloyd Hancock, a hobby beekeeper from Queensland, noted the lack of information filtering to the grassroots level, stating:

One fact I would like to comment on is that if there is a plan of action in the event of an incursion of the Varroa mite then it has not been passed down to our beekeeping Assn. I would have thought it would be essential to have a plan worked out in advance so people will know how to react rather than wait until the pest has spread beyond any control.⁴²

- 4.45 In its submission, the South Australian Apiarists' Association noted that the following steps needed to be taken to prepare for pest and disease incursions:

- Exotic pests and diseases need stringent quarantine and surveillance (keeping pests and diseases out of Australia is more cost effective than eradication programs).
- Need to increase knowledge of management and identification of all apiary pests and diseases by apiarists.
- Requirement to have compulsory training in the identification and management of major pests and diseases.
- Recognised treatments of exotic pests and diseases must be pre-registered for use should an incursion occur.
- Readiness and incursion teams must be continued and all members highly trained.
- Reliant pollination industries need to be made aware of the affects exotic pests will have on our industry and gain support from them to strengthen our surveillance and preparedness.⁴³

- 4.46 One important biosecurity measure identified in the evidence is the registration of beekeepers, hives and bee sites. In its submission, the NSW Government stated:

The NSW *Apiaries Act 1985* establishes a regulatory system requiring owners to register their hives and display their

41 CVAA, Submission no. 22, p. 2.

42 Mr Lloyd Hancock, Submission no. 50, p. 4.

43 South Australian Apiarists' Association, Submission no. 7, pp. 2-3.

registration number on each hive. This assists with disease control and compliance with export requirements for some countries.⁴⁴

- 4.47 Registration is not compulsory in all jurisdictions. In its submission, the Geelong Beekeepers Club noted:

In Victoria approximately 2,000 beekeepers are registered and we estimate another 1,000 are not. This would make it harder to control a disease outbreak. An advertising campaign is required to locate unregistered beehives and the New Zealand idea of registering the locations bees are kept may be beneficial.⁴⁵

- 4.48 Registration of hives is also voluntary in Tasmania. Mr Peter Ewington, a beekeeper and apiary representative on the Forests and Forest Industry Council in Tasmania, stated that, 'We are doing fairly well in bringing most people in with voluntary registration, but the trouble is there are a lot of people out there who own beehives in backyards that are not part of our industry'; Mr Lindsay Bourke, President of the Tasmanian Crop Pollination Association and FFIC member, argued for that, 'All hive registrations in Tasmania should be compulsory because if we get an incursion of varroa we should know where to go to look for it and to protect it. That should be compulsory'.⁴⁶

- 4.49 Mr Robin Thompson, representing the Tasmanian Department of Primary Industries and Water, argued that registration was a matter of costs versus benefits. He explained:

It is all about risk management, I guess. Certainly, knowing where every hive was would be a very significant advantage. There is no point having a registration system unless you can police it, and that requires the input of resources. It is the same when we talk about FMD and whatever risks we might perceive. I think that increasing public awareness is perhaps the first step. If hobbyists can be signed up, if you like, in the context that they are contributing to biosecurity issues, it is the carrot and big stick sort of approach, in that we might bring them along with the carrot rather than the big stick.⁴⁷

- 4.50 He continued:

44 NSW Government, Submission no. 79, p. 3.

45 Geelong Beekeepers Club, Submission no. 64, p. 1.

46 Mr Peter Ewington, Mr Lindsay Bourke, *Transcript of Evidence*, 3 September 2007, p. 34.

47 Mr Robin Thompson, Tasmanian Department of Primary Industries and Water, *Transcript of Evidence*, 3 September 2007, p. 41.

You can use lots of instruments, I suppose, for getting practice change. There is a whole range from passive to legislation. As we said, legislation is perhaps the least preferred because it does require a lot of resources to enforce. If we can get some passive compliance then that is much better, but the whole gambit requires an injection of resources. I suppose, if you are taking a totally pragmatic view, resources for agriculture and the apiary industry are competing on a state basis with resources for health and education, and we know how high profile they are at the moment.⁴⁸

- 4.51 However, as Mr Gavin Jamieson explained to the committee, unregistered hives pose a real risk to biosecurity despite the best efforts of government and industry:

One of the other submitters, John Edmonds, is a beekeeper and ex-president of the Victorian Apiarists Association. He heads a group in Geelong that meets regularly. For 10 years he has been managing one of the national surveillance hives next to the Corio refinery in the vicinity of Geelong Grammar School, north of Corio itself. That sentinel hive is monitored on a monthly basis so that, if varroa, tracheal mites or one of several other things were to come in off a tanker, there would be an opportunity to deal with an early detection of the outbreak. There is a national program which is part funded by the Commonwealth and part funded by the state. That program has improved in recent years compared with what it was five, eight or 10 years ago. It is essential that adequate funding be given to maintain proper biosecurity. An illustration of this is that in the last couple of months John Edmonds, even though he is very knowledgeable about who keeps bees where, discovered in the vicinity of Geelong Grammar School 30 hives that he had never known to be there before. So we have one central hive doing its bit within the refinery grounds – and it is not easy to get occupational health and safety approval for entry to a refinery by a beekeeper when he needs to be there – and here is another group of hives that could already have unwittingly been the source of a disease outbreak and it is not being monitored. In New Zealand all bee sites are required to be registered. Wherever you put bees you are required to tell the government. That does not happen in Victoria. One of the things that Bob McDonald's son Peter said was that New Zealanders felt that that was a really valuable part of

48 Mr Robin Thompson, Tasmanian Department of Primary Industries and Water, *Transcript of Evidence*, 3 September 2007, p. 42.

attempting to control the varroa when it got to New Zealand because they knew where all the apiary sites were.⁴⁹

National Sentinel Hive Program

- 4.52 The National Sentinel Hive Program (NSHP) is Australia's principal means of border security against incursions of bee pests. Sentinel hives work by using miticidal strips to collect specimens of bee parasites for identification. The program was established in 2000, through consultation between Biosecurity Australia, state departments of primary industries and the honey bee industry, to enhance early detection of incursions of Varroa, Tropilaelaps, tracheal mite and the Asian honey bee. The program operates by locating sentinel hives in the vicinity of identified 'high risk' sea ports.
- 4.53 In 2006, the NSHP operated and inspected hives on a quarterly basis. There were:
- 37 inspections of log traps at seven different locations for Asian honey bees;
 - 105 hive inspections at 37 sites for external mites (Varroa, Tropilaelaps); and
 - 116 hive inspections at 34 sites for tracheal mites (*Acarapis woodi*).
- 4.54 No exotic insects or mites were detected.⁵⁰
- 4.55 In its submission, DAFF outlined the history and current status of the NSHP, stating:

The National Sentinel Hive Program (NSHP) was established in 2000 and until July 2006 was managed by Biosecurity Australia. Responsibility for the NSHP was then transferred to the Office of the Chief Veterinary Officer (OCVO) within DAFF. Many essential contributions from personnel in the programme are currently provided as uncosted in-kind contributions.

In February 2007, the Primary Industries Health Committee (endorsed by the Primary Industries Standing Committee (PISC)) agreed that DAFF should develop a business plan to detail and formalise the current operating arrangements for the NSHP. A draft version of the business plan is currently being prepared and will outline:

49 Mr Gavin Jamieson, *Transcript of Evidence*, 25 July 2007, p. 25.

50 DAFF, Submission no. 20, p. 15.

- a proposed funding model for the future;
- roles and responsibilities for jurisdictions and industries within the proposed revised NSHP that will be administered by Animal Health Australia (AHA);
- a work plan targeted at maintaining and enhancing activities conducted under the existing NSHP; and
- management (operational and funding) arrangements to achieve those ends.

Securing the future of the NSHP will require the adoption of the proposed business plan and a commitment to participation and funding by state and territory governments, AHA, and both the honey bee and horticultural industries.⁵¹

4.56 In a supplementary submission DAFF noted:

The draft business plan for the NSHP will shortly be submitted to Animal Health Committee for comment. This will commence the process of seeking endorsement and funding for the business plans from jurisdictions and industries. The business plan proposes that the fully funded NSHP commence on 1 July 2008 for an initial period of three years.⁵²

4.57 Several issues surrounding the funding and management of NSHP have been raised with the committee during the course of the inquiry.

4.58 In its submission, the Victorian Apiarists' Association was critical of the time being taken to renew the NSHP following the 2005 review of the program. The VAA argued for greater urgency in placing the program on a more permanent footing and increased resources:

Among this review's recommendations was that an analysis of the cost and benefits of the program be conducted, and who should pay for the cost of the program, including the operation over the long term. In 2006, responsibility for the program was transferred to the CVO, DAFF. The VAA understands that the Primary Industries Standing Committee in February 2007 agreed that DAFF should develop a business plan to map the future of the Sentinel Hive Program, and it should also conduct a review of the long term funding and the co-ordination of the program. The VAA submits while the bureaucracy grinds on, the urgency, the imminent risk factor has all but overtaken us, and concerted action is needed to strengthen quarantine and surveillance systems. The

51 DAFF, Submission no. 20, pp. 13–14.

52 DAFF, Submission no. 82, p. 10.

VAA submits, although the Australian honeybee industry is a key stakeholder, it has limited financial resources to contribute. The VAA submits, however, it has beekeeping industry participants living in all main coastal populations centres, some of whose expertise and honey bee colonies could easily be co-opted into an expanded sentinel hive program. As an adjunct to the sentinel hive program, the strategic deployment of pheromone equipped bait hives within or near port precincts would significantly strengthen surveillance procedures.⁵³

- 4.59 Likewise, in its submission, the Queensland Beekeepers' Association argued the need to increase the National Sentinel Hive Program:

A National Sentinel Hive Program was put in place in 2000. This consists of 'Sticky Mat' surveillance hives placed at sea ports around Australia to facilitate the early detection of exotic pests and diseases. The Queensland Beekeepers Association Inc. assessed the risks involved with the possibility of an incursion because of our close proximity to PNG and the Torres Strait Islands. Earthmoving equipment and other cargo frequently move between these South East Asian centres and the ports in North Queensland and Brisbane. It was thought prudent to double the number of surveillance hives in Queensland to enhance the chances of an early detection of these unwanted pests. The surveillance effort in Queensland now consists of 40 Government sticky mat mite surveillance hives and 40 Industry stick mat mite surveillance hives with more mite surveillance hives planned...

The establishment and monitoring of statistically significant numbers of sticky mat surveillance hives around the ports throughout Australia should be a matter of priority for AQIS, State Primary Industry Departments, Agricultural and Horticultural Associations and State Beekeeping Associations.⁵⁴

- 4.60 One way of increasing the program identified in evidence presented to the committee was to make greater use of hobby beekeepers in the program. In evidence before the committee, Dr Max Hunter, a hobby beekeeper from Victoria, stated:

They could be employed in that regime simply because they seem to have their hives spread throughout all of Victoria, particularly around the seaboard and the borders between the other states. Not

53 Victorian Apiarists' Association, Submission no. 71, p. 28.

54 Queensland Beekeepers' Association, Submission no. 67, pp. 5-6.

only can incursions come from the seaboard through shipping but also from aircraft freight and across borders through trucks and the like. Employing sideline beekeepers for that is an excellent suggestion. All beekeepers who have hives in Victoria – not just sideline beekeepers – could be the sentinels for incursions of diseases and exotic pests. All of them could be paid for their effort and should be trained sufficiently.⁵⁵

- 4.61 Some support in the way of provision of equipment and payment was regarded as appropriate. In his submission, Mr Gavin Jamieson, a Victorian beekeeper, noted that:

Individuals incur costs with the Sentinel Hive Program yet State and Federal officers are paid to provide the service. WorkCover and indemnity are not provided to the volunteers. Horticulture has a real financial interest yet they have not shared the costs.⁵⁶

- 4.62 Mr Lloyd Hancock, a hobby beekeeper from Brisbane, also identified hobbyists as an underutilised resource that could be effectively employed at minimal cost. He told the committee:

My point is that we are hobbyists in a club. We are interested in all developments, and we talk about the flora, the fauna, whatever else. We are vitally interested when a hive beetle comes and knocks off our hives. How did it get there? Who let it through? We are trained, through practice and whatever else, to know what we are looking for. The DPI people come and tell us, we go to field days and we read overseas journals, so we are aware of it. We would be better trained than many people to do it.

The point was made that we are hobbyists. We do it in our spare time, and there is a cost to visiting beehives, in petrol or whatever. If we are asked to do it as volunteers, we will do it in our time, when we want to. If we are contracted and paid by the government or whoever to do it, then that is an obligation and it means that it is better reporting for the government. They know that the hives are reported on each month, each week – whatever you want. That is not wishy-washy stuff; it is a different arrangement – we do it or we do not do it – and the clubs are a method by which this could be coordinated. But, equally, the clubs are run by volunteers and they would want something out of it.⁵⁷

55 Dr Max Hunter, *Transcript of Evidence*, 25 July 2007, pp. 32-3.

56 Mr Gavin Jamieson, Submission no. 10, p. 3.

57 Mr Lloyd Hancock, *Transcript of Evidence*, 10 August 2007, p. 83.

4.63 The need to increase funding and resources for the NSHP was highlighted in the evidence presented to the committee. Mr Peter Barnes, related his view of the New Zealand experience with Varroa and its implications for Australia. He informed the committee that despite testing up to one-in-five hives that Varroa still managed to enter New Zealand's South Island undetected; and that a similar scale of testing in Queensland would require the regular inspection of some 600 hives as against the current 80. He told the committee:

We have 80. But we also have dangerous parallels with when it first occurred in Auckland, as far as our department of primary industry office is run. They were at the same level that we are, where the Queensland government is scaling back the department's surveillance officers and increasing the workload. That is what happened in New Zealand about the same time. I would also like to point out that, with the incursion in Cairns, we were lucky. It was the fact that they were a different species of bee that allowed them to be detected. If that had been our honey bees, it may have been a different case. The guy might have just put them in a box and taken them home. That is probably the more dangerous point: the fact that varroa comes in on a swarm of our bees and then some hobbyist takes them home without realising it. That is one of the rumours about what happened to cause the outbreak on the southern island of New Zealand.⁵⁸

4.64 In evidence before the committee, Mr Des Cannon highlighted the difference in spending between Australia and New Zealand, noting that in comparison Australia is well behind:

New Zealand was spending something like \$800,000 a year in surveillance and monitoring of hives, physically examining hives and checking with sticky mats in the south island alone. The beekeeping industry was paying \$200,000 of that. The other \$600,000 was coming from a general levy on ratepayers on the south island of New Zealand...My understanding is that we are spending as a country in the order of \$10,000 to \$20,000.⁵⁹

4.65 In its submission, the South Australian Government noted that:

In an environment of limited funds, exotic surveillance provides the biggest return on investment to the economy. It is arguable that Australia's early mite detection system (\$250,000 per annum) is

58 Mr Peter Barnes, *Transcript of Evidence*, 10 August 2007, p. 43.

59 Mr Des Cannon, RIRDC, *Transcript of Evidence*, 8 August 2007, p. 11.

inadequate when compared to New Zealand's South Island surveillance program. A review of this system by Biosecurity Australia, state jurisdictions and AHBIC is urgently required.⁶⁰

- 4.66 The issue of bait hives was raised in evidence presented in Tasmania. Bait hives use pheromones to attract bees and have the advantage over sentinel hives of providing evidence of an incursion in a much shorter time frame. In its submission, the Tasmanian Department of Primary Industries and Water stated:

Tasmania has been proactive in working to keep such threats out of the State through education of apiarists and establishment of sentinel and bait hive programs. The bait hive methodology is the preferred method of detecting incursions of exotic bees from ships because it provides an immediate home for the animals that are lured to it by pheromone attractant baits. A swarm was recently captured using this system at a Tasmanian wharf, Sentinel hives will only be effective in detecting disease once it has become well established and thus very difficult to eradicate. The Tasmanian Apiary industry would like the bait hive program to be adopted on a national basis and is working closely with the Queensland Department of Primary Industries to achieve this end.⁶¹

- 4.67 In his submission, Mr Des Willmott, a Tasmanian beekeeper, explained the rationale and costs associated with bait hives:

Since visiting New Zealand in 2002 I have been, like many others, been concerned about the likely hood of an incursion of Varroa Mite into Tasmania. As the President of the National Council of Pollination Associations and their Delegate to AHBIC I lobbied AQIS on the need to improve on the sentinel hive program because we, (Tasmanian pollination providers) know it to be inadequate in the light of the New Zealand experience. Varroa was first found in sentinel hives which surrounded a large international Shipping Container Depot in Auckland. AQIS were not able to assist in the set of a trial Bait Hive Program which would be a more appropriate surveillance system we believe. The emphasis being on catching a swarm which leaves a newly arrived ship thereby avoiding an incursion which will not be detected until the Varroa number build up and migrate to sentinel hives (hence the horse has bolted). As a TCPA representative on the Tasmanian Apiary Industry Liaison Committee I sought a grant of \$5,000 from the

60 Government of South Australia, Submission no. 73, p. 7.

61 Tasmanian Department of Primary Industries and Water, Submission no. 72, p. 4.

State Government to assist with the costs to set the trail myself under the auspices of the Department of Primary Industry and Water, (DPIW) with the full cooperation of AQIS and Tasmanian Ports Authority. There are Bait Hives in six of the seven major Ports where we believe we are vulnerable from direct shipping from Asia and New Zealand. The seventh port will be covered soon.

The cost to date has been about \$9600 to set up our program, the additional costs over and above the initial grant have been covered by my business and the day to day costs associated with checking and maintaining the bait hives is met by the volunteers who look after the port in their area. In addition to the set up costs we estimate (DPIW) the attractant pheromones will cost around \$2,000 per year. The programme will be expanded to include Coconut Palm log hives for the Asian Honey Bee as soon as Dr Denis Anderson can procure them for us.

Through AQIS we have provided assistance to Victoria who I understand are trialling a similar setup.⁶²

- 4.68 In its submission, the South Australian Government recommended that the NSHP be maintained and expanded and that other surveillance initiatives, such as bait hives, sniffer dogs and on-farm testing, be introduced.⁶³

Quarantine

- 4.69 The bee quarantine facility is essential for the safe importation of fresh genetic stock. The need for a bee quarantine facility in Australia was recognised by government in the 1970s, leading to the establishment of the current facility at Eastern Creek in 1983. Day-to-day husbandry of live bee consignments is managed by officers of the New South Wales Department of Primary Industries under a Memorandum of Understanding with AQIS. All consignments of live bees are held at the quarantine station where they are checked for Varroa and tracheal mites.⁶⁴ The quarantine process is stringent, ensuring that none of the imported insects are released, only their offspring:

The process that is applied in AQIS to manage those imports is that the queen and the attendants would be examined microscopically,

62 Mr Des Willmott, Submission no. 89, p. 1.

63 Government of South Australia, Submission no. 73, p. 7.

64 DAFF, Submission no. 20, p. 19.

the queen would be separated and put into a cage and introduced to some new attendant bees drawn from a clean hive that was maintained by AQIS while the worker bees would be destroyed and then dissected and examined in detail for the presence of any mites or other diseases. After a period in quarantine of some months with the new clean attendant bees, the queen would again be separated and put into a starter hive to produce larvae. The former small group of attendant bees would again be destroyed, dissected and examined to see if there were any pests or diseases associated with them. The queen would then be allowed to produce brood larvae and we would then get a person or a specialist to come in and remove the larvae and put them into graft cells, which would then be removed from quarantine and introduced to a normal hive. The imported queen bee, all the attendant bees and the starter hive that had been set up within quarantine would then be destroyed. There is a stepped process to check at each step of the way to make sure that there are no pests or diseases associated with it. In fact, none of the animals from the original importation actually make it out of quarantine.⁶⁵

- 4.70 In its submission, DAFF noted that in the last two years AQIS has issued five import permits for live bees. Of these, 'the permit issued for the United States consignment was withdrawn on advice from Biosecurity Australia, three consignments were destroyed in quarantine (two due to the presence of mites, one due to inadequate certification and the consignment not meeting import conditions) and there was one successful import from Italy'.⁶⁶
- 4.71 According to the Victorian Apiarists' Association (VAA), the facility has 'greatly strengthened Australia's ability to safely access overseas honeybee blood lines through stringent protocols and the establishment of one national entry point'.⁶⁷
- 4.72 The forecast closure of the current facility in 2010 or 2015 is a matter of great concern to the beekeeping community. As the VAA noted in its submission:

Clearly, any diminution of importation arrangements, inhibiting safe access to overseas blood lines and increasing incentives to smuggle honeybees into the country would be a very poor

65 Mr Peter Liehne, National Manager, Animal and Plant Quarantine, DAFF, *Transcript of Evidence*, 13 June 2007, p. 21.

66 DAFF, Submission no. 20, p. 19.

67 Victorian Apiarists' Association, Submission no. 71, p. 29.

outcome not only for the beekeeping industry, but more importantly in economic terms, the national interest. In what form, and the location of replacement facilities are issues central to industry concern needing satisfactory resolution sooner rather than later.⁶⁸

- 4.73 In its submission, AHBIC urged that if the quarantine facility was relocated, 'then the new facility should be run to the same high standards that are currently being undertaken at the Eastern Creek quarantine station, and that current funding arrangements for the maintenance of the program should continue'.⁶⁹
- 4.74 One of the key recommendations and outcomes of the Honeybee Industry Linkages Workshop, held in Canberra in April 2007, was that 'Quarantine is vital for the pollination industry and a replacement facility is required for Eastern Creek in Sydney'.⁷⁰
- 4.75 The need for a new quarantine facility was highlighted in the Committee's 2007 report, *Skills: Rural Australia's Need*, when the committee recommended that 'the Australian Government guarantees the long-term future of the honey bee quarantine facility currently housed in the Eastern Creek Quarantine Facility or makes alternative arrangements for a permanent site, as a matter of urgency'.⁷¹ In its submission to the inquiry, DAFF advised the Committee that the current lease on the Eastern Creek site will not be renewed and that the department is currently investigating alternatives. The submission states:

The Eastern Creek Quarantine Station has been leased by AQIS since 2001 and the current lease is due to expire in 2010. There is a further five year option available to AQIS after 2010, but AQIS has been advised by the lessor that a further lease beyond 2015 will not be possible.

In light of these developments, AQIS is developing a range of alternatives for the future provision of post-entry quarantine facilities for consideration by the Australian Government. A meeting between AQIS and AHBIC was held in late 2006 and the

68 Victorian Apiarists' Association, Submission no. 71, p. 29.

69 AHBIC, Submission no. 56, p. 40.

70 RIRDC, Honeybee Industry Linkages Workshop, April 2007, RIRDC Publication no. 07/067, p. vii.

71 House of Representatives Standing Committee on Agriculture, Fisheries and Forestry, *Skills: Rural Australia's Need*, Parliament of Australia, February 2007, p. 149.

views of AHBIC have been taken into consideration as part of this process.⁷²

- 4.76 The lack of progress on a replacement quarantine facility, despite the obvious need, is a source of frustration within the honey bee industry. In evidence before the committee, Dr Max Whitten, an eminent scientist and former head of CSIRO Entomology, stated:

As you know, the developers now want to do other things with that facility, and so does AQIS, so let us accept that that is a reality. I mentioned that there is no evidence that AQIS is effectively pursuing the alternative. I say that because the likely party to be involved in that is the New South Wales Department of Primary Industries, and I know that there are no negotiations taking place between AQIS and the New South Wales department which currently manages that facility, so there is strong evidence that nothing is happening.⁷³

- 4.77 The need for a new facility, Dr Whitten argued, was urgent, but the inaction of government in this issue had also created an opportunity – the opportunity to integrate quarantine within a broader research capacity, organised and funded by government and industry within the context of a pollination industry alliance. He told the committee:

But let us make a virtue out of that by saying, ‘Let’s build a new quarantine facility that is a state-of-the-art facility and that has a research capability.’ That then becomes an element of what you have been talking about: a new alliance, a new network in Australia which is focused on that facility but reaches out to all the different research and teaching organisations in Australia.⁷⁴

- 4.78 Dr Whitten’s own suggestion is for the establishment of a honey bee quarantine facility, with a containment laboratory for research on honeybee genomics and biotechnology, at the Elizabeth Macarthur Agricultural Institute (EMAI) at Camden. Locating the quarantine facility at EMAI Camden has the following advantages:

- EMAI is close to Sydney airport;
- The current management arrangements could be easily transferred to the new facility;

72 DAFF, Submission no. 20, p. 20.

73 Dr Max Whitten, *Transcript of Evidence*, 10 August 2007, p. 21.

74 Dr Max Whitten, *Transcript of Evidence*, 10 August 2007, p. 21.

- EMAI is central to other research providers concerned with honeybee and pollination research such as the University of Western Sydney, University of Sydney and CSIRO; and
- EMAI is the New South Wales centre for Animal and Plant Biosecurity.

4.79 Dr Whitten notes that:

The establishment of a Honeybee Quarantine Facility at EMAI is consistent with and would complement the creation of the envisaged new industry alliance, Pollination Australia. Its integration with EMAI and its proximity to other teaching and research institutions would strengthen the R&D and training elements in the Business Plan currently being developed under the broad direction of RIRDC and the Steering Committee.⁷⁵

Drone semen

4.80 A related issue is the importation of drone semen for improving genetic stock. In evidence before the committee, Mr Weatherhead stated:

One of the things that can be done to improve stock or to raise stock within Australia that is suitable for export is the importation of drone semen. Under the present protocol with Eastern Creek and the quarantine station at Wallgrove, the importation of queen bees involves a long process. It is certainly a very worthwhile situation. I do not see drone semen replacing the importation of queen bees. But by importing drone semen you then are able to capture the benefits of those particular genetics very quickly by introducing them into your stock that you are breeding; therefore, it gives you a quicker and easier way to do it, because with queen introduction, for instance, you run the risk of the queen dying in quarantine or something like that, whereas it is very easy to bring drone semen in and to use it straightaway...

The biggest risk is the importation of the Africanised gene, but I would put it to you that there is no bigger risk than actually bringing in the queen bees themselves, because the risk is that most of the DNA work that is done to detect the Africanised gene is done on the mitochondrial DNA, which is the female side, and the drone side, being the male side, is not easily able to be checked for the Africanised gene. But when bringing in queens in the same way, you are only able to check the female side, you cannot check

75 Dr Max Whitten, Submission no. 92, pp. 1-2.

the drone side. That is the biggest risk in importing semen – the Africanised gene. There are no other risks, I do not think. Viruses have been brought up, and I think recently it has been shown that viruses can be imported in semen, but most of the viruses around the world are common to most beekeeping countries.⁷⁶

- 4.81 However, as the Weatherheads noted in their submission, although a draft import risk analysis (IRA) for the importation of drone semen was prepared in 2002, there was as yet no protocol in place for the importation of drone semen.⁷⁷ In its submission, the Western Australian Beekeepers' Association expressed frustration at this situation and urged urgent action to get the necessary protocols put in place:

Another issue this organisation would like to raise is the inordinate amount of time taken by Biosecurity Australia to process the import risk assessment for import of honey bee semen. This process has been ongoing for approximately 6 years, when it was originally anticipated to take 10 months. This is of particular concern to WA, since unlike the industry on the eastern seaboard, beekeepers here are not able to access imported genetic material through the Wallgrove Quarantine facility in NSW, because of State Government restrictions on interstate transfer of live bees, queen cells and grafted eggs. Semen import is the only method whereby WA can safely import new genetic stock. An IRA has been completed in WA for semen import from NSW, and a quarantine apiary site has been approved within the HMAS Stirling Naval Base on Garden Island that conforms to the requirements of the AUSVETPLAN. DAFWA [Department of Agriculture and Food, Western Australia] have established a protocol to monitor any imports through a 12 month quarantine process which limits any risk to the industry. So we are now in an ideal position to receive and safely process imported semen shipments through a quarantine procedure in WA. There is an outstanding application for semen import from NZ to WA that was lodged with Biosecurity Australia in July 2005.

However, this agency has indicated that there are higher priorities for its limited resources, than the completion of this IRA. Given this explanation, unless something is radically changed, the IRA

76 Mr Trevor Weatherhead, *Transcript of Evidence*, 10 August 2007, p. 57.

77 Trevor and Marion Weatherhead, Submission no. 42, p. 7.

will never be completed! In our view this simply is NOT GOOD ENOUGH.⁷⁸

Endemic threats

- 4.82 While exotic pests and diseases represent the most significant threat to the Australian honey bee industry, there are also a number of endemic pests and diseases which have the capacity to significantly affect the profitability and viability of the industry. The most serious of these pests and diseases are American Foulbrood (AFB), European Foulbrood (EFB), and Small Hive Beetle (SHB). Other pests and diseases include wax moth, Braula Fly (Tasmania) and chalkbrood. The potential problems and costs associated with endemic diseases was identified in the submission of the NSW Apiarists' Association, which noted that:

Endemic pests and diseases do cause the Industry production and financial losses and in some cases can affect the Agricultural sector by diseases which may affect bees in certain areas, causing beekeepers to avoid those areas as disease clean up of hives is too expensive, (e.g. American Foul Brood (AFB) in Macadamia Nut pollination areas on the North Coast of New South Wales).⁷⁹

- 4.83 The most serious endemic threat facing the industry is AFB. In its submission to the inquiry, AHBIC stated:

American Foulbrood is the greatest disease concern for the industry as it is highly infectious and actions by one beekeeper whose hives are infected can cause the disease to spread rapidly, thereby imposing costs on many other beekeepers. Most activities of state agencies are directed at controlling this disease.

Although AFB infects and kills only the bee larvae, if unchecked it will affect the hive and honey production and eventually the colony will die out. The disease is spread in many ways, including naturally such as infected bees drifting into healthy hives, healthy bees robbing a weak infected hive, healthy bees feeding on contaminated honey or where watering places are contaminated by infected dead bees. The disease can also be spread by beekeeping practices, for example through the interchange of combs of brood and honey between infected and healthy hives. In order to reduce

78 Western Australian Beekeepers' Association, Submission no. 32, pp. 13-14.

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

the spread of the disease, beekeepers must be vigilant in testing for the disease in their hives.

Control of AFB is regulated in all states and territories with each state having its own legislation. Use of OTC to control the disease is not permitted except in Tasmania. Indiscriminate use of OTC for treating EFB can suppress symptoms of AFB and resistance may be built up to this antibiotic. A contamination of any honey with OTC could severely damage the industry's image and result in reduced honey consumption.⁸⁰

4.84 AHBIC noted that under current state-based arrangements AFB was difficult to control, but that a national approach had failed for lack of commitment from governments:

Even though AFB is a notifiable disease, it is very difficult for state agencies to enforce compliance of their state legislation due to the migratory nature of commercial beekeeping operations, the very large number of small hobby beekeepers and the limited and, in some cases, decreasing resources of state agencies devoted to beekeeping inspection activities. The Australian Capital Territory has no apiary inspection officers and some states are scaling back their inspection services. In some states, general stock inspectors are now required to take up the task of apiary inspections.

Despite all measures to control the disease, evidence suggests that it continues to spread, although to a degree, the reported increase in occurrences could be due to better detection methods. A report on a national approach to management and control of AFB has already been prepared and state agencies are focused primarily on control of this disease. AHA has also prepared a proposal for a nationally coordinated program for the improved management and control of AFB (AHA 2003–04). It is proposed that AHA would manage the implementation of this national program. Its key elements are:

- enhanced research and development;
- review of current state legislation and control mechanisms and uniform management techniques;
- better quality assurance and biosecurity systems by having beekeepers formally adopt biosecurity measures;
- national monitoring and surveillance and reporting program; and
- a communication and awareness program.

80 AHBIC, Submission no. 56, pp. 36–7.

Due to the serious threat of AFB, the industry proposed that a national approach to management and control of AFB should be funded through agreement between industry, state/territory governments and the Australian government. Unfortunately this proposal was dropped due to the government's unwillingness to commit resources to the plan. However the industry believes a program of this type is essential for an efficient and effective approach to controlling AFB.⁸¹

4.85 In their submissions, the Central Victorian Apiarists Association and Mrs Papworth highlighted the success of Victoria's AFB Smart program in controlling the disease. Mrs Papworth recommended this as a national model for compulsory testing and control of AFB; while the CVAA urged the continuation of government funding and commitment to maintain the program.⁸²

4.86 In its submission, Capilano Honey Limited stated:

The State and Territory Government control of AFB is a key to ensuring the disease is managed and that the temptation for widespread antibiotic use in the industry is not required. This is a key competitive advantage for Australian honey.

A national approach to the management and control of AFB, as has been proposed by Animal Health Australia (AHA), is considered appropriate and likely to better AFB control.⁸³

4.87 Small Hive Beetle and wax moth also impose significant control costs on industry and require chemical control. In its submission, AHBIC noted:

Although wax moth does not pose as much a threat to the industry as some pests, the control cost is still significant. Similarly, the control of small hive beetle imposes a significant cost on the industry but in this case the problem is still growing so the costs could become quite large.⁸⁴

4.88 Small Hive Beetle arrived in Australia in 2000 and has spread rapidly in New South Wales and Queensland. As reported in the submission of the Australian Queen Bee Breeders Association, the impact of SHB can be significant, it's control very expensive, and the search for solutions requires more funding:

81 AHBIC, Submission no. 56, p. 37.

82 Central Victorian Apiarists Association, Submission no. 22, p. 3; Mrs Elwyne Papworth, Submission no. 74, pp. 5-6.

83 Capilano Honey Limited, Submission no. 55, p. 4.

84 AHBIC, Submission no. 56, p. 35.

This predator is very difficult to control. Left unchecked it can destroy strong colonies in a matter of days. By the time the adult beetle lays its eggs, they hatch (2-3 days), the larvae quickly go about destroying the brood, wax and defecating in the honey. The adult bees are unable to defend their colony and abscond into the environment. All the beekeeper is left with are boxes of slimy muck. These can be cleaned with a pressure cleaner before the beekeeper can recolonise the boxes.

This was a breach of quarantine and after the initial surveillance the pest was declared endemic. Industry was promised by government \$'s to assist beekeepers to live with and manage the pest. To date very little research has been done & besides the government matching \$ for \$ assistance through RIRDC industry finds itself trying to solve a multi million \$ problem with less than 2 men's salary. What happened to the promise?⁸⁵

- 4.89 The Australian Queen Bee Breeders Association urged a tax deduction on the purchase of cold room equipment as one way of controlling SHB:

Industry sought assistance for a tax benefit of 100-150% deduction for cold room installation and was told to hire them. That is okay if cold rooms are required for a short time. With SHB cold rooms are a necessary not a luxury. Also, beekeepers, being primary producers, have fluctuating incomes especially in the current drought conditions and to be able to receive a full tax deduction for the cost, in one year, would assist greatly.⁸⁶

- 4.90 Aside from the costs of the pests and diseases themselves, and the control costs, endemic diseases cause other problems for the industry. One of the major stumbling blocks to the movement of queen bees and packaged bees, particularly for export, is endemic pests and diseases. In its submission, the Department of Agriculture and Water, Western Australia, stated:

Most countries to which bees are sent for pollination purposes are not concerned about the existence of the diseases present in apiaries in Australia. For example, the United States will accept bees from American foulbrood (AFB) affected hives, as long as this is advised in export documents. This is so that bees can be managed appropriately on arrival. However, the export process is unnecessarily complicated by the need to trans-ship at major

85 Australian Queen Bee Breeders Association, Submission no. 60, p. 2.

86 Australian Queen Bee Breeders Association, Submission no. 60, p. 2.

airports. In particular, a container of bees from WA destined for the United States may require change of aircraft at Melbourne or Sydney. However, evidence of AFB in the exporting hives prevents this trans-shipment, due to state quarantine requirements. The risks posed by trans-shipping are very small (probably insignificant) and legislation needs to be amended to facilitate this trade.⁸⁷

- 4.91 Tasmanian beekeepers face similar problems because of Braula Fly, which is endemic to Tasmania but absent from the mainland. In its submission, the Tasmanian Beekeepers' Association stated:

There are also problems with the international trade of bees. Tasmanian bee keepers are in the ideal position to take advantage of and value-add through the growing market for packaged bees in both USA and EU. The package bee industry has the potential income of around \$100 per hive or approximately \$2 million dollars per annum for the State. However due to restrictions placed on the movement of Tasmanian bees due to the Braula fly the bees can not be transhipped interstate prior to transport overseas.⁸⁸

- 4.92 In a supplementary submission, the Tasmanian Department of Primary Industries and Water informed the committee:

With regard to the export of package bees from Tasmania, I have spoken to the apiary Inspectors in Victoria and NSW about the problem of having to transit through Sydney or Melbourne. Their concern seems to be that regardless of how the bees are packed at some stage during transshipment from domestic flights to international flights someone will accidentally damage the container and allow bees to escape. Once the bees have escaped it would be impossible in their view to kill or recapture them.

The experience with Chalkbrood and Small Hive Beetle on the mainland has been that once a disease or pest gets into the bees it will be spread around the country by migrating beekeepers and they fear the same could happen with Braula, they have never been able to successfully quarantine areas.

I have suggested that one approach could be to pack the bees into an air freight container in Tasmania. This would be much less likely to be damaged to the extent that bees would escape. Some

87 Department of Agriculture and Food, Western Australia, Submission no. 24, p. 5.

88 Tasmanian Beekeepers' Association, Submission no. 63, p. 11.

airfreight containers (AV series) used for domestic movements can also be used for international freight. Victorian and NSW quarantine inspectors will consider any proposals but they will take a very risk averse approach.⁸⁹

Borders

- 4.93 Another significant issue confronting the honey bee industry is cross border regulation and control, generally in response to endemic disease management, a critical issue for an industry that is migratory in nature. In his submission, Mr Michael Leahy, a beekeeper from the border region of New South Wales and Victoria, informed the committee of his experience with restrictions on the movement of hives following the outbreak of Small Hive Beetle:

I wish to make a comment on current problems with the movement of bees across state boundaries.

In 2005 I shifted bees to the south coast of NSW on to a spotted gum honey flow. I obtained the necessary health certificate to shift bees back to almonds in Victoria...In 2003 there had been an outbreak of small hive beetle in NSW around Sydney/Richmond, and later in Queensland due to bees being shifted to Queensland from this area. It was suspected that the pest came to Australia during the 2000 Olympics, had bred for three years approx. and after an initial response was deemed not possible to contain and therefore deemed to be endemic to Australia. This was agreed to by AHBIC. All states are members of this body through FCAAA [Federal Council of Australian Apiarists' Associations] so you would expect that to be the end of the issue. Come conference in 2005 (June) there was a concerted push by individuals within the VAA, included in this the DPI Victoria to exclude all bees coming from the NSW South Coast from entering Victoria. All the science available on the pest said that the pest would multiply in humid wet conditions, but would not do so for the most part inland because the window of opportunity to breed would not be available. Nobody wanted to accept the science. This science has since been proven correct as two years later we still do not have an issue in 2007 inland.

The position in Victoria was that I could not come to Victoria to the almonds but Victorian beekeepers could after the almonds come to

⁸⁹ Tasmanian Department of Primary Industries and Water, Submission no. 91, p. 1.

NSW and sit their bees beside mine to work a honey flow. When you consider the pest can fly up to 18 kms non stop at a time then there is a major problem in the logic of the industry leaders.⁹⁰

- 4.94 Mr Trevor Monson, Australia's biggest pollination contractor, urged the removal of border restrictions, 'especially in the Eastern States, enabling one Health Certificate to allow beehives free movement between the States'.⁹¹ In evidence before the committee, he stated:

In Australia I would take away the borders in the eastern states. I would leave Tasmania and Western Australia separate. A health certificate from Queensland that is applicable for me to have bees in Victoria would be a great help to me as a pollination coordinator, so that I do not have to have three certificates to get across three states.⁹²

- 4.95 Mr Adrian Jones, a Queensland beekeeper, wrote in his submission that:

Different states have different access laws. The time has come to abolish different rules in different states. For beekeeping alone, state laws impact on registration as a beekeeper, access to public land, recognition of the worth of the industry, Workplace Health and Safety Legislation, Transport rules and requirements, and I believe but am not certain, regulations concerning employee's rights.

The EC [EU] has been working to remove boundaries between countries on the same continent. We are unable to remove boundaries between STATES in the same country.⁹³

- 4.96 In a similar vein, the South Australian Apiarists' Association argued for the removal of border restrictions, dividing 'Australia into 4 main quarantine regions being Tasmania, Kangaroo Island, Western Australia, Eastern Seaboard including South Australia'.⁹⁴

90 Mr Michael Leahy, Submission no. 61, pp. 4–5.

91 Mr Trevor Monson, Submission no. 86, p. 1.

92 Mr Trevor Monson, *Transcript of Evidence*, 8 August 2007, p. 18.

93 Mr Adrian Jones, Submission no. 81, p. 2.

94 South Australian Apiarists' Association, Submission no. 7, p. 3.

Committee conclusions

- 4.97 The committee notes that the Australian honey bee industry faces a number of significant biosecurity challenges. The Varroa mite (*Varroa destructor*) has the capacity to annihilate feral bee populations and place severe pressure upon managed bee populations. Scientists who have studied the progress of this pest believe that it is only a matter of time before it arrives in Australia and devastates the honey bee population. This has significant implications for industries relying on honey bees for crop pollination. More over there are a number of other significant pest and disease threats facing the industry which must be addressed and managed.
- 4.98 Addressing the biosecurity threats facing the honey bee industry will require a range of actions. There must be a commitment by government and industry to border security. That there are significant shortcomings in this area was revealed by the incursion of Small Hive Beetle, which is now endemic to Australia, and the incursion of *Apis cerana* in Cairns. Border security must be strengthened. This requires:
- Expansion of the National Sentinel Hive Program;
 - Use of bait hives as part of NSHP;
 - Pre-registration of chemicals necessary to respond to and manage a Varroa incursion, thereby reducing response times;
 - Better education of those charged with border protection;
 - Improved diagnostic capacity for pests and diseases;
 - The establishment of national diagnostic protocols to ensure that widely known and consistent procedures are followed in the event of an incursion or suspected incursion;
 - The establishment of a national integrated pest and disease management protocol, to ensure that bees do not fall between the gap between animal health and plant health emergency response arrangements, and that any emergency response is adequately funded;
 - Establishment of a new honey bee quarantine centre, preferably as part of a research facility; and
 - Establishment of a comprehensive biosecurity research program to ensure that Australia is ready should an incursion of Varroa or some other pest and disease occur.

- 4.99 The committee is of the view that the need to maintain and enhance the National Sentinel Hive Program is critical. The need to expand the program to achieve greater geographical coverage, use bait hives as well as sentinel hives, and ultimately to make every beekeeper a sentinel is vital to border security. This requires significantly increased organisation and funding, and a shift to payment for services by beekeepers involved in the program. The committee notes that the current funding for the NSHP, the bulk of which is in-kind contributions from industry, is manifestly inadequate.
- 4.100 The committee also understands the need for pre-border security – the capacity to monitor the progress of bee pests and diseases in the nations to our immediate north, particularly Papua New Guinea. The ability to identify potential incursions before they occur will save time and money in the long run.

Recommendation 8

- 4.101 **The committee recommends that the Australian Government maintain and enhance the National Sentinel Hive Program with a view to ensuring that:**
- **all major ports are covered by sentinel and bait hives;**
 - **all beekeepers are brought under the program, with priority given to those operating in the vicinity of port facilities;**
 - **arrangements are made for an effective program of pre-border security; and**
 - **government provides funding adequate to achieving the above objectives.**

Recommendation 9

- 4.102 **The committee recommends that the Minister for Agriculture, Fisheries and Forestry request that the Australian Pesticides and Veterinary Medicines Authority fast track the pre-registration of pesticides and other chemicals necessary to combat a Varroa incursion.**

Recommendation 10

- 4.103 **The committee recommends that the Australian Government improve the nation's incursion response capacity by providing for:**
- **Better education of those charged with border protection;**
 - **Improved diagnostic capacity for pests and diseases;**
 - **The establishment of national diagnostic protocols;**
 - **The establishment of a national integrated pest and disease management protocol; and**
 - **The establishment of a comprehensive biosecurity research program for the honey bee and pollination dependent industries.**
- 4.104 It is also the committee's view that the need for a new honey bee quarantine facility is clear and urgent. Moreover, given the small size of the honey bee industry and its importance to agriculture, funding for such a facility must come from the Australian Government.
- 4.105 There are clear advantages to establishing the new honey bee quarantine facility in proximity to the existing facility, in that current management arrangements would stay in place. This would reduce the time needed to commission the new facility. Furthermore, the facility would remain close to the main entry point for bee imports – Sydney Airport. Locating the new honey bee quarantine facility at the Elizabeth Macarthur Agricultural Institute, Camden, would appear an ideal solution.
- 4.106 The committee also supports placing the new quarantine facility within geographical proximity to centres for honey bee research, and to integrate it organisationally within a national centre for honey bee research (see Chapter 5).
- 4.107 The committee also urges the rapid completion of the import risk analysis for drone semen.

Recommendation 11

- 4.108 **The Committee recommends that the Minister for Agriculture, Fisheries and Forestry establish a new honey bee quarantine facility as a matter of urgency, this facility to be commissioned prior to the closure of the current facility at Eastern Creek, and that:**
- **This facility is integrated into a national honey bee and pollination research centre;**
 - **This facility have a containment laboratory for research on honeybee genomics and biotechnology;**
 - **The Minister for Agriculture, Fisheries and Forestry enter into immediate negotiations with his New South Wales counterpart to establish the new honey bee quarantine facility at the Elizabeth Macarthur Agricultural Institute, Camden, or some other suitable location.**

Recommendation 12

- 4.109 **The Committee recommends that the Minister for Agriculture, Fisheries and Forestry direct Biosecurity Australia to complete the import risk analysis for drone semen by the end of 2008.**
- 4.110 Several endemic pests and diseases also pose management challenges for the honey bee industry in Australia, mainly in terms of maintaining effective control while avoiding chemical contamination of honey bee products. The main threats include Small Hive Beetle, American Foulbrood, and European Foulbrood.
- 4.111 Management of these pests, and any exotic pests that become naturalised, requires national coordination. There should be a national endemic pests and diseases management program to complement work on exotic pests and diseases.
- 4.112 The evidence presented to the committee indicates that a State by State approach to endemic pest and disease management is not effective and imposes considerable burdens upon the honey bee industry – particularly biosecurity regions based upon State borders. The committee supports the idea of creating biosecurity regions based on natural boundaries, i.e.:

- Eastern Australia, including New South Wales, Victoria, Queensland, Australian Capital Territory and South Australia;
 - Tasmania;
 - Western Australia;
 - Northern Territory; and
 - Kangaroo Island.
- 4.113 The committee is also of the opinion that a nationally consistent approach to beekeeper and hive registration, and the registration of apiary sites, is an essential ingredient to biosecurity. It is important that those charged with responsibility for biosecurity can find and identify hives and their owners.
- 4.114 Finally, the committee supports tax deductibility for the purchase of cold rooms for the management of Small Hive Beetle.

Recommendation 13

- 4.115 **The Committee recommends that the Australian Government, in conjunction with State and Territory governments, establish and fund a national endemic bee pest and diseases control program.**

Recommendation 14

- 4.116 **The Committee recommends that the Australian Government, in conjunction with State and Territory governments, establish bee biosecurity regions based on natural boundaries, being:**
- **Eastern Australia, including New South Wales, Victoria, Queensland, Australian Capital Territory and South Australia;**
 - **Tasmania;**
 - **Western Australia;**
 - **Northern Territory; and**
 - **Kangaroo Island.**

Recommendation 15

- 4.117 **The Committee recommends that the Australian Government, in conjunction with State and Territory governments, establish a national system of registration for beekeepers, bee hives and apiary sites.**
- 4.118 In highlighting the objectives and recommendations set out above, the committee notes the estimates of spending identified by CSIRO as appropriate to respond to the threat of Varroa – \$21–\$50 million per annum. The committee believes that, given what is at stake, a research and border protection effort of \$50 million per annum in support of the honey bee industry and pollination dependent industries is a reasonable expectation, and that the Australian Government should take the lead in organising and funding this effort.

Recommendation 16

- 4.119 **The Committee recommends that the Australian Government commit \$50 million per annum in pursuit of biosecurity measures and research in support of the Australian honey bee industry and pollination dependent industries.**

Economic and trade issues

- 5.1 Aside from issues of resource security and biosecurity, the Australian honey bee industry faces serious economic challenges. The industry is facing threats to its long term economic viability, with implications for its role as a provider of pollination services for agriculture. It also faces import competition and exclusion from export markets in a global economy. Unless these challenges are met the industry will struggle to remain viable.

Economic viability of the industry

- 5.2 The Australian honey bee industry has undergone significant change in the last few decades. The industry has gone from being almost wholly reliant on honey production for its income, to an industry facing increasing pressure and the need to diversify its activities. As Mr Philip McPherson, a Victorian beekeeper and president of the North East Victorian Apiarists Association (NEVAA), explained in his submission:

Through out the nineteen sixties, seventies and early eighties Beekeeping was the financial cornerstone of our business produced mainly from Honey and beeswax with little if any pollination income. By the mid Nineteen Eighties things began to change as the effects of European Brood Disease, increased input costs and reduced returns as well as less regular and reliable honey crops began to impact on our viability. Over the last fifteen years we have had to restructure our operation to survive. Reducing labour costs

improving hive management and maximizing returns by providing pollination services.¹

- 5.3 In its submission, the Western Australian Beekeepers' Association also highlighted the impact of low returns upon the viability of the industry:

Many of the industry's current difficulties relate to its very poor (and declining) profitability. In real terms this decline has been occurring since the 1970's, and has now reached a critical level for many industry participants. However there is a strong reluctance on the part of industry participants to admit how bad this problem really is. It is very evident that the packing sector is strongly opposed to any exploration of this subject. As a consequence the subject receives very little mention in industry generated dialogue or reports, because of the overlap that occurs, where individuals represent vested interests in both the packing and production sector. However it consistently appears in the documentation produced by independent reviewers.²

- 5.4 In its submission, the Forests and Forest Industry Council of Tasmania questioned whether outside Tasmania the industry was economically viable at all:

In this analysis Tasmanian operators appear to fare better than counterparts in other States, their average price of \$3.40 per kilo was almost double the national wholesale honey value (\$1.80) and they may well have more robust businesses. On the figures above the national average position appears to [be] unsustainable.³

- 5.5 In her submission to the inquiry, Mrs Elwyne Papworth, a Victorian beekeeper and secretary of the NEVAA, noted that 'honey marketing within Australia has not been able to achieve the prices required to sustain the industry at the "Farm Gate"'.⁴ She identified two main issues that needed to be addressed – relations with the packing sector and the supermarkets; and the drain on revenue to the industry through small suppliers and packers operating outside the industry's normal supply chain. The submission states:

The packing sector will argue that returns to producers is marginally above CPI, I will argue that beekeepers are not 38 hour a week wage earners, but are 24/7 hour workers, with massive out lay's to

1 Mr Philip McPherson, Submission no. 76, p. 1.

2 Western Australian Beekeepers' Association, Submission no. 32, p. 3.

3 FFIC, Submission no. 80, p. 26.

4 Mrs Elwyne Papworth, Submission no. 74, p. 2.

maintain a migratory honey producing, pollination service business, CPI has no bearing on primary production fraught with unexpected unknowns and unpredictable environmental conditions. There is a cultural intellect within the Packing sector unable to see the long term needs to progress the apiary industry into a progressive and stable future...

Major Packers will say that the major super markets are holding down prices by the way they pit packers against each other, and, of course there is the possible threat that cheaper honey's can be imported into the country and packed for the super markets to further destabilize the beekeeping industry.⁵

- 5.6 On small packers and producers competing in the market, the submission notes:

There is significant "un-accounted for" honey production at the 300 and less hives section, much being disposed of in "paddy markets", home and road side sales and very smaller Packers...

Levy's payable on honey starts at 600kgs, far too much revenue is being lost, in levy money's for industry management, placing greater burden on the full time producer. With disposal of their product in competition with that of the full time Producer supplied Packer presented honey for the super market shelf, under cutting of sale price by the small Packer/seller is also undermining farm gate returns to the full time commercial operator.⁶

- 5.7 Whether the financial viability of honey producers was being undermined by the packers or the supermarkets was a matter of conflicting opinion in the evidence presented to the committee. Some blamed the packing sector for the current financial state of the industry. In evidence before the committee, Mrs Jodie Goldsworthy, honey producer and founder and director of Beechworth Honey, argued that the interests of honey producers and packers were no longer aligned:

Once upon a time, in terms of our industry decision-making processes, the interests of the packing sector and those of the production sector were one and the same; they were aligned. Therefore, some of the leadership within our industry structures was driven by the market sector. Now we are in turmoil because the interests of the honey packing sector, in some cases, are misaligned with the interests of the producers. And producers as a whole and

5 Mrs Elwyne Papworth, Submission no. 74, p. 2.

6 Mrs Elwyne Papworth, Submission no. 74, p. 2.

one single honey packer – namely, we – are left thinking, ‘Oh, my goodness! What are we going to do about it?’⁷

- 5.8 In his submission, Mr Rod Yates, of Australian Honey Exports Pty Ltd, argued that monopolistic control by the major packer was stifling innovation:

The industry has always struggled under the burden of a limited market that fosters monopolistic control on prices and consequent “pressure” on beekeepers, effectively creating an attitude of exclusion towards independent thinkers or those who don’t support the status quo. The monopolistic nature of the industry is in turn subject to the constraints and pressure of a limited market dominated by so few major retailers who seem ruthless in their policies and myopic in their outlook.

There is generally a fearful respect for the major buyers of honey, and an undercurrent of dissatisfaction with the way things are. The investment of time and money to become established as a viable honey producer means that an individual has too much at stake to take the risk of offending the major buyer or those in favour, simply because there has never been a viable alternative market to which they have had access. The situation leads to mediocrity rather than excellence. Anyone who tries to establish themselves in the same retail market has to contend with considerable risks, and rarely succeeds. The situation in the Australian market is now reasonably stable, but also stagnant.⁸

- 5.9 In his submission, honey producer Mr Michael Leahy questioned the dominance of the major packer within the industry organisation, AHBIC:

Also our peak body in their wisdom have decided that our industry does not have the right to marketing information so out of AHBIC comes no marketing information at all not for the Australian market not for overseas markets.

It is painfully obvious to me that AHBIC is dominated by the packing sector under these circumstances. Even to the point that AHBIC is presently seeking a Minimum Residue Level (MRL) for a chemical banned for use in this industry for 10 years.⁹

- 5.10 In its submission, AHBIC argue that it was the supermarkets rather than the honey packers who were driving down returns to producers:
-

7 Mrs Jodie Goldsworthy, *Transcript of Evidence*, 25 July 2007, p. 54.

8 Australian Honey Exports Pty Ltd, Submission no. 40, p. 1.

9 Mr Michael Leahy, Submission no. 61, p. 13.

Honey is primarily bought as a spread. Gaining a greater share of the spread market may be achieved through competing with alternative spreads (for example, peanut butter and jams) on price and quality.

However, the pricing structure used by retailers takes away some of the ability for honey packers and marketers to set prices, which means it is difficult to compete with spreads on price. Although discounting is allowed, it is tightly controlled by the retailers. If supplier wants to change the sell price temporarily, they have the option to do so through a promotional program, although any difference in the normal retailer price and the discount price is usually made up by the supplier. If a supplier wants to change the price permanently, they have to reduce their sell price to the retailer.

In addition, honey packers and marketers have little scope to recoup any temporary surplus made from honey sales through the major supermarkets. This is because the market power of Australia's two major supermarkets allows them to pay relatively low prices for honey compared to the price sold to consumers.¹⁰

5.11 In its submission, Capilano Honey Limited noted that:

The Australian retail honey market has undergone structural change with the proliferation of strategic supermarket private label brands such as *'Woolworth's Select'* and *'You'll Love Coles'*. The auction and tender process associated with the supply of these products has resulted in diminished returns to the industry in the form of beekeeper honey pricing and the profitability of packers.¹¹

5.12 The Western Australian packing company Wescobee Limited was also critical of the role played by supermarkets in determining returns to producers:

Next, farm gate values for honey paid to beekeepers are at a point that is considered by many as unsustainable (Australia wide) and as such it is difficult for producers to invest on capital improvements to their business, employ people and/or attract new blood in to the industry. Supermarket power against packers is at a critical and dangerous point with 80% of the Australian grocery industry being controlled by two players - Coles & Woolworths. Tremendous pressure is felt by honey packers with the move by these supermarket chains to push their own house brands at the expense of private brands. Margins and realisable prices are being squeezed

10 AHBIC, Submission no. 56, p. 18.

11 Capilano Honey Limited, Submission no. 55, p. 4.

to the extreme and this does not help to sustain our honeybee industry.¹²

- 5.13 The Western Australian Beekeepers' Association (WABA) also argued that the major packers were subject to price pressures from the supermarkets. It stated in its submission:

In simple terms, the price paid to producers for bulk honey is largely determined by the prices offered by the 2 largest dedicated honey packing houses in Australia, namely Capilano on the east coast and Wescobee on the west coast. It appears that neither of these companies have sufficient market strength to be able to withstand the downward pricing pressures of the major supermarket chains, who amongst other things, use the threat of replacing their products with imported product from low cost producers in Asia and South America to maintain price suppression pressure. Australian producers have no hope of competing with these largely subsistence and low cost producers. Because they are structurally locked into a "price taker" market model, they have, over time, been forced into accepting prices which are below their real cost of production. They literally have no choice, so most tighten their belts, and hope that "next season, things will improve".¹³

- 5.14 But as Mr Briggs explained to the committee, whoever was responsible, the end result was the same for producers:

You have mentioned this country's limited number of supermarkets. Of course, as far as competitive pressure at that level is concerned, it is not as significant as the pressure coming down on the honey packers and wholesalers, for example, who have to make a living, pay their executives and their board members and remain profitable. In the end, they are the customer of the bulk honey producer. But, as I have said – I think we might even have said this in our submission – too often the person at the farm gate, in the case of beekeepers, even though I guess it applies across the spectrum of primary industry, is left with the short end of the stick. It is difficult to see where we can go from there without assembling data. Whether it is within this committee's province to look at that and make recommendations about further investigating it, I am not competent to assess; but it has been put forward for your consideration.¹⁴

12 Wescobee Limited, Submission no. 34, p. 2.

13 Western Australian Beekeepers' Association, Submission no. 32, p. 4.

14 Mr Linton Briggs, *Transcript of Evidence*, 25 July 2007, p. 13.

Market fragmentation

- 5.15 Another issue of concern to some in the industry was the increasing fragmentation of the market, as more producers sought to market their own honey, stepping outside of the normal supply chain – and the research and development funding mechanisms of the industry. In its submission, the Western Australian Beekeepers' Association stated:

The industry currently derives most of its income from honey sales to packers, but because of the poor wholesale price returns, we are witnessing an increasing trend of producers packing their own product for sale on the local market. This fractionation, and sometimes undisciplined competition for market share, is resulting in price undercutting which is destabilising the domestic market, and can only result ultimately in further income erosion.¹⁵

- 5.16 The magnitude of the shift to private marketing has not been measured, but appears to be considerable. In his evidence before the committee, Mr Don Keith noted that:

... this we do know: supermarket sales of honey were 12,000 tonnes; they have reduced to 9,000 tonnes and steadied about there. About 20 years ago some research was done to estimate how much honey was sold through other channels, and at that time they thought it was about 5,000 tonnes. I read in one of the submissions before your inquiry that they think that could be 8,000 to 10,000 tonnes now. Because honey is virtually ready to eat once you take it out of the beehive, a great number of the people in our industry do not sell honey through supermarkets; they sell it through markets and those sorts of things.¹⁶

- 5.17 He highlighted the cost to the industry:

An unfortunate aspect of that is that a lot of that honey does not get registered in books. People do not pay a levy on it; there are already levies for research. The level of levy collection actually does not cut in until, I think, 500 kilos or 1,000 kilos, so you can sell a lot of honey without even being responsible for a levy. The challenge there is that it is the people like Capilano and those who cannot dodge paying a new levy who are supporting honey generically, but the fellow who is selling it over the back fence or wherever is probably getting as much or more benefit from that levy as the people selling it in the

15 Western Australian Beekeepers' Association, Submission no. 32, p. 4.

16 Mr Don Keith, *Transcript of Evidence*, 10 August 2007, p. 26.

supermarkets. I am not saying it should not be done. I am saying that that is a significant challenge in that area.¹⁷

- 5.18 In his evidence before the committee, Mr Rodney Whitehead, a Victorian beekeeper explained the rationale for farm gate or farmer's market sales from the point of view of the honey producer:

One of the problems particularly with selling honey at a farm gate price such as to honey packers is that over a number of years the prices fluctuate. For example, a couple of years ago the price of some lines of honey commonly produced at that time was as low as between \$1.45 and \$1.50 a kilogram. Now, the same honey gets well over \$2 a kilogram. This does not help beekeepers because quite often supply and demand comes into the selling of the honey. When there is a large supply of a certain honey around, it only attracts a low price. When the honey is in short supply, the price goes up. Some lines of honey are well over \$3 a kilogram at the moment. That has all happened in the last 24 months.¹⁸

- 5.19 He further explained:

The only thing we personally have done is marketing our own product through retail and wholesale. When we consider that the price is too low we hold it over until we can attract a better price. That is the only way I can see us doing it in our operations.¹⁹

- 5.20 On the other hand, Mr George Pallot, President of the Ipswich and West Moreton Beekeepers Association highlighted the attraction of farmer's markets from the consumer's point of view:

Unfortunately, history tells me – and I stand to be corrected on this if it is wrong – that some years ago there was a problem here with a blend of honey where there was a contamination with chemicals from Argentinean honey. That, I think, still sticks in the back of people's minds and encourages them to go to a farmers market where they know darn well that that stuff there does not have Argentinean honey blended in it; does not have Chinese honey blended in it; has good, honest, local honey. That is something that has to be accepted as a fact of life.²⁰

17 Mr Don Keith, *Transcript of Evidence*, 10 August 2007, p. 26.

18 Mr Rodney Whitehead, *Transcript of Evidence*, 25 July 2007, p. 72.

19 Mr Rodney Whitehead, *Transcript of Evidence*, 25 July 2007, p. 73.

20 Mr George Pallot, *Transcript of Evidence*, 10 August 2007, pp. 77–8.

Bee industry workforce

- 5.21 The declining financial viability of the industry has significant implications for the industry workforce – failure to attract skilled labour or new entrants means that the workforce is ageing and the skill base of the industry is under threat. In its submission, WABA stated:

The industry has major problems in this area. Due to the poor profitability, very few businesses have sufficient viability to be able to afford to employ an adequate labour force from outside their own immediate family members. Added to this, are the problems of obtaining any labour to work in the agricultural sector, due to the difficult nature of the work in often adverse weather conditions and isolated areas. Consequently little or no training of a work force is occurring, nor has it been for some considerable period of time. So the skill sets are not there in the labour market. Furthermore the inability to recruit or retain succeeding generations of family members, has left many family businesses with the situation of an aging owner who is also the sole provider of both managerial skills AND labour, a truly unsustainable situation which will need to change sooner rather than later.²¹

- 5.22 WABA believes that these problems threaten the entire future of the industry, stating:

Given the age profile of this industry, unless a miracle turnaround in the industry's fortunes occurs, THE INDUSTRY WILL SUFFER MAJOR COLLAPSE IN THE NEXT 10 YEARS.²²

- 5.23 In a similar vein, in its submission, the Tasmanian Beekeepers' Association noted:

Young people are not attracted to the beekeeping industry. This is not dissimilar to other agricultural industries. Specific reasons in the beekeeping industry are the high cost of setting up business, the heavy workload (especially during the summer season) and the lifestyle commitment that must be made.²³

- 5.24 The consensus opinion presented in the evidence to the committee was that the solution to this problem was easy access to foreign labour. In its submission, Australian Queen Bee Exporters Pty Ltd noted:

21 Western Australian Beekeepers' Association, Submission no. 32, p. 6.

22 Western Australian Beekeepers' Association, Submission no. 32, pp. 6-7.

23 Tasmanian Beekeepers' Association, Submission no. 63, p. 6.

Beekeeping is an unusual occupation and one that the majority of people find unattractive. To grow a beekeeping business one must have access to labour and in the event of loss of employees one must be able to find replacement labour quickly. Australian Queen Bee Exporters Pty Ltd has grown to the largest beekeeping company in Australia because 20 years ago the Department of Immigration recognized the unusual nature of beekeeping and approved our company to import foreign labour.

This approval must be allowed to continue and beekeeping companies with growth potential must be allowed to use foreign labour.

Unfortunately the shortage of labour includes a severe shortage of persons to carry out the less technical work e.g. Remove honey from hives, migrate hives to new sites etc.

It is vital that this committee allow approved beekeeping sponsors to use foreign labour via the 457 visa.²⁴

5.25 However, the submission argued that the current rules were too stringent and added significantly to the costs of industry:

Unfortunately under present immigration rules Australian beekeepers must pay a foreign worker \$10,000 above what would be paid to an Australian beekeeping employee if they were available. In addition under immigration rules the employer is not allowed to incorporate as part of the salary things like accommodation (beekeeping is migratory), airfares, health insurance, superannuation, education expenses for children etc. So the employee can cost the employer almost \$50,000 to produce a product that currently sells for below the cost of production.

The U.S. and Canadian government publicly recognise the value of the beekeeping industry and the majority of employees come from Mexico and Central South America. The worker receive US\$7 to US\$10 per hour. Furthermore, beekeeping being a seasonal occupation U.S. employers are allowed to employ for 6-8 months as against our system that demands full time employment.

To be forced to employ (particularly in a large company) workers for winter months creates unnecessary overheads for Australian beekeepers. The alternative of sponsoring for 8 months and then re-applying for the same person for next season is impractical.

24 Australian Queen Bee Exporters Pty Ltd, Submission no. 37, p. 4.

Approvals can take time and result in the employee not arriving in time for the season.²⁵

5.26 In its submission, WABA took a similar stance, advocating subsidies for the employment of foreign workers to offset costs to the industry:

It appears that we have little option but to recruit the work force we require from overseas. There are many English speaking, agrarian workers trained in apiculture, available on the global labour market, even if there are few or none in Australia. It would appear, that the 457 visa class would enable Australian beekeeping businesses to access these, however apart from a few Philippino workers taken up by the package bee producers in NSW, it has not been widely used within our industry. The reason being that the real cost of employing labour is currently beyond the financial resources of most beekeepers.

The federal government could assist considerably, by provision of an employment subsidy to the apiculture industry, to enable individual businesses to utilise the existing 457 visa class to employ trained apiculture workers from overseas. Currently, a 457 visa employee is not eligible for the tax-free threshold, and must pay tax at the overseas worker rate of 49 cents in the dollar on every dollar earned. This impost is not a deterrent to 457 visa entrants, but given the financial situation of the industry, even the minimum wage rates are a disincentive to the industry to employ this labour. If a subsidy was paid to the employer equivalent to the tax liability of the employee, it would effectively halve the cost of employing the worker, without distorting the minimum wage rates in the community, and would have a net zero impact on income tax revenues. Furthermore, if the employment resulted in further experience, training and skills development for the employee, which that person could use to good advantage on return to the home country, then the "cost" to the government could actually qualify as foreign aid to a developing nation, if the employee was sourced from a suitably qualifying region.²⁶

5.27 In his submission, Mr Trevor Monson also argued for the importation of foreign workers to meet labour and skill shortages in the industry:

It is my belief that the beekeeping industry will get through the challenges ahead, including varroa mites and increasing pollination

25 Australian Queen Bee Exporters Pty Ltd, Submission no. 37, pp. 4-5.

26 Western Australian Beekeepers' Association, Submission no. 32, p. 7.

demands. The real challenge will be finding extra workers, part-time, seasonal and full-time. However, the need for workers already exists. Beekeepers are reporting that it is difficult to find employees. Most are coming from overseas. It would help if the Australian government had a uniform set of guidelines for immigrants wishing to come to Australia as beekeepers. It would also be an advantage to have 3–6 month visas, so that workers were available for short work assignments. If varroa mite or other threat was to hit us, it could be helpful to allow overseas beekeepers and their families from the northern hemisphere to spend their off-season in Australia.²⁷

Marketing

- 5.28 In the evidence presented to the committee, poor marketing and marketing structures were also seen as an issue for the industry. In its submission, the New South Wales Government stated:

Australia suffers from the effects of a fragmented and poorly structured marketing system for all honey bee products. Some Australian packers have demonstrated that they will source inferior quality honey when necessary and in some instances the quality of local honey has been adversely impacted by blending with inferior overseas honey.

Export of Queen Bees and Packaged Bees is also poorly organised and not well promoted internationally. Inadequate accreditation to underwrite product integrity is seen by industry to create potential for unscrupulous and unprofessional operators to undermine what could be a lucrative, long term trade. Arrangements to better coordinate marketing by Australian suppliers could help to develop this market.²⁸

- 5.29 The NSW Government argued that the industry needed ‘better marketing arrangements and structures to capitalise on existing opportunities for domestic pollination services and for exporting Queen bees and packaged bees’.²⁹
- 5.30 In its submission, the Department of Agriculture and Food, Western Australia, urged better marketing and market research for the industry:

27 Mr Trevor Monson, Submission no. 6, p. 6.

28 NSW Government, Submission no. 79, p. 7.

29 NSW Government, Submission no. 79, p. 9.

Honey will continue to be the main apiary product produced by the WA apiculture industry. Because Australia's honey has unique qualities and flavours and being relatively 'clean and green', there is the opportunity to capitalise on marketing and promoting branded Australian quality products to the world market as well as developing and marketing medicinal honey such as produced from Jarrah (*Eucalyptus marginate*) forests.

Enhancing the demand for honey by education and promotion of the types of foods to which honey can be best suited (not only as a spread) and maximising the different floral types and flavours available, provides the industry with a large array of markets. It also has the advantage of diversifying risk associated with a decrease in demand for the generic product.

More market research needs to be undertaken both on the domestic and international front to provide the apiculture industry with the ability to formulate efficient and effective marketing strategies and production schedules based on up to date information on trends in Australia and abroad.³⁰

- 5.31 The industry itself recognises the need for better promotion. In evidence before the committee Mr Rod Gell, Victorian beekeeper and president of the Central Victorian Apiarists Association, stated:

I think we need to market more aggressively and market our quality a lot more aggressively. It is my understanding that we are the only honey-producing nation that does not use chemicals to maintain hive health and control diseases. We need to promote that a lot more.³¹

- 5.32 In her submission, Mrs Jodie Goldsworthy, of Beechworth Honey, emphasised the need to educate the public on the vital role the industry plays in food production:

It is recommended that the facts associated with the beneficial and significant relationship between the Australian honey bee industry and broader agricultural production be more widely publicised in order to influence the general public (all of whom are consumers), decision makers, policy makers and politicians to make decisions that have positive effects on the Australian honey bee industry and therefore positive effects on broader food production in general.

30 Department of Agriculture and Food, Western Australia, Submission no. 24, p. 2.

31 Mr Rod Gell, *Transcript of Evidence*, 25 July 2007, p. 39.

Every Australian should know that two thirds of the food they eat has been pollinated by a honey bee and honey bees need viable Australian bee keepers to manage them into the future!³²

5.33 There was some disagreement about how best to manage and fund industry promotion. In his submission, Mr Shawn Sykes, a beekeeper from western New South Wales, urged the reintroduction of a levy for the generic promotion of honey. He wanted to 'look at the TV and see an ad for honey, not anyone's honey but Australian honey, so then we may focus on honey itself'.³³

5.34 Likewise, the Victorian Apiarists' Association called for an industry levy to provide for generic marketing:

The VAA submits it is attracted to the re establishment of a Federal statutory levy on production, collected by the relevant departmental authority specifically for the purposes of honey consumption promotion, to be then dispersed less cost of collection to an approved industry entity authorized to develop an administer industry wide honey promotional programs. On past experience, the VAA is confident that Australia wide generic promotion of honey would produce outcomes of product quality assurance that would translate to the strengthening of consumer demand, and overall, help create a retail market environmental more conducive to improving industry future prospects. The issue of whether these outcomes would exert upward pressure on honey producers' farm gate prices having regard to the competitive dynamics that exist between market place stakeholders as previously discussed, remains a vexing issue, and needs to be addressed.³⁴

5.35 In evidence before the committee, however, Dr Ben McKee, of Capilano Honey Limited, questioned the value of generic promotion as against product promotion by individual companies. He explained:

...there has been some movement within the industry to develop a marketing levy, or some kind of a mechanism to do that, to market honey generically. There are some positives and some threats in doing that. It depends who you want to make responsible for doing that. If you look at the business, for instance, that Capilano Honey is in, you see that we have a cooperative nature because of our constitution. So we have to be supportive of the industry and the

32 Mrs Jodie Goldsworthy, Submission no. 69, p. 6.

33 Mr Shawn Sykes, Submission no. 44, p. 1.

34 Victorian Apiarists' Association, Submission no. 71, p. 13.

beekeepers. The other thing is that what we do is sell and market honey. Basically, the core of our business is sales and marketing. So Capilano does a significant amount of specific marketing work. We are the only honey company to do TV advertising, for instance. That may be a mechanism of our size, but we, as the sales and marketing arm of part of the industry, see that it is our role and responsibility to market honey. At the same time, when we do that, the rest of the industry gets a benefit. People do not only buy Capilano; they buy Beechworth products and they buy Home Brand products. We are doing the industry a service by doing that. It just depends within whose responsibility greater marketing of the industry resides. If it becomes an industry responsibility or if industry wants to do that, there is nothing wrong with doing that. I think that it has got some merit.

We do a lot of market research. We pay a lot of money to get ACNielsen data, we have professional marketing people – who cost us a great deal of money – to focus on how we are going to spend the \$3 million we devote to TV advertising on what we think is going to deliver the best commercial gain to the company. In that respect, that helps the industry. The industry has enough money to be able to do all that, but I do not think that it is a good utilisation of levies. To do all that research and deliver that direct marketing effort to consumers is going to be beneficial for the industry but, at the same time, we are doing the same thing and I am sure the other honey companies are doing the same thing, and I think the industry could do with more of it.³⁵

- 5.36 A ‘single desk’ approach to marketing and exports was advocated in several submissions. In its submission, the Forests and Forest Industry Council of Tasmania noted that:

The establishment of a ‘single desk’ selling system has been advocated together with work to strengthen the brand and more effort to capture value for the iconic value and rarity of leatherwood honey.

However, these structural and marketing changes need to come from a small association without a paid secretariat and require considerable change from the traditional approach and speed in implementation once adopted. An incremental approach will not work. Sophisticated business management is required to bring it off.

35 Dr Ben McKee, *Transcript of Evidence*, 10 August 2007, pp. 7–8.

This has to come from an organisation that, except for its top echelon, is largely hobby players.³⁶

- 5.37 In his submission, Mr Rod Yates, of Australian Honey Exports Pty Ltd, advocated a single desk for exports, but not under the industry's current leadership:

Export sales of bulk honey have achieved little for our producers, but have given European packers great profits. The answer is to establish an agreement binding on exporters, particularly in regard to minimum prices and quality, that reflects a fair share of the retail prices for packed product in other markets, in other words, dare I say it, there needs to be a conduit through which exports are facilitated, "a single desk" and it shouldn't be the existing structure of AHBIC, who are generally mistrusted. You cannot get exports of prepacked honey off to a good start in Europe without either sacrificing a large share of the profit to a distributor, or having a strong enough Brand Identity so that retailers come to us.³⁷

Industry organisation

- 5.38 For some in the industry, the industry's problems begin with its organisation. In her submission, Mrs Goldsworthy identified a number of serious weaknesses in the way the honey bee industry is currently organised and run:

To date the Australian honey bee industry has managed itself to the best of its ability, utilising a structure based on an historic state and national farm / agri-political type model. As part of this model historically the marketers of Australian honey have played a significant leadership role in providing direction for the industry.

This structure only remains fundamentally sound in looking after the interests of the Australian honey bee industry production sector whilst the interests of the marketing sector are aligned with the production sector. This time has long past and the Australian Honey Bee industry structure finds itself in difficulty in managing a number of complex issues that it faces. This is because for some stakeholders a good result is exactly opposite for another stakeholder.³⁸

- 5.39 According to Mrs Goldsworthy, a critical issue was the funding of AHBIC and the disproportionate influence of one major industry player:
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36 FFIC, Submission no. 80, p. 6.

37 Australian Honey Exports Pty Ltd, Submission no. 40, p. 1.

38 Mrs Jodie Goldsworthy, Submission no. 69, p. 13.

Further complicating the new confusion due to complexity of market and production issues is the fact that the major funding source of the Australian Honey Bee Industry Council, the resulting peak body, comes from one major company, Capilano.

Difficult situations have arisen in the past and will continue into the future where there is a risk of the AHBIC being at odds with the interests of the major companies funding the AHBIC. The structure itself is robust however the funding arrangements at times have the ability to influence decisions made that impact on the future viability of the Australian honey industry. To date there have been no alternatives to the funding dilemma's of the peak body, however the broader industry perception of the impacts of this issue and therefore the ability of AHBIC to be truly representative of the broader industry can perhaps be best measured in the involuntary scale of the "voluntary" funding arrangement.³⁹

5.40 Mrs Goldsworthy urged government intervention to correct the problems:

Additionally in relation to the issues above the author believes the Australian Honey Bee Industry Council and state based recruitment, corporate governance and decision making practices should be rigorously analyzed by government with the view to improving the effectiveness of these organizations.⁴⁰

5.41 She noted that one significant problem was that the industry largely relied on part time volunteers to run its peak bodies, that with the exception of the Executive Officer of AHBIC, all industry positions 'are voluntary and current selection processes and skill sets may not be resulting in organizations and committees possessing the diversity required to achieve the best results possible'. She noted that:

Many individuals have had negative leadership experiences as a result of lack of clearly recorded guidelines, terms of reference, reporting requirements and expectations that were not clearly communicated.⁴¹

5.42 Mrs Goldsworthy argued that:

Without the governments investigation into the shortcomings of the existing industry decision making practices and lack of diversity all current and future funding is at risk of failing to deliver on the full

39 Mrs Jodie Goldsworthy, Submission no. 69, pp. 13-14.

40 Mrs Jodie Goldsworthy, Submission no. 69, p. 14.

41 Mrs Jodie Goldsworthy, Submission no. 69, p. 14.

potential or required outcomes. Supplementing this investigation a mechanism needs to be developed to assist the Australian honeybee industry to address these current shortcomings through the outside assistance and facilitation by appropriately skilled persons experienced in such tasks.

It is the author's belief that once this task is accomplished, the industry will be better equipped to help itself and existing industry and Government work will deliver better results.⁴²

- 5.43 Mr Allan Baker, a Western Australian beekeeper, was also highly critical of the current organisation and management of the industry. He stated in his submission that:

The future of the industry lies in the liberalization of honey production and marketing, cracking down on monopolistic behaviour restricting sales and marketing options, local product development and regional identification, a vast improvement in genetic quality, rigorous attention to bio-security issues and improved environmental management. The industry also needs marketing support for bee keeping produce for individual bee keeping businesses.⁴³

Imports and standards

- 5.44 The importation of honey raises a number of significant and interrelated issues. Price competition with local producers is seen as a problem by the local industry; but there is also the question of whether local producers and importers are playing on a level playing field, questions about product standards, and issues about the labelling of Australian, imported and blended product.

- 5.45 In its submission, the Central Victorian Apiarists Association noted that:

Competition with imported product has led to lower prices being paid for Australian honey. Apiarists believe that for fair competition the imported products must meet all the same standards required of Australian products, including a trace back system. Increased legislation in Australia is increasing the cost of production to

42 Mrs Jodie Goldsworthy, Submission no. 69, p. 15.

43 Mr Allan Baker, Submission no. 53, p. 1.

Australian Apiarists making it difficult to remain competitive against imported products.⁴⁴

- 5.46 One solution raised was to ensure that all imported honey matches Australian standards for consumption and export. In his submission, Mr Peter McDonald stated:

To help protect our industry from the bad effects of international trade I see an easy option. Make the imports of honey match the standard to what we produce and export our honey to. If that were the case then we would increase the cost of the cheaper imports as they would have to work as hard as we do to provide a quality product, and then we would be able to compete on the basis of quality and efficiencies.

So specifically, I think there should be more resources to the conduct testing of imports to guarantee healthy food and make imports match the standards imposed on our industry's exports through the recent AQIS Export Control (Honey and Bee Products) Orders 2007.⁴⁵

- 5.47 In its submission, the South Australian Apiarists' Association also argued for the more rigorous testing of honey:

Requirement for honey standards relating to impurities, chemical contamination and other basic honey quality issues is required to ensure both domestic and imported honey is of equally high consumer standards...

Imported low price, low quality honey is a threat to both the image and profitability of the industry; thus the need for honey standards.⁴⁶

- 5.48 In his submission, Mr Michael Leahy emphasised the importance of setting rigorous standards for honey and applying them to all imported products:

There should be standards set for Australian honey and then all overseas product should have to attain these standards before they are allowed to be sold in Australia. And certainly if we are not allowed to use a product which contaminates honey and is banned, produced in Australia or overseas it should never be sold here.⁴⁷

44 CVAA, Submission no. 72, p. 2.

45 Mr Peter McDonald, Submission no. 45, p. 3.

46 South Australian Apiarists' Association, Submission no. 7, p. 3.

47 Mr Michael Leahy, Submission no. 61, p. 13.

- 5.49 Mr Leahy went further, however, emphasising the need for rigorous standards to be applied to Australian honey, and the need to protect our 'clean-green' image:

...AHBIC is presently seeking a Minimum Residue Level (MRL) for a chemical banned for use in this industry for 10 years. It was found in honey in Europe by a customer, cannot be sold there and they now want to pack it for the local supermarket chains to get rid of the product. Because the substance PDB stays in wax combs for ten or more years how long does this go on for.

The same thing has occurred in the past for an antibiotic used in Argentina for honey bees not for use and never has been in Australia so they set MRLs for the product. So why produce clean and green product when you can use any product you like banned, illegal or whatever as you only need to set an MRL.

So personally I believe that the National Residue Survey should beef up their testing and broaden the range of things they are testing for.⁴⁸

- 5.50 In its response to the inquiry, DAFF outlined the testing regime currently in force for imported honey. The submission stated:

Under the *Imported Food Control Act 1994*, honey from all countries, except New Zealand, is referred to AQIS for testing at a rate of five per cent of consignments. AQIS is advised by Food Standards Australia New Zealand of the foods considered medium to high risk, which are required to be sampled at a higher rate. Product found not to comply with Australia's requirements is not permitted entry and must be destroyed or re-exported. Subsequent consignments from the same source are subject to 100 per cent inspection until a history of compliance is demonstrated. Five consecutive consignments must test clear before the sampling rate can be reduced to five per cent.⁴⁹

- 5.51 There was some discussion in the evidence presented to the committee as to whether the current testing regime for imported honey was adequate. In a supplementary submission DAFF stated:

Imported honey is randomly tested at a rate of 5 per cent of consignments arriving in Australia. Samples drawn from the selected consignments are tested for antibiotics (chloramphenicol, nitrofurans, tetracyclines, sulphonamides and streptomycin) and

48 Mr Michael Leahy, Submission no. 61, p. 13.

49 DAFF, Submission no. 82, p. 5.

screened for the presence of 49 pesticide chemical residues to ensure compliance with Australian food standards.⁵⁰

5.52 However, in their submission, Queensland beekeepers Trevor and Marion Weatherhead questioned the efficacy of the current testing regime, stating:

AQIS does not test honey for a lot of the chemicals found in the EU Rapid Alert System for Food and Feed and have expressed the view that they will not test for these. Is Australia to become the dumping ground for this unacceptable honey?⁵¹

5.53 Their submission continued:

As the Committee is no doubt aware, there are amendments to the Export Control Act so that we can meet the standards, for honey, of several countries including the EU, Canada, Brazil, Papua New Guinea and New Zealand. This will then allow us to export to these countries if we meet these standards.

However, there is no requirement for countries sending honey to Australia to meet these standards. Why? Looking at the EU Rapid Alert System for Food and Feed, it is fairly obvious that there is a lot of honey out there in the world that contains unacceptable residues and would not meet the requirements imposed on Australian exporters by the Export Control Act. Australian beekeepers will be required to have a Food Safety Plan and be audited for these QA standards. Why then will beekeepers in countries sending honey to Australia not also be required to have equivalent standards in their operations?⁵²

5.54 Mr Gavin Jamieson, a Victorian beekeeper, also questioned whether the testing of imported honey was sufficiently rigorous. He told the committee:

Some three or four years ago when it was said – I cannot say who the person was who said it – in defence of products that were being brought into Australia that we are testing honey as we do our own honey, there were 11 antibiotics and substances being added to honey in some countries. We only had a test method available in Australian laboratories for two of the 11 alleged chemical products. That worried me. I used to, many years ago, be involved with two multinational chemical companies in a research and development capacity. Sure, we can send the samples overseas for testing, but we

50 DAFF, Submission no. 82, p. 7.

51 Trevor and Marion Weatherhead, Submission no. 42, p. 11.

52 Trevor and Marion Weatherhead, Submission no. 42, pp. 10-11.

were not doing that and it is not done regularly. So I have some doubts as to whether the testing program is adequate.⁵³

5.55 In its submission, the Victorian Apiarists' Association also questioned the rigour of testing, stating:

The VAA submits, the accommodation reached with AQIS for testing imported honey for chemical residue contaminants is not rigorous enough to confidently provide assurances. Further, there are implications for exporters of honey from Australia where contaminated, imported honey whether blended with Australian product or not is exported under an Australian label, there is an accident waiting to happen in the overseas market place. Not every batch of honey packed in Australia destined for export is tested by AQIS.⁵⁴

5.56 The VAA urged the creation of a for Australian honey by which to measure exports and imports:

The VAA submits that...the following measures, if agreed by the Australian Honey Bee Industry Council and the Commonwealth, should not conflict with government objectives dealing with market support and trade, while providing a real potential for consolidation of honey production sector viability:

- Establish national, Federal Government accredited auditable standards for Australian produced honey.
- that all honey imports to Australia be required by the Federal Government to at least equal Australian produced honey accredited standards, as a condition of landing.

The VAA submits, that a regime for Australian produced honey standards could rest on two criteria:

- National Residue Survey testing and reporting on Australian produced honey has proceeded continuously for more than 40 years, disclosing an exceptional, long term record of freedom from chemical residues. Detections have been very few and far between. Data from test results could form the benchmark of Australian honey standards for residues.
- An Australian Federal Government accredited and auditable national AFB control program, incidence averaged annually across all states to form the benchmark standard for each following year.⁵⁵

53 Mr Gavin Jamieson, *Transcript of Evidence*, 25 July 2007, p. 29.

54 Victorian Apiarists' Association, Submission no. 71, p. 34.

55 Victorian Apiarists' Association, Submission no. 71, p. 34.

5.57 An important aspect of this is the labelling of blended honey and other honey products as 'Australian made', especially in cases of chemical contamination. In its submission, AHBIC noted that:

Labelling rules regarding the country of origin are currently administered under the Trade Practices Amendment (Country of Origin Representations) Bill and it is the responsibility of the Australian Competition and Consumers Commission (ACCC) to enforce this. In general, to claim that a honeybee product is 'Made in Australia', it must have been substantially transformed in Australia and at least 50 per cent or more of the cost of manufacturing the good must have been incurred in Australia. To claim the product is a 'Product of Australia', each significant ingredient of the product must have come from Australia and virtually all processes in its production must have happened in Australia (ACCI, 2005).

However, industry consultations suggest there may be a large amount of royal jelly and propolis being imported into Australia from China by Australian health food distributors and then re-exported to Asia and Europe with a 'Made in Australia' label without meeting the appropriate labelling standards. Due to the high risk of antibiotic contamination in Chinese products, inappropriate labelling introduces a huge risk to the Australian honeybee industry because a contaminated product that is mislabelled 'Made in Australia' or 'Product of Australia' could impose a massive cost to Australia's clean and green image around the world. Already there have been two incidents where Chloramphenicol was detected in royal jelly that was labelled Australian made.

The complicating factor is that these distributors are technically satisfying the current labelling laws due to the small portion of royal jelly and propolis content within the products (around 0.03 per cent royal jelly in some cases). Therefore the majority of the product (the filler) is actually made in Australia. This means there is a problem with labelling the products as 'royal jelly' or 'propolis'.

In order to reduce the risk to the Australian industry of contaminated honeybee products, the industry believes that the government should better enforce the rules and regulations associated with product labelling of honeybee products. In addition, this should be supported by the enforcement of labelling on honeybee product descriptions so re-exporters are not allowed to

attach a label that relates to a specific ingredient when in fact the majority of the product is made up of filling material.⁵⁶

- 5.58 The other issue concerning labelling was raised by Mrs Goldsworthy in her evidence before the committee, the labelling of processed foods and honey substitutes. She told the committee:

The other issue for honey is that there are a whole lot of manufacturers of products who are really keen to use the word 'honey' in their marketing of the particular product, whether they be cereal manufacturers, muesli bar manufacturers or whatever. Often they are marketing their products and utilising the natural perception that honey is good for you. Yet when you look at the list of ingredients, which lists the largest ingredient to the smallest ingredient, somewhere right down the very bottom you see that a small amount of honey is going into those products; in some cases, no honey is going into those products. I would like to look at truth in labelling going more broadly than the spreads themselves into the ingredients as well, where honey is used as an industrial ingredient. Some of those markets are actually quite large markets. We have certainly found that that is the area where Australian honey is losing ground, because Australian honey, in an industrial manufacturing sense, is in fact an invisible ingredient. So if a manufacturer can source an imitation honey or a lower priced imported honey and use that in their honey muesli or whatever it is, the consumer is not asking the question. They just do not know.⁵⁷

Exports

- 5.59 There are significant challenges facing exporters of honey and other bee products from Australia to the rest of the world. Honey producers and exporters of packaged and queen bees face a range of tariff and non-tariff barriers to export markets. In addition, smaller producers are met with the prospect of breaking into foreign markets without the benefit of skills and experience of operating internationally. This has implications for the long term structure and viability of the industry.
- 5.60 The difficulties facing new players in the international marketplace were outlined by AHBIC in its submission to the inquiry. According to AHBIC:

⁵⁶ AHBIC, Submission no. 56, pp. 46–7.

⁵⁷ Mrs Jodie Goldsworthy, *Transcript of Evidence*, 25 July 2007, p. 50.

Experience suggests it is very difficult for a new honey exporter to gain market share within an international market as distribution channels are very hard and costly to acquire. Furthermore, a honey exporter entering a new market needs to demonstrate that it can guarantee a consistent product (in terms of volume, taste, and colour) for the full 12 months, year on year. This may be difficult for a small to medium size exporter as the current restrictions in place on access to natural resources limits the ability of the industry to meet these demands.⁵⁸

- 5.61 In her evidence before the committee, Mrs Jodie Goldsworthy outlined the approach of Beechworth Honey to the export trade, especially the difficulty in obtaining information with regard to specific markets:

I think the biggest risk to success in exporting Australian honey is the prospect of somebody getting it wrong. If you go through all the normal processes of establishing an international business relationship and ship your first lot of honey into a particular market without fully understanding the regulatory expectations or the honey standard or specification that is required in that market, then the chances are that someone within that market – and particularly a competitor within that market – will test that honey and, if it does not meet the written specification, it will end up being a problem for Australia. So over the last five years we have begun to explore export markets. We have done that in a very tentative fashion because we have not wanted to get it wrong.

The first thing is to source those standards for honey. In a lot of cases you are delving into countries that are not well developed when it comes to their printed material and their departments. You are looking for a specification that states that X percentage of this, that and everything else is allowable within the honey. You then need that to be translated and come back to you. You then need to ensure that you conduct the right sort of testing to ensure that what you are going to send to your customer meets their requirements. Our experience is that it is almost impossible to access that information. In defence of the people within Austrade, Australian honey has been marketed for a long period of time by a very small handful of companies and that knowledge probably resides within those companies rather than within the Austrade system. When someone tries to access that, nobody knows where to find it.

58 AHBIC, Submission no. 56, p. 19.

In the Thai honey standard, for example – and we have had some experience in that particular market – they have stated and specified that there is a zero allowable limit on some of the microbiological bacteria that you could expect to find on the glass here or on the table in any First World country. So anybody who tries to export Australian honey into that market is highly at risk of having it rejected because of the way that the standard was written. It probably took us somewhere in the order of 18 months to get that material. After getting the material, it was translated and we still did not pick up that there was an issue with some of these things. Food safety experts in this country cannot believe it. They are the sorts of things that are barriers to smaller emerging marketers of honey becoming successful in exporting their products.⁵⁹

5.62 In its submission, Capilano Honey Limited stated:

Maintenance of the directive requirements of exporting countries, such as those imposed by the EU, require the assistance of Government authorities to ensure that exporters are aware of and can meet the requirements. Assistance from Government Departments, such as the National Residue Survey, Austrade and DAFF, are valuable in facilitating export and overcoming regulatory issues that may arise. It is important that industry remains aware of developments and changes to export requirements.⁶⁰

5.63 The range of tariff and non-tariff barriers facing exporters is considerable. Tariffs in some markets, such as South Korea, are prohibitive. Other markets rely heavily on non-tariff barriers, such as product standards that are prohibitively high. In evidence before the committee, Dr Ben McKee of Capilano Honey Limited, stated:

With South Korea and those types of tariffs, you just wipe off that market. More important to us would be the 17 per cent tariffs going into the EU that we still pay. I notice that there has been some benefit from the government's interaction with the USA, in terms of dumping and so on, with our operations overseas as well. We do not see a great deal of change of direction or support on those things. The culture of the EU is that they make extreme demands on the quality of our product. Our industry has to go into full-scale quality assurance programs to be able to export to the EU. That is a cost to every beekeeper in Australia if they want to export to the EU. We have to meet those expectations and at the same time pay a 17 per

59 Mrs Jodie Goldsworthy, *Transcript of Evidence*, 25 July 2007, pp. 48–9.

60 Capilano Honey Limited, Submission no. 55, p. 4.

cent tariff to subsidise local stuff when 83 per cent of the honey produced in the EU does not meet their own standards.⁶¹

- 5.64 In its submission, Wescobee Limited noted that ‘the largest trade barrier faced by Wescobee as honey exporters is at overseas country borders via the application of ad valorem tariffs or artificial barriers’.⁶² On the subject of non-tariff barriers, Wescobee stated:

These include quotas place on the total amount of honey allowed to be exported into the country and expensive quality testing measures that are not placed on domestic honey supply in those countries. In some markets there are unequal rules - such as Mexico which can ship to Germany with just a 7% tariff yet we face 17.5%. In South Africa there is an insistence that all honey must be irradiated before entering which excludes Australia to ship final product into the retail market of that country. Irradiation for South Africa is insisted on for local disease control yet South Africa is well known to have most if not all of the bee diseases that are found in the world.

While Wescobee and Australian honey exporters face these barriers honey can be imported into Australia from the above tariff mentioned countries without these barriers. China is a good example of this with no tariff applied.⁶³

- 5.65 The Australian honey bee industry’s biggest asset is its ‘clean and green’ image. Dr McKee told the committee:

It is extremely important, and we always get the sales because our honey is clean and green. The hardest bit is to get the premium for that, with the competition that we face. It is very easy for us in markets, whether they be retail or bulk, to walk in and get contracts because of Australia’s clean and green image. One of our biggest purchasers is Nestle; we provide a lot of honey for them around the world to go into their baby food, mainly because Capilano has put a lot of effort and money into its quality assurance side.

- 5.66 However, as the New South Wales Government noted in its submission:

While the residue free status enjoyed by Australian Honey is supported by voluntary QA systems and backed by the National Honey Residue Survey, any significant failure by individual Australian beekeepers to comply with pesticide product labels or

61 Dr Ben McKee, *Transcript of Evidence*, 10 August 2007, pp. 9-10.

62 Wescobee Limited, Submission no. 34, p. 5.

63 Wescobee Limited, Submission no. 34, p. 5.

adhere to relevant Australian registration advice could be viewed as a potential constraint on export markets.⁶⁴

Queen bee and packaged bee exports

5.67 The queen bee and packaged bee export sector is an important part of the Australian honey bee industry and the export of bees is vital to the viability of the sector. In evidence before the committee, Mrs Paula Dewar, national secretary of the Australian Queen Bee Breeders Association (AQBBA), stated:

In order for us to have a viable industry, we have to be able to export queens. We personally export about 30 per cent of our production. Without that, I do not know that a lot of commercial queen breeders would be able to survive. In Australia we have, I believe, the best breeding stock that is currently available, and I think this is shown in the continued orders that a lot of queen breeders have for their stock to be exported. We personally export quite a lot of queen bees to the Middle East as well as the US and Canada.⁶⁵

5.68 In its submission, AQBBA identified two barriers to the viability of the export trade. The first was trade barriers in importing countries:

TRADE (Barriers): We would like to start on a sour note and that is for a number of years the AQBBA has felt that our industry has been sacrificed in favour of the large agricultural and horticulture industries. For example it has taken 2 decades to get queen bees and package bees into the USA market. The US has every disease plus more than Australia but their protocol is seen as trade restrictive.

Japan—the Japanese protocol has been requiring amendment for several years. The last review unfortunately overlooked chalkbrood. The Japan protocol requires 5 km freedom despite our associations efforts to seek action from AQIS/Biosecurity to amend the protocol this has not been achieved. Chalkbrood is endemic in Japan.

Korea is another country that has placed unrealistic protocols on queen bee imports. They are unable to meet their own protocol. Korea has the potential as a large importer of queen bees.⁶⁶

5.69 The other issue was inspection charges for bee consignments, which rendered some consignments uneconomic:

64 NSW Government, Submission no. 79, p. 5.

65 Mrs Paula Dewar, *Transcript of Evidence*, 10 August 2007, p. 29.

66 Australian Queen Bee Breeders Association, Submission no. 60, p. 2.

AQIS CHARGES: The administration charge of \$104 is acceptable. The additional inspection charges, which vary from state to state, are inhibiting some exports. Various countries have different import protocols eg US requires inspection 10 days prior to shipment; Canada requires 30 days, Japan 30 days. If one operator has a large number of queen breeding colonies spread over a wide area then the travelling/ inspection time will be significant. Please bear in mind that most apiaries are some distance from the department offices. E.g. Qld Queen Breeder situated in Murgon – the department office is situated in Nambour over 150klms away @ 50c per km and time of \$140 hour with 2000 hives to be inspected by 10% the costs could be astronomical.

A US order of 500 queens @\$14 per queen plus charges (export certification), packing and shipping of \$640, plus transport Murgon to Brisbane.

200 Queens to Japan- \$14.00 per queen plus minimum freight charge of \$560 export certification of \$?

As can be seen we are not encouraged to export a world class product. Recently a broader community benefit has finally been recognised by the Horticulture and Agriculture industries and government. Australia needs a profitable queen breeding sector that can export queens, to sustain the whole industry.⁶⁷

5.70 Similarly, the Department of Agriculture and Food, Western Australia, expressed concern over the impact of AQIS charges on bee exports:

Beekeepers exporting consignments of bees advise that the Australian Quarantine and Inspection Service (AQIS) fees are such that for small orders of queen bees exported overseas, AQIS charges double the cost to the buyer. Because of this the orders are abandoned in many cases. This issue is unique to breeder queen bees where usually the order is for fewer than 10 queen bees but where many individual orders world-wide can be a significant income stream for a beekeeper.

A full time development officer employed to co-ordinate the package bee and queen bee export market is warranted. The benefit of this export market in total sales could run to \$20-30 million. Export of packaged bees is an opportunity being exploited in the face of the current world shortage of bees, particularly in the United States and could be one of the success stories of the rural sector. However,

67 Australian Queen Bee Breeders Association, Submission no. 60, pp. 1-2.

current regulations are unnecessarily restricting this export industry.⁶⁸

Committee conclusions

- 5.71 The committee agrees with the evidence presented that the economic viability of the honey bee industry is critical to the provision of pollination services to agriculture and that the industry's economic viability is far from assured. The price pressures facing honey producers are hardly unique amongst primary producers, but the implications of economic failure spread well beyond the honey bee industry itself. Clearly, this is an issue that must be addressed.
- 5.72 Whether the economic problems facing the industry are principally a consequence of price pressure from retailers, importers or honey packers – or the result of poor marketing or poor industry organisation – is unclear on the basis of the evidence presented to the committee. It appears that to some degree all these factors are affecting the industry. It is clear from the evidence presented in Chapter 1, however, that the industry must diversify and modernise if it is to remain viable.
- 5.73 Honey marketing is a vexed issue. The application of a generic levy for honey marketing has widespread support, but is opposed by key industry players. Single desk marketing has also been proposed, but again would appear to lack support from key players. This, in turn, raises questions about industry organisation and the role of packers and producers within the industry.
- 5.74 The committee agrees that price differentials between producers and consumers are a matter for concern and warrant further investigation by the ACCC. The committee can also see grounds for investigation of the current marketing and organisational structures of the honey bee industry, and the regulatory environment within which it operates, by the Productivity Commission, to see whether changes can be made to improve industry performance.

Recommendation 17

- 5.75 **The Committee recommends that the Australian Government request the Australian Competition and Consumer Commission to investigate pricing practices for honey within the honey bee industry and the retail**

68 Department of Agriculture and Food, Western Australia, Submission no. 24, p. 4.

sector.

Recommendation 18

- 5.76 **The Committee recommends that the Australian Government request the Productivity Commission investigate the long term viability of the Australian honey bee industry in respect of industry organisation, marketing structures and the financial viability of producers and packers.**
- 5.77 The committee accepts that the industry faces difficulties over current labour shortages, and agrees that the importation of foreign workers is a part of the solution to that problem. It notes beekeeper concern over the lack of flexibility in 457 visa arrangements from the point of view of the honey bee industry and supports a review of this issue in line with a recommendation made by the Joint Standing Committee on Migration in its report *Temporary visas... permanent benefits*, tabled in September 2007. The second recommendation of that report read:

The Committee recommends that the Department of Immigration and Citizenship commission research into sectoral usage of the 457 visa program, commencing with the meat processing sector, with a view to further refining temporary skilled migration policy and the 457 visa program with reference to specific industry sector needs.⁶⁹

Recommendation 19

- 5.78 **The Committee recommends that the Department of Immigration and Citizenship look at the skilled migration program with a view to further refining opportunities for the honey bee industry and the emerging pollination industry.**
- 5.79 The committee notes that the threat of imports from low cost countries puts price pressure on Australian producers. In itself, this represents the legitimate operation of market forces. However, several issues have been

⁶⁹ Joint Standing Committee on Migration, *Temporary visas ... permanent benefits*, Parliament of Australia, 12 September 2007, p. 22.

raised which cause the committee concern. It is evident that there is a considerable differential in product standards between Australian producers and honey producers in low cost countries. This also ties in with the hurdles faced by Australian exporters in marketing honey overseas. Double standards are at play. The committee believes that rigorous product standards should be applied to both Australian and imported honey, especially with regard to chemical and antibiotic contamination; that a rigorous testing regime should be applied to both; and that imported products failing to meet these standards should be refused entry. In this regard, the committee believes that Australian product standards should be equivalent to those applied by the European Union, and that an identical testing regime should be applied.

Recommendation 20

- 5.80 **The committee recommends that the Australian Government develop product standards for honey and other bee products with regard to food standards and chemical contamination in line with those in force in the European Union, and that all imported honey products are tested against this standard.**
- 5.81 Product labelling should also be made more rigorous to reflect country of origin. The committee is concerned at the ease with which 'Made in Australia' can be applied to blended honey products or products whose key ingredients are imported. Labelling standards should be altered to more accurately reflect the origin and composition of the components of honey bee products, not merely their place of final manufacture. This would protect the 'clean and green' reputation of the Australian product and ensure that competition with imports was carried out on a level playing field.

Recommendation 21

- 5.82 **The Committee recommends that the Australian Government develop labelling standards to more accurately reflect the place of origin and composition of honey and honey bee products.**

5.83 Likewise, the committee is concerned with the range of tariff and non-tariff barriers facing Australian exporters of honey and other bee products, especially queen bees and packed bees. Again, double standards seem to apply in many cases. The committee is of the view that a common international honey export standard would go a long way to opening foreign markets to Australian exporters. The committee also believes that the Australian Government should aggressively pursue the diminution of trade barriers in the honey and bee products sector. In stating this, it should be remembered that the honey bee industry, while small in its own terms, makes a significant contribution to Australian agriculture; and that the economic viability of the honey bee industry is essential to the delivery of pollination services.

Recommendation 22

5.84 **The Committee recommends that the Australian Government pursue the development of a uniform international standard for the testing and labelling of honey bee products and the removal of all tariffs on honey bee products.**

5.85 The committee also believes that administration and inspection charges applied to packaged bees and queen bee exports should better reflect the small scale nature of the industry and its economic importance to the agricultural sector. The restriction of exports through the application of prohibitive charges is in nobody's interest.

Recommendation 23

5.86 **The Committee recommends that the Australian Government, in consultation with industry, reduce inspection charges, if possible, for queen and packaged bees to make the export of this product more cost effective to producers.**

Research, extension and training

- 6.1 Research, extension and training have been identified as critical areas affecting the current and future prospects of the Australian honey bee industry. The need for improved training and extension has been identified as a significant issue for an industry facing many pressures, economic and otherwise; while a significant increase in the industry's research capacity has been highlighted as essential to meeting the threat of Varroa as well as the many other challenges facing the industry. Both industry and government will face significant costs and challenges in meeting these increased research needs.

Current research priorities and funding

- 6.2 RIRDC is the organisation overseeing the national research effort in the honey bee industry. Research and development has been guided through a series of five year plans formulated in consultation with stakeholders. Projects are selected and managed by RIRDC and the RIRDC Honeybee R&D Advisory Committee. The Advisory committee is made up of persons with a range of skills and experience relating to research, production, processing and marketing within the industry and representatives of RIRDC. The committee makes recommendations on the allocation of funds (contributed by industry and government) to the RIRDC Board.¹

1 RIRDC, Submission no. 54, p. 5.

- 6.3 In its *Honeybee R&D Five Year Plan 2007–2012*, RIRDC outlined the following research objectives (for full details, see Appendix A):
- Pest and disease protection (45% of funding);
 - Productivity and profitability enhancement to lift beekeeper income (15%);
 - Resource access security and knowledge (10%);
 - Pollination research (10%);
 - Income diversification including new project development (10%); and
 - Extension, communication and capacity (10%).²
- 6.4 The research priorities identified here accord with the issues raised in previous chapters of the report.
- 6.5 Funding for this research program is obtained through industry levies. A domestic levy, or alternatively an export charge, is payable on honey to provide funding for research and development and residue testing programmes for the honey industry. The domestic honey levy is payable on honey produced in Australia, and honey produced in Australia and used in the production of other goods.
- 6.6 The honey export charge is payable on honey produced in and exported from Australia. No export charge is payable if domestic levy has already been paid on the honey to be exported.
- 6.7 The rate of the domestic levy/export charge for honey sold or used in the production of other goods from 1 July 2006 is 2 cents per kilogram. The rate prior to 1 July 2006 was 1.6 cents per kilogram. The rate will increase again on 1 July 2009 to 2.3 cents per kilogram.
- 6.8 The domestic levy/export charge rate of 2 cents per kilogram is split and distributed as follows:
- 1.2 cents per kilogram for research and development (RIRDC);
 - 0.5 of a cent per kilogram for Emergency Animal Disease Response (EADR) levy; and
 - 0.3 of a cent per kilogram for the National Residue Survey (NRS).³

2 RIRDC, *Honeybee R&D Five Year Plan 2007–2012*, RIRDC Publication no. 07/056, April 2007, p. 21.

3 DAFF, Submission no. 20, p. 30.

- 6.9 The levy paid by beekeepers for research is matched on a dollar for dollar basis by the Australian Government up to 0.5% of the industry's gross value of production (GVP). The levy raises between \$350,000 and \$450,000 per annum and funds approximately 12 projects per year. Around \$10,000 per annum is also provided by queen bee producers via a statutory levy.
- 6.10 The industry has voted to support an increase in its levy over the life of the new R&D plan. The levy increased from 0.8 cents/kg of honey sold by beekeepers to 1.2 cents/kg from 1 July 2006 and will increase again to 1.5 cents/kg from 1 July 2009. The levy increase will eventually lift R&D funds available to the industry by up to \$200,000 pa when Australian Government matching funds are added to the additional levy.⁴
- 6.11 In its submission, RIRDC noted that it had been able to achieve a useful leverage rate for the grower levy and matching Commonwealth funds: 'Every dollar invested by RIRDC has attracted another \$2.40 from other funding sources'.⁵
- 6.12 In evidence presented to the committee, DAFF noted that the research and development model applied to the honey bee industry was the same as that applied to all agricultural industries.⁶ A DAFF official stated in evidence:

The model is the model that has been deemed appropriate for all rural industries. It tries to provide a balance between an industry contribution which is set by the industry and the government providing a matching contribution to that. So it is really for the industry to decide whether they want to increase the levy rate and then they can attract additional government funding up to the GVP cap.⁷

Future research funding

- 6.13 Despite the position taken by DAFF, the bulk of the evidence submitted to the committee on the question of research funding

4 RIRDC, Submission no. 54, p. 11.

5 RIRDC, Submission no. 54, p. 7.

6 Mr Michael Ryan, DAFF, *Transcript of Evidence*, 13 June 2007, p. 14.

7 Mr Michael Ryan, DAFF, *Transcript of Evidence*, 13 June 2007, p. 15.

indicates that the level of funding is totally inadequate. In his submission, Dr Max Whitten noted that:

The obvious problem with the 5-year R&D plan is not the priority settings. Instead, it is the meagre quantum of funds available; and who is available and able to conduct the necessary research. For example, resource access and pollination research each have been allocated around \$40,000, i.e., 10% of a total budget of some \$400,000. Given that the value of honeybee pollination to horticulture and pastures is somewhere between \$3 and \$4 billion dollars, it is clearly unacceptable to allow this situation to continue.⁸

6.14 In its submission, the Victorian Apiarists' Association stated:

Clearly, the Australian honeybee industry's capacity to adequately fund required research through its matched statutory research levy on production has its profound limitations. The small industry does not have the economies of scale of larger primary industries where even modest statutory levy rates generate research funds significant in order of magnitude. Through its RIRDC honeybee R&D program the industry has been doing its best with quite a meagre budget of around \$400,000 p.a.⁹

6.15 In its submission, the Western Australian Beekeepers' Association stated:

The industry faces a major problem in being able to adequately fund its R&D. The current mechanism whereby a small levy placed on sale of its products (honey and queen bees), is then matched \$ for \$ by the federal government, results in a sum of money that in today's research environment amounts to little more than petty cash. Added to which, any downturn in production, (such as that resulting from the current drought), results in a corresponding downturn in research funds availability, making it very difficult to maintain continuity of funding to larger or longer term projects. As the industry winds down under the weight its financial insufficiency, so will its research funds. A future as a researcher in honey bees is currently as bleak as a future in beekeeping. At the time when we most need research and

8 Dr Max Whitten, Submission no. 38, p. 6.

9 Victorian Apiarists' Association, Submission no. 71, p. 39.

development to lead the way forward, we find ourselves least able to afford it.

The industry urgently needs to find a way out of this situation.¹⁰

- 6.16 The research needs of the honey bee industry are potentially huge, and clearly beyond the resources of the industry itself. The CSIRO has modelled the economic impact of a Varroa incursion upon Australia. Its submission stated:

With the information currently available CSIRO has been able to demonstrate the substantial impact *V. destructor* is expected to have on the economy if it were to become a naturalised species, and through this the benefits of maintaining Australia's area free from this pest. The expected benefits to 25 plant industries of remaining free from the pest over the next 30 years have been estimated using a stochastic impact simulation model. In total, CSIRO estimates that these benefits would be between \$21.3 million and \$50.5 million per year if area freedom could be maintained. This benefit is not reflected in current incursion response cost sharing arrangements. This analysis is also based only on 25 plant industries. The magnitude of the benefit will therefore increase should all plant industries with some reliance on *A. mellifera* be included.¹¹

- 6.17 CSIRO argued that there was a strong case for other beneficiaries of Varroa exclusion making a contribution to Varroa research and biosecurity measures:

The results suggest that private beneficiaries of *V. destructor* exclusion are not only apiculturists, and that current cost sharing arrangements for incursion responses do not adequately reflect the spread of potential benefits. The substantial expected benefits of *V. destructor* exclusion estimated suggest that perhaps this pest should be included in the EPPRD (Emergency Plant Pest Response Deed) rather than the EADRA (Emergency Animal Disease Response Deed).¹²

- 6.18 In its submission, AHBIC also argued that:
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10 Western Australian Beekeepers' Association, Submission no. 32, p. 15.

11 CSIRO, Submission no 33, p. 13.

12 CSIRO, Submission no 33, p. 13.

There is a strong case for agriculture and horticulture industries to contribute to the prevention of a Varroa mite incursion and other bee diseases and pests. This is because it is these industries that are expected to experience significant losses if an incursion does occur.¹³

6.19 AHBIC recommended that 'all crop industries that derive an economic benefit from pollination services should contribute to exotic pest and disease cost sharing arrangements'.¹⁴

6.20 In his evidence before the committee, Dr Peter O'Brien, the Managing Director of RIRDC, noted that if pollination services rather than honey production were taken into account, the honey bee industry would attract much more research funding:

If you looked across other sectors and their investments in research and development, under the current government model, the levy paying model, the government will match levies up to half a per cent of GVP. So typically you see industries that have a levy in place spending about one per cent of their GVP, sometimes a bit more, on research and development. If you wanted to use that as a benchmark and you said that the size of this sector, the pollination sector, is perhaps \$2 billion as an estimate, then perhaps \$20 million would be a relevant comparison for the amount of research and development you might see to make it consistent with other sectors.¹⁵

6.21 In its submission, AHBIC also argued for more generous treatment of voluntary contributions to research funding, stating:

Another issue is that there is no provision in the current levy arrangements for Voluntary Contributions by industry to be recognised by the Australian Government and so attract matching funding for an approved project. Voluntary Contributions with Australian Government matching funding is recognised in horticulture and is a very valuable part of the Horticulture Australia Limited research and development portfolio. An offer from a major honey packer and marketer to fund research on the therapeutic qualities of honey to the value of \$500 000 could not be matched with

13 AHBIC, Submission no. 56, p. 30.

14 AHBIC, Submission no. 56, p. 32.

15 Dr Peter O'Brien, RIRDC, *Transcript of Evidence*, 8 August 2007, p. 12.

industry funds even though this project was consistent with the new research and development plan.¹⁶

6.22 This call was echoed by the Tasmanian Crop Pollination Association.¹⁷

6.23 The ability to place a levy on pollination services was also identified at the industry workshop held in March 2008. The background paper for the workshop noted:

A levy on managed honeybee pollination services has the potential to provide a relatively direct source of funding and to levy potential beneficiaries of the investments of Pollination Australia – honeybee pollinators and pollination user industries. While the levy payment would fall on honeybee pollinators, part of the levy would be passed on to the pollination user industries as honeybee pollinators incorporate the levy into their pricing structure.

In 2000 the honeybee industry approached the Australian Government to have a levy for R&D apply to pollination sales with the levy expenditure then matched by the Government. The Australian Government Solicitor argued against the proposal on the grounds that a pollination service is not an animal or plant product, but the provision of a service or a plant product.¹⁸

6.24 In evidence before the committee, Dr Max Whitten identified some \$10 million per annum in funding for honey bee research:

If we are talking about the sort of public investment and support by the industry, I think one could well argue for a program of something like up to \$10 million a year, driven by, say, core funding of \$4 million and supported by industry with leverage for the balance of that. An example which would give you some comparison is what has actually happened to the Cooperative Research Centre for Australian Weed Management in Australia. I am the government visitor for that centre so I know that situation quite well. You probably know that that CRC's bid to the government for support failed because the criteria related principally to the

16 AHBIC, Submission no. 56, pp. 55–56.

17 Tasmanian Crop Pollination Association, Submission no. 70, pp. 21–2.

18 RIRDC, Pollination Australia, background paper for industry workshop 18–19 March 2008, Canberra, p. 27.

new criteria about economic returns, intellectual property and so on. The criteria disqualified effectively the Weeds CRC from bidding. They have now put to the government a new bid for an Australian Centre for Weed Research. I think that is an interesting model to look at, because the value of weeds in economic and environmental terms is about \$4 billion, so we are talking about something of the same value.

What is now being asked of the government for the weeds centre – and I think there is bipartisan interest in this – is something like \$4 million each year over 10 years, and then supported by funds from groups such as the Grains Research and Development Corporation for nearly \$1 million a year, bringing it up to about \$10 million. The governance model has not been talked about, but it will not be like a CRC model, which I think is now top-heavy. A lot of the resources are currently devoted to governance, and it is too rigid a structure. The new weeds model is now moving away from that towards a much looser structure between those groups that benefit – the research providers and so on. So you have got a model on your doorstep to look at.¹⁹

Future research priorities

- 6.25 The evidence presented to the committee during the course of its inquiry identified a range of research needs associated with the honey bee industry and crop pollination. Much of the emphasis was placed on the need to enhance biosecurity through various avenues of research, although other issues, such as the development of new products and technical innovations were also highlighted. A range of research needs have been highlighted in earlier chapters.
- 6.26 Meeting the threat of Varroa is seen as the principal research priority. In its submission, CSIRO emphasised the need to create research and development strategies focussed on maintaining and enhancing pollination services in the face of imminent biosecurity threats:

Any R&D strategy should consider three avenues of attack. First is to preserve *A. mellifera* as an effective pollinator of Australian crops. Second is to maximise the benefits of *A.*

19 Dr Max Whitten, *Transcript of Evidence*, 10 August 2007, p. 19.

mellifera by developing the approaches that will enable it to be managed so as to gain its peak effectiveness as a crop pollinator. Third, reduce reliance on *A. mellifera*, by determining how best to utilise the benefits from native Australian pollinators.²⁰

- 6.27 CSIRO identified a range of activities that could be considered to meet the biosecurity threats facing the honey bee industry. As Varroa is considered the greatest threat to the Australian industry, that is the area of most immediate need. Identifying the biological and genetic factors of susceptibility and resistance is crucial to combating Varroa:

A critical issue is the current susceptibility of *A. mellifera* to varroa mite and a key to addressing this is to understand the mechanism which has enabled *V. destructor* to shift onto worker brood and thereby identify mechanisms for resistance. This knowledge, combined with our knowledge of the honey bee genome offers the prospect of identifying the genetic basis for resistance and developing the capacity to breed bees resistant to the mite thereby reducing the need for miticides and increasing the level of sustainability of hive management.²¹

- 6.28 Likewise, improving our knowledge of crop pollination – developing pollination strategies for particular crops under Australian conditions – to maximise output is also considered crucial:

To what extent do different crops of significance currently rely on the free feral honey bee service? Such information would provide the basis for the development of a strategy aimed at developing the relationship between plant industries at risk from the loss of pollination services through the loss of feral bees and the providers of a managed pollination service. Central to this will be the knowledge of how best to use bees to provide managed pollination of a range of crops in Australia where this does not yet take place to any great extent.²²

- 6.29 Research into bee genetics was seen by a number of those who gave evidence as an important avenue of research, both as a means of developing bees resistant to disease and improving productivity. In

20 CSIRO, Submission no. 33, p. 15.

21 CSIRO, Submission no. 33, pp. 15–16.

22 CSIRO, Submission no. 33, p. 16.

his submission, Mr Neville Bradford, a Queensland beekeeper, observed that 'research into bee genetics is needed to provide bees that are better producers, more resistant to disease and result in a higher return for beekeepers'.²³ Likewise, in his submission, Mr Allan Baker, a Western Australian beekeeper, stated:

The research into the industry needs to focus on genetic strains of honey bees with recessive genes to mites, virus and disease, also research into bee product analysis to highlight beneficial factors in honey bee products.²⁴

6.30 In his submission, Mr Adrian Jones, a Queensland beekeeper, recommended research into bee genetics, including drones as well as queens.²⁵

6.31 Mr Lloyd Hancock saw great prospects for improvements in bee breeding through the use of science and technology. He stated in his submission:

Queen bee producers establish their reputations by the quality of their queens they produce. They rely on their own extensive experience and some provide mated queens via Artificial Insemination techniques.

I think this is one of the areas in which developments in one area of science could be applied to another area and produce some very worth while results. If you think about it, in the last few years there has been incredible developments in science. Understanding gene technology, the ability to analyze DNA, in molecular biology, the ability to see via electron microscopes and a host of other technologies are but a few. Could not these developments be applied to the selection and breeding of queen bees and a better understanding of bee diseases, bee pests i.e. the small hive beetle, the Varroa mite. Due to funding and other priorities this work is being hampered in Qld.²⁶

6.32 In evidence before the committee, Mr Linton Briggs highlighted the potential for genetic research to assist in the fight against Varroa. He told the committee:

23 Mr Neville Bradford, Submission no. 43, p. 3.

24 Mr Allan Baker, Submission no. 53, p. 3.

25 Mr Adrian Jones, Submission no. 81, p. 5.

26 Mr Lloyd Hancock, Submission no. 50, p. 1.

It is interesting that in the honey bee population of the world, whether it be here, Africa, Europe or elsewhere, there is a certain percentage of honey bees that carry within them an inherent behavioural characteristic known as hygienic behaviour, which is controlled by recessive genes and so it is very hard through breeding to fix it totally across a population at an elevated level. However, research that has been done so far shows that as soon as the 20 per cent or so of honey bees that have this particular characteristic detect within the nursery of the hive an ailment that is perhaps killing off their young, they will remove it and get that inoculant out of the hive. That is terrific because it is done biologically and without chemicals. In the case of varroa, people around the world are finding that this particular characteristic also carries with it the ability for honey bees to handle the varroa mite better than its contemporaries. So this is an exciting area of research.²⁷

- 6.33 In its submission, the South Australian Government argued for the need for more scientific breeding and the establishment of rigorous genetic standards:

The bulk of replacement queens for the honeybee industry (excluding Western Australia) are sourced from the eastern states (principally Queensland and New South Wales). In many instances, queen bee breeders do not actively measure or provide purchasers with data about the honey producing ability, temperament and hygienic behaviour (ie ability to detect and remove infected larva/pupa) of the queens supplied. Similarly, beekeepers do not provide reciprocal information to their queen bee breeders. Thus in the absence of standardised objective trait measurements, decisions on genetic selection are subjective and may not necessarily match customer requirements. Further, consideration should also be given to evaluating known overseas lines of varroa resistant *Apis mellifera* - both as a preventative measure for the Australian honeybee industry but also as a means of creating a market advantage for Australian package bees.²⁸

- 6.34 Another key research area identified by CSIRO is improved diagnostics for bee pests and diseases. This would allow importation

27 Mr Linton Briggs, *Transcript of Evidence*, 25 July 2007, pp. 4-5.

28 Government of South Australia, Submission no. 73, p. 3.

of bees from the United States, and re-export of offspring, which is currently not possible due to poor diagnostics for Africanised bees.²⁹

- 6.35 Bee nutrition has also been identified as an important area of research. In its submission, the Queensland Government stated:

Hives can be depleted especially when the bees are very active e.g. when providing pollination services. Historically many beekeepers have relied on access to native eucalypts in State forests and other public lands for suitable high quality nectar and pollen to build up their hives. Declining access to public land plus prevailing drought means that alternative sources of protein will need to be found to maintain the viability of hives and, in the long term, the stability of the industry.³⁰

- 6.36 Mr Neville Bradford also highlighted the importance of research into bee nutrition in his submission:

Research into bee nutrition is an important step forward. As bees are being worked harder, travelling longer distances and producing honey from crops with low quality pollen, bee nutrition becomes an important part of maintaining the hive. Some crops pollinated by bees may also provide a sub-standard nutritional diet for bees and a supplement is needed.³¹

- 6.37 Mr Michael Leahy, a beekeeper from Southern New South Wales, also emphasised the importance of research into bee nutrition to help maintain hive health and strength for both honey production and paid pollination services.³²

- 6.38 In their submission, Trevor and Marion Weatherhead argued for research of impacts of climate change on the Australian honey bee industry:

One emerging area that will need research is the effect of climate change on the flowering patterns of trees. Also, there will need to be work done on how climate change will affect the nectar and pollen producing capabilities of these trees as

29 CSIRO, Submission no. 33, p. 16.

30 Queensland Government, Submission no. 25, p. 14.

31 Mr Neville Bradford, Submission no. 43, p. 3.

32 Mr Michael Leahy, Submission no. 61, p. 10.

well as some of the crops that are worked by beekeepers e.g. canola.³³

6.39 In his submission, Mr Don Keith also highlighted the potential impact of global warming and the need to address this issue now. He stated:

Beekeepers have noted significant seasonal changes since 1990, marked by less rainfall and longer dry periods. In as much as this is caused by global warming and not by previously accepted weather cycles, it will force changes to the Australian bee industry ...

A likely change to Australian Agriculture through the projected reduction of water available for irrigation will be a transfer of water use from lower value crops to the more intensive horticultural crops. This likely change will continue the accelerating requirement for paid pollination services.³⁴

6.40 He urged research into alternatives and strong support from government:

The reductions in available moisture in Australia's traditional beekeeping areas caused by the lower rainfall and higher temperature effects of global warming appears to be reducing floral resources.

Research is needed into the effects of global warming on Australian melliferous flora and the honey bee industry.

A strategy to utilise flora in areas of Australia more favoured climatically by global warming could underpin industry viability. Currently there is almost no commercial beekeeping in Northern Australia, probably due to unique management challenges. For this strategy to evolve, two steps need to occur :

1. Evaluation of the melliferous potential of Northern Australia flora.
2. Research into successful management practices to cope with the difficulties presented by the dramatic wet and dry seasonal variations.

The massive effect of global warming on Australian Agriculture and the Australian environment should be

33 Trevor and Marion Weatherhead, Submission no. 42, p. 14.

34 Mr Don Keith, Submission no. 26, p. 2.

reflected by Australian Governments being at the forefront of action to reduce and reverse global warming.³⁵

- 6.41 The need for a better understanding of the economic role of the honey bee industry in agriculture and forestry was also noted. In evidence before the committee, Mr Robin Thompson (Tasmanian Department of Primary Industries and Water) told the committee:

We have seen in the course of this morning that there has been a fair bit of interdependency between the apiary industry, the agricultural industry and the forestry industry. We do not really have a good economic understanding of how the interdependency works. We do not know what would happen to the agricultural industry if bees decreased, stayed the same or increased in number. In respect of the relative values of the apiary and forestry industries, it is very easy on one level to say that a tree is worth X and the forestry is worth that. But often that is fairly superficial in that it does not take account of, if you like, the value-adding of the industry to agriculture. So perhaps there is some basic economic research which may be beneficial there.³⁶

- 6.42 In his submission, Dr Whitten recommended:

A new comprehensive economic study be conducted on the role and value of incidental and paid pollination for all horticultural crops and pastures that depend on insect pollination, and in particular, pollination provided by the introduced European Honeybee, *Apis mellifera*.³⁷

- 6.43 In its submission, the South Australian Government, highlighted the need for ongoing data collection:

Historically, industry data (particularly economic) has tended to only be consolidated in response to an issue. Consequently these reports (unlike technical research reports) have a limited life span due to the evolution of industry and/or economic conditions. A cost effective method for data capture could;

- assist operators assess their profitability (relative to industry standards);

35 Mr Don Keith, Submission no. 26, pp. 5–6.

36 Mr Robin Thompson, Tasmanian Department of Primary Industries and Water, *Transcript of Evidence*, 3 September 2007, p. 37.

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

- allow prospective investors/entrants to assess the industry's productivity and opportunities; and
- provide objective data when developing policies.

A benchmarking program involving operations from all states and territories could contribute greatly to this.

Computer based models that could be modified for this purpose already exist in many primary industries.³⁸

6.44 The South Australian Government recommended implementing and maintaining a national honey bee industry benchmarking program involving all States and Territories; and that AHBIC coordinate the periodic distribution of benchmarked indicators to industry for information.³⁹

6.45 The medicinal use of honey is seen as an important area of diversification for the industry as well as having significant benefits for society generally. In its submission, AHBIC noted:

Due to the production of hydrogen peroxide, most raw honeys have anti-microbial properties. However Australian Jellybush honey is primarily used for its medicinal purposes as it has some as yet undiscovered property that provides extra antimicrobial activity. In 1997, Jellybush honey became the first and only honey registered as a therapeutic agent, which was made possible through research undertaken by RIRDC and Capilano. It comes from *Leptospermum* species, a native plant with small waxy flowers. Although this is one of the species that has antimicrobial activity, there exists other species within Australia that have medicinal use potential, including Jarrah honey from Western Australia. Other high anti-microbial active honeys are currently being researched.⁴⁰

6.46 AHBIC saw great opportunities for the industry to diversify into the production of medicinal honey, but only if research funding was available to identify and test different honeys for their medicinal properties:

There is a good possibility for honey producers to expand into the production of medicinal honey. Jellybush grows quickly, maturing at between two and three years old, and can be grown in a number of places within Australia.

38 Government of South Australia, Submission no. 73, p. 3.

39 Government of South Australia, Submission no. 73, p. 3.

40 AHBIC, Submission no. 56, p. 20.

Promotional efforts are currently being undertaken on the domestic and international health care markets to increase demand for medicinal honey. However, not all Jellybush trees can be used to produce medicinal honey, and the process of extraction can impact the level of anti-microbial activity. Further research into the properties that create active honey and the maintenance of its medicinal properties needs to be undertaken in order to continually develop this market.⁴¹

- 6.47 In its submission, the Department of Agriculture and Food, Western Australia, noted that a 'recent DAFWA project has shown that honey from the Jarrah forest has effective levels of antimicrobial activity and therefore there is an additional community health benefit associated with bees having access to forests'.⁴² The submission continued:

After extension of this information, Jarrah honey is now in high demand, and is one of the highest priced honey products in WA. Further efforts in marketing of this unique honey would contribute to the profitability and sustainability of the industry, and may encourage a younger group of people into the business. This all has a flow on beneficial effects for the agriculture and forestry sectors.⁴³

- 6.48 In their submission, the Fewster family noted that 'ongoing research is required on the benefits of honey and propolis for medicinal purposes. There is not enough research and or facts on the benefits to humans and animals of honeybee products from the hive'.⁴⁴

- 6.49 In evidence before the committee, Mr Lloyd Hancock proposed an even more adventurous approach to the investigation of the medicinal properties of honey – the detailed investigation of a range of potential uses based on traditional medicines. He explained:

Honey, as we know, is a product going back to pre-biblical times. There have been many folk tales about the use of honey. I think it is only in recent times, with the advent of Medihoney, that modern science has confirmed the role and the ability of honey in traditional cures. Work was done here at the PA Hospital. In my submission I mentioned the ABC's *Catalyst* program. The point I make is that there are also other

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

42 Department of Agriculture and Food, Western Australia, Submission no. 24, p. 3.

43 Department of Agriculture and Food, Western Australia, Submission no. 24, p. 6.

44 Kuyan Apiaries & West Coast Honey, Submission no. 58, p. 8.

areas that may be pursued, such as the use of honey in helping the body absorb calcium. This could have major benefits for people suffering from bone loss – osteoporosis. There is also mention of honey and cinnamon. I do not know whether these folk cures are correct or not, but they have been about for a long time and, to my mind, there should be some funding of research just to prove or disprove them.

It may be that because bees forage on lots of different plant types, as was the situation with Medihoney, certain flowers will give you certain products. This happened in some research work done at the PA Hospital with emu oils, where the emus seemed to pick up certain things and this had effects for arthritis. This type of research does not attract funding because drug companies do not get anything out of it, but it could be of tremendous benefit. By the simple use of honey and things like cinnamon and calcium, great benefit could occur for patients, and I would strongly suggest that that is an area that should be recommended for funding.⁴⁵

6.50 He also suggested other areas of technical innovation, such as using remote sensing techniques to monitor hives:

The present method of looking after bees usually involves long trips to inspect and when the frames are ready for extraction they are returned to the extraction plant and then returned to the hives. This journeying and transporting frames back and forth adds costs to honey production. Some applied technologies are being tested whereby the hives are monitored remotely and information about the weight of the hive is sent back to base by mobile phone. With developments in technology it will be interesting to see if the advances in medical remote laparoscopy could be applied to examine the interior of a hive so regular inspections could be made on the activities of the queen, the presence of pests, the state of the hives. If techniques like these worked it could save costs of transport to the site, the time to dismantle the hive and would enable the presence of any unwanted or introduced pests to be detected earlier. That is between regular visits which could be weeks apart.⁴⁶

6.51 Or developing mobile extraction plants:

45 Mr Lloyd Hancock, *Transcript of Evidence*, 10 August 2007, p. 79.

46 Mr Lloyd Hancock, Submission no. 50, p. 2.

Extracting vans with facilities up to health standards which are capable of extracting honey near the hives would save costs of transporting full frames of honey to extracting plants and be returning extracted frames back to the hives. The concept of having “contract harvesters or honey extracting harvesters” is not viable at the moment but could be a future economic concept if the harvesting were linked to the honey packers. That is the beekeepers would pass the responsibility and costs of harvesting on to the packers. The packers would go to the field extract the honey, pay the beekeepers a price on honey extracted plus the by products, beeswax etc. The bee keeper would reduce their responsibilities simply to getting the best production out of the bees and develop other services such as supplying hive for pollination both locally and for export. Obviously in sites not suitable for the extracting vans the frames of honey would need to be transported a short distance to a site suitable for a van.⁴⁷

Education and training

- 6.52 In the evidence presented to the committee, education and training was presented as a vital issue to the Australian honey bee industry, both in the sense that the industry required trained workers within and supporting the industry, but also in the sense of educating the general public as to the importance of the industry.
- 6.53 A critical issue facing the industry is the ageing of the workforce, the consequent threat to the industry’s knowledge and skill base as beekeepers and research and extension staff retire, and the scarcity of young new entrants to the industry. In its submission to the inquiry, the Tasmanian Beekeepers’ Association noted that:

Beekeepers are an aging population with the estimated average age of Beekeepers being greater than 54 years, a number are in their 70’s and 80’s. Most beekeepers have no formal training yet the level of knowledge older beekeepers would certainly have earned them a PhD in academic circles. The Beekeeping industry has a vast unwritten cultural history. Pioneers in the industry have an intimate knowledge of the environment, and its impact on hive management.

47 Mr Lloyd Hancock, Submission no. 50, p. 2.

A key cultural issue is the loss of industry knowledge and skills through an ageing population and no formal process to transfer these skills and knowledge. With less and less younger people entering the industry there is no mechanism to pass down this knowledge.

Young people are not attracted to the beekeeping industry. This is not dissimilar to other agricultural industries. Specific reasons in the beekeeping industry are the high cost of setting up business, the heavy workload (especially during the summer season) and the lifestyle commitment that must be made.⁴⁸

- 6.54 In her evidence, Mrs Goldsworthy also emphasised the need to harness the knowledge of industry elders and transmit it to a new generation. She stated:

We really have to get on paper how we can, in a flexible way, deliver a pathway for either a new entrant or for an existing entrant to improve their skills in particular areas. It worries me greatly, when I surround myself with most of our suppliers and with industry people, that the average age is so high. I look at people like Linton Briggs and others within our industry – Paul Griffiths, whom I spent some time with yesterday; I could name many of them – and you know that somewhere in the next 20 years that knowledge and that skill is not going to be there. My education has been more about finding mentors within our industry whom I have been able to get on the end of the phone and ring and say: ‘Hey, I’ve got this particular problem. Give me the background on that; give me the history on that. Why did we as an industry reach this particular point?’ There is a lot of knowledge out there that I am very conscious has to be captured urgently, because there is not the younger people coming in to do that.

I have been giving this a lot of thought and I suspect that it would be terrific if in some way we were able to partner younger people who are interested, whether they be amateurs who are interested in becoming more commercial or others, with some of our older generation beekeepers, many of whom are looking for exit strategies from the industry. That would be one way to come up with a model that may assist in bringing new people into the industry. They may not be 18-

48 Tasmanian Beekeepers’ Association, Submission no. 63, pp. 5-6.

year-olds, but they might be 35-year-olds who have tried something else, are ready to leave the corporate world, have been interested in bees for a period of time and who might want to work alongside some of these more experienced industry members.⁴⁹

- 6.55 However, as noted by a number of beekeepers, learning the art of beekeeping, and doing the work required to make a success of it, is hard. In his submission, Mr Michael Leahy, a first generation beekeeper, stated:

I cannot find anybody in Australia who is skilled and wants to work in the industry nor somebody who wishes to train to become a beekeeper.

It is a tough profession, you need to be skilled in so many areas: Manipulation of hives of bees, queen bee breeding, truck driving, machine/plant operator, maintenance engineer, forester – identifying trees, flowering habits, accountant and office administrator and the list goes on.

I admit that the path as a first generation beekeeper with no grounding whatsoever has been difficult. Certainly without the support of certain people...I wouldn't have made it. And so maybe there needs to be a better way.

How you go about this is difficult as firstly you need to collect information of the right people. Secondly, you need the right people to teach it.

At the end of the day you can teach people to go through a hive of bees, how to take honey off and how to load a truck, possibly even to find the occasional honey flow, extract honey and recognise different varieties. But at the end of the day the most successful beekeepers have a gift as does a Picasso.⁵⁰

- 6.56 In evidence before the committee, Mr Des Cannon also highlighted the length of time it took to acquire the necessary knowledge and skills required to become a commercial beekeeper:

One of the hard parts about becoming a commercial beekeeper is that I was told very early that it was a 15-year apprenticeship because it takes about 15 years to build up your botanical knowledge, to build up your biological

49 Mrs Jodie Goldsworthy, *Transcript of Evidence*, 25 July 2007, p. 55.

50 Mr Michael Leahy, Submission no. 61, pp. 11-12.

knowledge of how to get the best out of the bees and to build up your repertoire of sites that you can go to. I would say that is a fairly accurate summation – about 15 years to really get to the point where you can succeed.⁵¹

6.57 In his evidence, Mr Roy Barnes, a Queensland beekeeper, stated:

Regarding the education of beekeepers, I think I might have mentioned in my submission that it is fairly easy to train people in how to manage a beehive but it is virtually impossible to teach them how to read the bush without those practical, hands-on years of experience. I have been beekeeping for 44 years, since I left school, and I have not seen one season that has been exactly the same as another. It is an ongoing challenge each year because each year is different. At the beginning of the year I cannot plan out where my bees are going to be for the next six months. There are so many varying factors that come into play, and you change, on a day-by-day basis, which way you are heading. That is just the nature of the game.⁵²

6.58 One of the keys to industry renewal cited in the evidence presented to the committee was attracting young people in. In his submission, Mr David Leyland, a Western Australian beekeeper, highlighted the need to attract young people to the industry:

It is my opinion that the greatest dilemma the industry currently has is how to entice younger people in. Our industry mainly consists of generations of older beekeepers that do not have a following of children that are interested in continuing in beekeeping. It does not offer attractive enough monetary returns for the great amount of effort and labour involved.

The wider community is not educated enough on beekeeping to know that it is a viable choice for a career. There is no official educational program to assist any potential newcomers to the industry.⁵³

6.59 One solution was to put apiculture into schools. In his submission, Mr J F Ward, a beekeeper from Victoria, argued strongly for teaching apiculture in schools, stating:

51 Mr Des Cannon, *Transcript of Evidence*, 8 August 2007, p. 19.

52 Mr Roy Barnes, *Transcript of Evidence*, 10 August 2007, p. 65.

53 Mr David Leyland, Submission no. 3, p. 1.

The time is coming when more young people will be needed for this industry, most apiarists are an ageing lot. The Government needs to have apiculture taught in schools.⁵⁴

- 6.60 Mr Neville Bradford noted the barriers to bringing bees into school education, but also emphasised the need for teaching children about the role of bees and agriculture generally:

On the subject of education, a few things used to happen. In the past, most schools had a project club and that project club usually had a beehive and they would gather the honey and sell the honey off as a money-earner. Those beehives are gone because that sort of thing is not seen as being a terribly safe activity to have at a school. The flow-on effect of that is that fewer people becoming interested in bees.

On that same tack, where bees are not seen as a safe thing for schools, some schools which have rural studies, where they learn about different rural industries, are having difficulty in that they are not allowed to keep hives for rural subjects. In some towns they are banned from keeping the hives there.

There is a lack of funding and a lack of availability of rural subjects to secondary students, so there is nothing for them to see what other options are out there, other than working in an office or taking on a trade or something like that. There is nothing there to show them what rural life is about and what could be expected from it.⁵⁵

- 6.61 Mr George Pallot, President of the Ipswich and West Moreton Beekeepers Association, highlighted the successes and frustrations his association had encountered in bringing apiculture to schools:

We are quite active as an association in the school area. Several of our members have been very active in one of the large colleges in the Ipswich area. As I said in our submission, the beekeeping section there is very successful in submitting honey to shows and so forth and winning prizes. We have been very prominent in that area. Several of our members have gone along to schools to give talks on bees. On top of that, just prior to Christmas I went around to 20 or 30 schools in the Ipswich area, distributing books for inclusion in their libraries. The feedback from that was very positive, but it was

54 Mr J F Ward, Submission no. 4, p. 1.

55 Mr Neville Bradford, *Transcript of Evidence*, 10 August 2007, pp. 53-4.

very disappointing to hear from the personnel in these schools that 'Beekeeping does not feature in our education system.'⁵⁶

- 6.62 Another important area highlighted in the evidence was the need for public education about the role of honey bees. In its submission, the NSW Apiarists' Association stated:

Education of the general public is perhaps as important as training young beekeepers. Both the community and Government need to be made aware of the value of the honey bee to society.⁵⁷

- 6.63 In a similar vein, Mr Pallot noted:

I have outlined here, on behalf of the association, three aspects of education, and one of them certainly is education of the public at large as to – the term we were using earlier on – the clean green image of Australian honey and its advantages, and that the producer of that honey is also a valuable part of the ecosystem of the country. This, again, is part of what I said earlier on about the frustration of the small beekeeper about the lack of knowledge out there in the marketplace.⁵⁸

- 6.64 In her submission, Mrs Papworth, also highlighted the need for public education:

Education of the general public is perhaps as important as training young beekeepers. The everyday man on the street should be made aware of the value of the honey bee to society and the wider community.⁵⁹

- 6.65 Mr Trevor Monson observed the need for public and formal education, recommending:

That all agricultural sectors, and the general public, are educated on the value and importance of the beekeeping industry and that an applicable beekeeping module be included in all agricultural courses.⁶⁰

56 Mr George Pallot, *Transcript of Evidence*, 10 August 2007, p. 71.

57 NSW Apiarists' Association, Submission no. 65, p. 4.

58 Mr George Pallot, *Transcript of Evidence*, 10 August 2007, p. 71.

59 Mrs Elwyne Papworth, Submission no. 74, p. 8.

60 Mr Trevor Monson, Submission no. 6, p. 3.

- 6.66 Mr Don Keith urged the reintroduction of apiculture courses in agricultural education:

The demise of apiculture courses throughout the nation due largely to the small number of specialist employment opportunities has left a hole in the transfer of knowledge to people who will be needed to continue to manage the industry, pollination and the research required for success.

Resolution of this great need would be an important outcome for this Inquiry.⁶¹

Formal training

- 6.67 In the evidence presented to the committee it became apparent that establishing a formal training regime was both urgent and extremely difficult. In evidence before the committee, Dr Ben McKee, of Capilano Honey Limited, explained:

We need a national training opportunity for new entrants. That is a worry for us. Although we have a surplus crop, we need to keep up the volume of beekeepers coming through, and there is a threat to the industry at the moment with the age of current entrants and new entrants requiring a skills upgrade and so on. More of a concern for Capilano is the need to conserve the knowledge and skills of current participants for future generations.

It is very hard to learn from a book how to be a beekeeper. To be able to do it in a manner which is profitable takes direct contact and quite a long association with someone who has the skills and knowledge. It is something that is really hard to pass on from an educational point of view.⁶²

- 6.68 In her evidence before the committee, Mrs Goldsworthy, identified similar issues, and expressed frustration at how little progress had been made despite the development of competency standards for industry training:

Education for this industry has a whole range of unique challenges – the size of the industry and the geographic spread of the industry being just two of those issues. As for the location, I am looking forward enough to say, ‘I don’t care

61 Mr Don Keith, Submission no. 26, p. 5.

62 Dr Ben McKee, *Transcript of Evidence*, 10 August 2007, p. 3.

where it exists as long as it exists somewhere.' I will not make a comment about where exactly it should be located. I personally have not come through any of those educational institutions of the past. I have been involved, through the Australian Honeybee Industry Council, with setting up and developing, with industry, the national competency standards. It has been very disappointing to see that, after the few years of that hard work to get those competency standards written, the uptake by agricultural TAFE colleges has virtually been zero. I guess that is because it is hard enough to get those colleges to run agricultural or farming programs in general, let alone something as specialist as apiculture.⁶³

- 6.69 AHBIC also addressed the question of training in its submission. Its solution to issues of low numbers and high dispersion was to concentrate training into the hands of a single provider. This would require changes to the administration and funding of training arrangements which currently are administered and funded on a state-by-state basis:

The industry has recently had a range of competencies endorsed by the Department of Education, Science, and Tourism for the delivery of training to its members. As the industry is dispersed right across Australia, the industry believes that there will be problems getting a critical mass of trainees together for specialised training. While a lot of the training will be based in the workplace there will be a need for trainees to interact with industry specialists and experts.

It is the industry's preferred model to have a designated Registered Training Organisation (RTO), which the industry would support in delivering the traineeship. This RTO would run specialist courses at the most appropriate location and have trainees attend from across Australia. It is the industry's understanding that trainees are fully based on state delivery and it is very difficult if not impossible to enrol trainees from interstate and have them attend a RTO.

This is a real impediment to the up-skilling of the honeybee industry for future changes that are likely to affect it. It is therefore suggested that institutional arrangements be put in place for a Commonwealth traineeship to be run that would

63 Mrs Jodie Goldsworthy, *Transcript of Evidence*, 25 July 2007, p. 55.

enable trainees to attend their training anywhere in the country. The traditional travel support and other arrangements for trainees would therefore be available to these trainees to attend the training.

The industry believes that the current state-by-state arrangements are unnecessarily bureaucratic, and from experience in other industries it seems that they are a real impediment to small industries like the Australian honeybee industry to have a critical mass of trainees for specialised training.⁶⁴

6.70 AHBIC recommended that:

Institutional arrangements should be put in place for a Commonwealth traineeship that would allow trainees within the honeybee industry to attend training anywhere in the country.⁶⁵

6.71 Centralised training or a national industry training centre was advocated by others in the industry. In their submission, Messrs Frank Malfroy, Tim Malfroy and Lewin Goodwin-Brickhill, beekeepers, stated:

A training and research centre would help to increase the knowledge of existing beekeepers and provide a focal point for attracting newcomers to the industry. The Honeybee industry needs to attract a younger workforce to address the ageing beekeeper population. This could be provided as an additional component to various Agricultural and Horticultural degrees throughout Australia. A similar unit could be available at TAFE colleges. This facility should be encouraged at these institutions as a way of achieving a younger workforce for the future development of the Australian Honeybee Industry. At present there is no training provided at any tertiary institution.⁶⁶

6.72 Capilano Honey Limited argued that a 'formal standardised and national education program be implemented to assist new

64 AHBIC, Submission no. 56, pp. 57-8.

65 AHBIC, Submission no. 56, p. 58.

66 Messrs Frank Malfroy, Tim Malfroy and Lewin Goodwin-Brickhill, Submission no. 35, p. 1.

participants to the industry and to ensure a mechanism exists for the update of skills for existing members'.⁶⁷

- 6.73 The Amateur Beekeepers Society of South Australia urged the establishment of a 'Centre of Excellence' for industry training, with components such as marketing, financial management, disease management and queen bee breeding, providing the necessary skills for the future leaders of the industry. The centre would provide skills which are transferable between states and complement other agricultural and horticultural industries.⁶⁸
- 6.74 In his submission, Mr Trevor Monson identified the work of the NSW DPI in developing an apiculture curriculum, and the need for a new training funding model to make it work:

In recent times the NSW Department of Primary Industry have developed a curriculum to train apprentices in beekeeping. So now an education framework exists and is possible. However, because of the low demand and/or numbers involved, it would be more practical if students from around Australia were able to train at one institution. This would mean that funding arrangements may need to be modified so that students from various states would be funded and allowed to attend an institution out of their home state. At the moment, there may be only one or two apprentices wanting to be trained in a particular state. It wouldn't be practical or economically viable to run such a small class, so they would be turned away.

I would like to suggest that the Tocal Agricultural Centre at Paterson NSW be considered as a possible training centre for beekeeping apprentices. It is near a major airport and has accommodation. So, if training were to happen in the winter off-season, there may be a class of 10-15 students.⁶⁹

- 6.75 The NSW Government also highlighted the need for a new training funding model in its submission, stating:

As the honey bee industry is widely dispersed across Australia there are problems achieving the critical mass of trainees required to run specialised industry training. The industry's preferred model is to work with a designated

67 Capilano Honey Limited, Submission no. 55, p. 7.

68 Amateur Beekeepers Society of South Australia, Submission no. 19, p. 4.

69 Mr Trevor Monson, Submission no. 6, p. 6.

Registered Training Organisation (RTO) to deliver the training it needs to meet future industry opportunities and changes. This RTO would run specialist courses at the most appropriate location and have trainees attend from across Australia.

Current State-by-State arrangements do not reflect this model. While industry has recently developed its own competency standards through the Rural Training Authority, vocational training packages have not been developed, impeding the uptake of industry based training. It is recommended that the Commonwealth should implement a traineeship system that reflects industry needs by enabling trainees to attend their training anywhere in the country.⁷⁰

- 6.76 Mr Ken Gell, President of the Victorian Apiarists' Association, pointed to the need for industry specific training:

It upsets industry people when they have to train for things which are probably not needed in their industry. For example, here in Victoria we have to do a course on one of the chemicals we use to treat wax moth. We have to learn how to calibrate the nozzles on sprays – which we never use – for use on a broadacre farm. They are very hesitant to set up a course specifically for our use only. That frustrates our industry no end. We need a course for only our industry but they do not want to do it. They want a blanket course which suits everyone but it does not involve chemicals that are used in our industry. That example probably shows that we need a little bit of help to make sure that the courses are designated for our industry.⁷¹

- 6.77 The lack of formal education in apiculture has broader implications for the industry in terms of a decline of expertise in research and extension. In evidence before the committee, Mr Gavin Jamieson highlighted deficiencies in knowledge and training and their impact on extension:

As I expressed in my submission to you, I believe there are virtually no undergraduate courses in any university in Victoria that teach basic apiculture. Your previous report, as I understood it – and I have a copy of the report produced for

70 NSW Government, Submission no. 79, pp. 9-10.

71 Mr Ken Gell, *Transcript of Evidence*, 25 July 2007, p. 6.

the parliament – dealt with the beekeeper industry, not academia who deal with the beekeepers. We do not have in Victoria any extension officer employed as a consultant or in any other capacity who knows about beekeeping. If you are a beef farmer or a grain grower, you have someone who is trained in the extension and to help you make money and who, wisely and in a sustainable way, manages the resource that you are farming. In beekeeping all we have, in the main across Australia, are disease experts who talk about how we shall deal with the disease once we get it, not how we manage our resource in a sustainable and an economic way. In educational terms, that is something that I suspect the previous inquiry did not necessarily grasp.⁷²

- 6.78 In its submission, the Centre for Plant & Food Science at the University of Western Sydney identified problems with providing undergraduate training in apiculture:

Until 2005, UWS has offered courses in Apiculture, primarily for undergraduate students in Diploma, Associate Diploma and Bachelors courses. Apiculture was a popular elective amongst students undertaking Bachelors degrees in horticulture and agriculture. The apiculture course was based on honeybee (*Apis mellifera*) management, but also provided tuition in crop pollination and native bees. As such, it provided fundamental requirements for students subsequently undertaking careers in the beekeeping industry as well as in crop production.

However, apiculture ceased to be offered at UWS in 2005, following major course rationalisation in undergraduate and postgraduate courses. Numbers of students in apiculture fell to below 16 (the cut-off enrolment required for elective offerings), primarily a result of declining undergraduate enrolments in the agriculture and horticulture courses.⁷³

- 6.79 In its submission, the Department of Agriculture and Food, Western Australia, noted the lack of succession planning in the area of research and development, and the lack of funding for scientific training and research:

72 Mr Gavin Jamieson, *Transcript of Evidence*, 25 July 2007, p. 30.

73 Centre for Plant & Food Science, University of Western Sydney, Submission no. 90, pp. 1–2.

There are about five researchers who study honeybees in a full time capacity throughout Australia. A number of other researchers carry out projects involving honeybees but these are outside of their normal research focus. Training of people for future honeybee researchers is largely non-existent. It can take up to 5 years postgraduate work for any researcher on the subject of honey bees to become efficient in understanding and managing the complex and behavioural and social system. Most of the current researchers are aged 50 years or more and in 10 to 15 years will be retiring. Adequate research support by way of salaries and operational expenses need to be provided to ensure ongoing R&D in the apiculture industry. Joint ventures between federal and state Departments of Agriculture and the apiculture industry could be explored.⁷⁴

- 6.80 The same problem was identified by the South Australian Apiarists' Association, which noted that 'most of our apiary industry researchers are within 10 years of retirement and we need to attract some younger people into this area to continue research into the future'.⁷⁵

Extension

- 6.81 Alongside research and training, the provision of extension services was seen as a vital issue for the Australian honey bee industry. Many in the industry believe that extension services are in terminal decline. In evidence before the committee, Mr Linton Briggs stated:

Over recent years, several decades now, we have seen gradually a wastage of people from respective state departments that service this industry, to a point where some of the states are running very close to the bone as far as extension people and apiary officers are concerned. These people really could have a very important role to play in bridging the needs of this industry with the needs of the agricultural and horticultural industries.⁷⁶

- 6.82 In his submission, Mr Peter McDonald, a Victorian beekeeper, stated:

74 Department of Agriculture and Food, Western Australia, Submission no. 24, p. 5.

75 South Australian Apiarists' Association, Submission no. 7, pp. 2, 4.

76 Mr Linton Briggs, *Transcript of Evidence*, 25 July 2007, p. 5.

Over the years much has been provided to the beekeeping industry in Victoria through the DPI. Staff numbers who provide support, research, inspection and other services has gradually declined through positions not being filled when they become vacant. Hence much needed assistance has been gradually eroded. Full time inspectors have become multi-tasked part-timers who also look after other industries. This erosion should stop and be reversed. Extra funding for the DPI should be granted to allow these support services for our small but integral industry to return to what they once were.⁷⁷

6.83 Even in New South Wales, where the Government explained that the 'NSW Department of Primary Industries (NSW DPI) has 19 gazetted apiary inspectors, with 17 of these available to carry out apiary inspections in the field',⁷⁸ there was concern expressed by the NSW Apiarists' that State DPI budgets have reduced the number of dedicated Honey Bee Industry staff (extension, regulatory) in recent years, disadvantaging the Honey Bee Industry'.⁷⁹

6.84 In its submission, the Geelong Beekeepers Club expressed concern that the decline in extension services left the industry open to biosecurity threats:

It is very sad to see the gradual demise of Victorian government infrastructure In the Beekeeping Industry. The Victorian government just does not invest enough money into Apiary Inspectors, and Research staff. If an outbreak of Varroa or Tracheal mites were to occur in Victoria we would be sorely understaffed. For Example when Fireblight was introduced into the Melbourne botanical gardens it was a major job to find and kill the 40 feral hives, and this did not include the adjoining suburbs where hives would also have been found.⁸⁰

National research and training centre

6.85 The need for a more efficient training model for the industry has been highlighted in evidence before the committee. A centralised model for

77 Mr Peter McDonald, Submission no. 45, p. 4.

78 NSW Government, Submission no. 79, p. 5.

79 NSW Apiarists' Association, Submission no. 65, p. 4.

80 Geelong Beekeepers Club, Submission no. 64, p. 1.

training and research has also been discussed in the evidence presented. In his submission, Mr John Rhodes, a beekeeper, researcher and extension officer from New South Wales, argued for the establishment of a national research centre:

The Australian Government could assist the beekeeping industry by providing a funding grant sufficient for the establishment and early operational costs to finance infrastructure and development costs of a honey bee research centre concentrating in the areas of research, education and bee breeding. The Australian beekeeping industry is small in size and would find it difficult to meet such costs without external assistance.⁸¹

6.86 He argued:

A research centre would provide economic efficiency by allowing persons involved in bee research to operate as a group with the combined use of facilities such as laboratories and research apiaries which are expensive to maintain by individual researchers but necessary for most research programs

A tertiary institute would provide a suitable base for a honey bee research centre by providing the educational profile required by persons involved in research, extension and education for the successful continuation and development of the beekeeping industry.⁸²

6.87 In its submission, the Western Australian Beekeepers' Association observed that bee breeding would be best served by a national research centre, drawing together resources and skills:

Bee breeding is a highly skilled undertaking, requiring the management of large numbers of hives, in addition to well developed technical skills and laboratory resources. An undertaking of this nature is best handled by an academic institution in collaboration with the industry. The industry would be far better served by a well resourced institutional approach to bee breeding, which has the capability to research, as well as select for, and reproduce, breeding stock

81 Mr John Rhodes, Submission no. 18, p. 1.

82 Mr John Rhodes, Submission no. 18, p. 1.

which is resistant to the major diseases and pests currently threatening our industry.⁸³

- 6.88 In her submission, Ms Gretchen Wheen, a beekeeper and researcher of long standing in the industry, also emphasised the need for effective funding and a proper institutional framework to underpin the vital task of genetic research and bee breeding. She stated:

...there needs to be a much greater understanding and input into bee breeding from researchers, beekeeping personnel and the farming community at large. The present handful of competent people scattered throughout the country cannot sustain what is becoming not just a hobby/personal interest type occupation of disparate beekeepers, but a necessary modern highly technical occupation.

A sufficient basic workforce is needed, centred in one place led by world class operators so that a body of knowledge can build. Without this the beekeeping industry will die and with it much of the agricultural and horticultural industries.

As there are few in the field of bee breeding that have sufficient training and experience in the skills of insemination, queen and drone rearing and care, maintenance of breeding lines and populations, collection and analysis of data, a first class enterprise cannot at present be achieved.⁸⁴

- 6.89 She highlighted the benefits of such investment both to the industry and the nation:

If bee breeding is strengthened through a world class entity there is good potential both within Australia and overseas for both products and services. Importantly, facilitated through a best practice national program, the systematic genetic improvement of honey bees, not only for apiary productivity will accrue, but the development of honey bees with elevated biological resistance to diseases and pests, including Varroa, will benefit food production from these crops in horticulture and agriculture that require insect pollination to fertilize crops and maximise yields. In a few short words, the nation and its people will benefit.⁸⁵

83 Western Australian Beekeepers' Association, Submission no. 32, pp. 16–17.

84 Ms Gretchen Wheen, Submission no. 17, p. 1.

85 Ms Gretchen Wheen, Submission no. 17, p. 2.

- 6.90 Mr Lindsay Bourke, President of the Tasmanian Crop Pollination Association, spoke in support of a national training centre for the industry in his evidence before the committee:

Our submission also talked about not having people to help the ageing beekeeping population to carry on their business. That is true. This year, I am trying to get a Korean person to come over. Other beekeepers in the state get beekeepers from the Philippines and Europe. We cannot get people from within our own country to help us harvest our crop and to do pollinating. That is why we really need something like what we had in the past at the Hawkesbury College. Waikato University have put in a pretty good submission to AHBIC, and they look like the forerunner to provide a national education facility for us. But one of the problems would be shipping young beekeepers around the country to this college. That would be at a cost. We need to do that. We cannot have it in different centres. We need to have a centre of excellence where we can train people to carry on our business.⁸⁶

- 6.91 On the other hand, Mr Peter McDonald, Victorian beekeeper, urged a decentralised model for research and training:

In order to provide better research and development for the industry, I think we need distributed research facilities throughout Australia, managed through a central research organization such as the RIRDC. They should be linked with Universities, CSIRO & DPI research institutes in both regional and metropolitan centres in either all, or at least the majority of the states and territories of Australia. I feel it should be a distributed structure as there are many differences in beekeeping throughout the different regions of Australia and hence many current resources, (beekeepers, DPI Apiary Inspectors and Extension staff) that could provide expertise & resources on local issues. A centralised model would tend towards local expertise where it is setup to support the research, which may not provide the best results for all Australian beekeeping.⁸⁷

86 Mr Lindsay Bourke, *Transcript of Evidence*, 3 September 2007, p. 13.

87 Mr Peter McDonald, Submission no. 45, pp. 4-5.

- 6.92 In its submission, the Centre for Plant & Food Science at the University of Western Sydney identified a potential role for the University in a future national research program:

University of Western Sydney envisages that it will play an increasing role in research and training at a university level (undergraduate and postgraduate) in apiculture and crop pollination, particularly for future industry leaders and international students. The future of the Australian honeybee industry, as with other primary industries, will be best served by well-qualified participants. While the research work will explore fundamental scientific issues, it will remain focussed on practical outcomes for the Australian (and international) apicultural and crop production industries.

We also see UWS taking the major role in postgraduate training and research in pollination of horticultural crops, including by non-*Apis* species and native bee biology and pollination in Australia.⁸⁸

- 6.93 However, the submission also noted the need for adequate and secure funding if a national centre based at the University was to be viable – funding was required for academic positions:

Pragmatically, this heightened profile and activity would require the appointment of a senior academic (at least at the level of Senior Lecturer) or even a Professorial Chair in Crop Pollination to UWS to develop carry out these activities. Currently, in the absence of a specialist apiculturist, Associate Professor Robert Spooner-Hart has been principal supervisor of apiculture students at UWS. However, Professor Spooner-Hart is reaching retirement age, and is likely to retire within the next 3–4 years. As outlined above, in the current funding climate, UWS would be unlikely to make a new academic appointment in apiculture/pollination unless there was some guarantee of medium-term funding support for the position, either via adequate student enrolments, external research funding, industry support or a combination of these. The latter could be achieved by direct external funding of the position, via partial funding or subsidy.⁸⁹

88 Centre for Plant & Food Science, University of Western Sydney, Submission no. 90, pp. 4–5.

89 Centre for Plant & Food Science, University of Western Sydney, Submission no. 90, pp. 5–6

- 6.94 The precise model for a national centre was the subject of some discussion. In evidence before the committee, Mr Stephen Ware of AHBIC downplayed the need for a bricks and mortar institution:

The centre itself, if it were a bricks and mortar type university, would be expensive and we do not think that is the way to go in the longer term. There was evidence to suggest before it was disbanded that something like the weed CRC was a way of getting more researchers online and delivering services better.⁹⁰

- 6.95 In evidence before the committee, Dr Max Whitten highlighted the need for a national research centre to provide the industry with a critical mass for research and training:

With this model that we are talking about under this new industry group – say we call it ‘Pollination Australia’ – the research structure that you would put in place would be one based on a cooperative arrangement funded or managed through the Rural Industries R&D Corporation. You would then drag in researchers and teachers from across this country into a pollination industry network, having a visible centre which would replace the existing quarantine facility, but add to it a biotechnology research capability which would then allow researchers to come to do specific research. It would also be used for training. It would reach out across the research and the training industries of Australia. I think that is where this inquiry can go.⁹¹

- 6.96 In its report, *Skills: Rural Australia’s Need*, the Standing Committee on Agriculture, Fisheries and Forestry recommended ‘the establishment of a CRC-style entity for beekeeping and pollination’.⁹² However, DAFF noted in evidence submitted to the inquiry that the Government’s response awaited the outcome of the Pollination Australia project:

The Government is considering its response to the House of Representatives Inquiry into rural skills training and research, including the recommendation that it establish a Cooperative

90 Mr Stephen Ware, Executive Director, AHBIC, *Transcript of Evidence*, 15 August 2007, p. 7.

91 Dr Max Whitten, *Transcript of Evidence*, 10 August 2007, p. 20.

92 House of Representatives Standing Committee on Agriculture, Fisheries and Forestry, *Skills: Rural Australia’s Need*, Parliament of Australia, February 2007, p. 149.

Research Centre-like entity to work on research, education and bee breeding for beekeeping and pollination.

However, the Honeybee Industry Linkages Workshop (23-24 April 2007) resulted in a commitment to form a strong alliance between the honey bee industry, research bodies and all industries that have a stake in pollination. The Pollination Industry Alliance will identify priority areas for research as well as opportunities for research to be funded through existing Rural Research and Development Corporations (such as those in horticulture or forestry), as well as RIRDC, for collaborative projects addressing research needs across all industries with a stake in pollination.⁹³

- 6.97 In evidence before the committee, Ms Margie Thomson of RIRDC advised on the progress being made and the outcome envisaged through the Pollination Australia project:

The commitment of support is there. It is key in ensuring that we are able to continue to drive this process forward. There needs to be a model to enable the research institutions and the industries to be brought together. That is what we are hoping to do from working through the key outcomes of the workshop and delivering that business plan. It will develop an R&D plan for the pollination industries, or those that are impacted by pollination, down to project level. It will give an indication of what type of model is necessary and how financial contributions can be provided. But this is a big issue. We know that the impact of varroa will impact on the price of foodstuffs that are available in Australia and the consumer will be paying a lower cost if we can really push through a very strong R&D program as quickly as possible. So the spillover benefits are significant. We are talking about \$4 to \$6 billion industries in Australian agriculture that will be affected by varroa mite.⁹⁴

Committee conclusions

- 6.98 It is the committee's view that the provision of effective and efficient research, training and extension services to the Australian honey bee industry and the pollination industries sector is vital to the future of

93 DAFF, Submission no. 82, p. 7.

94 Ms Margie Thomson, RIRDC, *Transcript of Evidence*, 8 August 2007, pp. 5-6.

both. The committee notes that the report of its predecessor, *Skills: Rural Australia's Need*, made recommendations concerning the research, extension and training needs of rural industries of direct relevance to its current inquiry, especially in terms of increased funding and capacity, greater administrative and regulatory flexibility, and broad recognition of industry needs.

- 6.99 The committee believes that increased research funding is essential. The range of research needed to protect and enhance the capacity of both the honey bee industry and pollination dependent industries, especially faced with the imminent threat of *Varroa*, requires a massive increase in research effort to complement increased biosecurity measures. This in turn requires a substantial increase in available funding. The committee notes the work conducted under the auspices of the Pollination Australia project which identifies some \$4.5 million in research projects which could be undertaken immediately. It also notes the work of the CSIRO in highlighting the economic benefits of keeping *Varroa* out – that some \$50 million per annum in research and biosecurity measures could be justified on this task alone.
- 6.100 It is therefore, the view of the committee, that the Australian Government should commit itself to funding a major research effort in support of the honey bee industry, as recommended in Chapter 4 (Recommendation 17).
- 6.101 The committee broadly supports the research priorities outlined in the RIRDC research and development plan, which is in line with much of the other evidence received by the committee. Research on biosecurity; resource security (including the environmental impact of bees); bee breeding, genetics and diagnostics; bee nutrition (important for delivery of pollination services); and production efficiency within the honey bee industry, are all important. So too is research into the medicinal use of honey. Equally, however, weight must be given to research into pollination itself – the most efficient methods for pollinating of individual crops; the impact of agricultural chemicals on bees; and the practicality of using alternative pollinators and pollination methods to maintain or increase productivity.
- 6.102 The committee is also supportive of a more structured and centralised system of training and extension. This is essential to provide a critical mass of services to a small and highly dispersed industry. It is important, however, that such a centralised system be adaptive and flexible to take account of the wide variation in climate and vegetation

upon which the honey bee industries and pollination industries depend.

- 6.103 Creating a national centre for honey bee industry research, training and extension would appear to be the logical solution to these problems. The combination of existing facilities and critical mass makes a centre structured around the quarantine facility and the research activities undertaken at the University of Western Sydney the most viable option. The committee believes an administrative framework more durable than the current CRC model is essential to the long term success of a national centre. It may be that initially such an entity could be managed under the auspices of RIRDC, which manages the current research program, while eventually coming under the control of a new Pollination Industry Research and Development Corporation. This would also match an eventual transition from government to industry funding for research, development, extension and training.
- 6.104 Facilitating industry contributions to research funding is also important. The committee endorses the call for voluntary contributions to research funding to be matched by government, and for a levy on pollination services to be allowed under law. These measures would make a significant contribution to research funding even under current arrangements.

Recommendation 24

- 6.105 **The Committee recommends that the Australian Government establish a national centre for honey bee and pollination industry research, training and extension, funded as per Recommendation 16.**

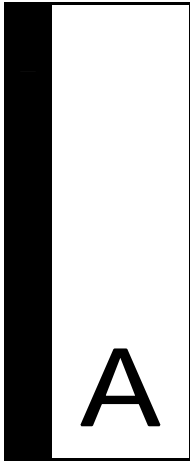
Recommendation 25

- 6.106 **The Committee recommends that the Australian Government alter research funding arrangements to allow for:**
- **voluntary contributions to research funding to be matched by government funding; and**
 - **a levy on pollination services to be allowed under law.**

The Hon Dick Adams MP

Committee Chair

26 May 2008



Appendix A – Honeybee R&D Five Year Plan 2007–2012

- 1.1 In its *Honeybee R&D Five Year Plan 2007–2012*, RIRDC outlined the following research objectives:
- Pest and disease protection;
 - Productivity and profitability enhancement to lift beekeeper income;
 - Resource access security and knowledge;
 - Pollination research;
 - Income diversification including new project development; and
 - Extension, communication and capacity.¹
- 1.2 The first objective, with 45% of the allocated funding, is pest and disease protection. The proposed outcomes within this objective are:
- To be prepared for exotic pest and disease incursion before they occur and to evaluate and have in place management strategies prior to any such incursion (including an emergency and surveillance response);
 - To prevent the establishment of exotic pests and diseases of economic significance; and

¹ RIRDC, *Honeybee R&D Five Year Plan 2007–2012*, RIRDC Publication no. 07/056, April 2007, p. 21.

- To manage endemic pests and diseases that impact on beekeeper profitability.

1.3 Identified strategies to meet these objectives include:

- Research New Zealand's experience with *Varroa destructor* incursion and ensure response strategies for Australia are appropriate/best practice;
- Undertake appropriate genetic research to improve resistance/tolerance to *Varroa destructor*;
- Undertake *Tropilaelaps clareae* mite research and ensure incursion response strategies are appropriate/best practice;
- Research the implications of Africanised gene establishment in Australia;
- Invest in Small Hive Beetle (*Aethina tumida*) control to arrest its spread and economic impact;
- Increase awareness of the need to manage and control endemic pests and diseases including *Nosema apis*, American Foulbrood, European Foulbrood, Chalkbrood and sacbrood virus;
- Develop American Foulbrood scent detection equipment;
- Encourage beekeeper participation and commitment to the honey bee industry's quality assurance program with its requirements for pest/disease control and chemical residue management; and
- Develop non-chemical controls for pest and diseases to ensure Australian apiary products are contaminant free.

1.4 Performance indicators for these measures include:

- Early detection of *Varroa* and *Tropilaelaps* incursions should these occur;
- Cost effective non-chemical controls for Small Hive Beetle and other pests and diseases of economic significance by 2010;
- Reduction in production losses caused by pests and diseases;
- Increased industry participation in the industry's quality assurance program to stem the spread of pests and diseases.²

² RIRDC, *Honeybee R&D Five Year Plan 2007–2012*, RIRDC Publication no. 07/056, April 2007, p. 23.

- 1.5 The second objective, with 15% of the allocated funding, is productivity and profitability enhancement. The proposed outcomes within this objective are:
- To encourage a culture of constant improvement in bee husbandry and bee management in the Australian beekeeping industry;
 - To provide an across-the-board lift to Australian beekeeping industry productivity and profitability and address the industry's declining terms of trade; and
 - To focus productivity improvement on bee genetics, best management practices and industry benchmarking.
- 1.6 Strategies to achieve these objectives include:
- Facilitate genetic improvements to increase hive productivity and disease resistance;
 - Prepare and communicate a comprehensive set of industry Best Management Practice guides; and
 - Undertake industry production and financial benchmarking to raise average industry yield and reduce yield spread for beekeepers working under similar conditions.
- 1.7 Performance indicators for these measures (using 2003 data as a comparison) include:
- 10% increase in average hive yield by 2012 allowing for seasonal variability;
 - 10% reduction in yield spread for beekeepers working under similar conditions at the same time;
 - 20% increase in beekeeper profitability.³
- 1.8 The third objective, resource access security and knowledge, with 10% of allocated funding, targets the following outcomes:
- To ensure adequate resources are available to sustain a profitable and productive honey bee industry;
 - To win back a share of native forest access lost in previous resource allocation decisions;

3 RIRDC, *Honeybee R&D Five Year Plan 2007-2012*, RIRDC Publication no. 07/056, April 2007, p. 24.

- To better understand the native floral resource on which the industry depends; and
- To address the implications of climate change on the Australian apiary industry.

1.9 Strategies to achieve these objectives include:

- Communication to policy makers of the importance of public forest access to the continued viability of the Apiary industry;
- Invest R&D funds in research to better understand the interaction between native flora/fauna and honey bees;
- Support the development of a national code of conduct for public native forestry use;
- Communicate the importance of bushfire control in maintaining the floral resource;
- Develop technologies and techniques for determining floral resource yields;
- Invest in research to determine native flora flowering cycles;
- Update and improve the accuracy of the Queensland Floral database, examine the needs for similar resources in other states; and
- Determine climate change impact on honeybee production by assembling up to date climate research findings and drawing out implications for floral production.

1.10 Performance indicators for these measures include:

- No further loss in bee sites in public lands;
- 10% increase in bee sites on public lands by 2012;
- Improved understanding of native resources and trends in their production by 2012; and
- All key performance indicators to be measured in an industry survey in 2012.⁴

1.11 The fourth objective, pollination research, with 10% of allocated funding, targets the following outcomes:

⁴ RIRDC, *Honeybee R&D Five Year Plan 2007–2012*, RIRDC Publication no. 07/056, April 2007, p. 25.

- To better understand the cost and value of pollination services provided by beekeepers; and
- To generate industry value through shared learning with crop producers, especially the Australian almond industry.

1.12 Strategies to achieve these objectives include:

- Assess the value to crop producers of pollination services on an individual crop basis to assist beekeepers with the pricing of their services;
- Research and communicate the cost of pollination service provision to beekeepers to assist them with the pricing of pollination services (costs to include beekeeper investment in hive preparation);
- Extend the Tasmanian Crop Pollination Association Code of Practice to all states; and
- Investigate the feasibility of investment in joint R&D projects with the Australian almond industry.

1.13 Performance indicators for these measures include:

- Information guides available on cost of pollination service provision and value generated for each of the most important horticultural/agricultural crops by 2012;
- Six state based codes of practice for pollination to be published by 2012. Codes to be published at the rate of one per annum; and
- One joint R&D project with the Australian almond industry by 2010.⁵

1.14 The fifth objective, with 10% of the allocated funding, is income diversification and new product development. The proposed outcomes within this objective are:

- To provide a major boost to packaged bee sales, an area of strong competitive advantage for the Australian industry; and
- To develop new Australian apiary products such as medicinal honey, organic wax for the cosmetics industry, royal jelly, bee venom, pollen and propolis sales, secondary priorities for niche products.

⁵ RIRDC, *Honeybee R&D Five Year Plan 2007-2012*, RIRDC Publication no. 07/056, April 2007, p. 26.

- 1.15 Strategies to achieve these objectives include:
- Support R&D to facilitate the growth of Australian packaged bee sales; and
 - Support R&D to facilitate the development of at least one new Australian apiary product.
- 1.16 Performance indicators for these measures include:
- 20% growth in packaged bee sales from 2010 to 2012; and
 - A single viable enterprise producing commercial quantities of a new Australian apiary product – with the support of the Honeybee R&D program – to be in place by 2012.⁶
- 1.17 The sixth objective, extension, communication and capacity building, with 10% of allocated funding, targets the following outcomes:
- To improve industry performance through the adoption of relevant R&D project outcomes and beekeeper participation in vocational training;
 - To educate the public and policy makers on the economic contribution made by the honeybee industry; and
 - To build capacity in the Australian honeybee industry by encouraging the next generation of industry leaders and researchers.
- 1.18 Strategies to achieve these objectives include:
- Ensure honeybee R&D outputs are in a form that is suitable for beekeeper use;
 - Increase uptake of R&D outcomes through delivery via appropriate well funded channels;
 - Support initiatives to increase beekeeper participation in vocational training, especially business management training;
 - Preparation and distribution of easily digested compendiums of up-to-date and relevant research;
 - Engage with policy makers and public opinion leaders to explain the economic contribution beekeeping makes through pollination and the importance of ongoing access to public forests;

⁶ RIRDC, *Honeybee R&D Five Year Plan 2007–2012*, RIRDC Publication no. 07/056, April 2007, p. 27.

- Educate the public and policy makers on the need to avoid pest/ disease incursions;
- Educate crop producers on the economic contribution made by pollination services; and
- Develop scholarship opportunities and or travel grants for young industry leaders and researchers to ensure the next generation of talent is available to the industry.

1.19 Performance indicators for these measures include:

- Participation by 20% of the industry in targeted vocational training by 2010;
- A compendium of international research prepared and distributed by 2008;
- A greater understanding of apiary issues by policy makers/opinion leaders/crop producers – to be established by survey in 2012; and
- One new annual industry scholarship/travel grant in place by 2009.⁷

⁷ RIRDC, *Honeybee R&D Five Year Plan 2007-2012*, RIRDC Publication no. 07/056, April 2007, p. 287.

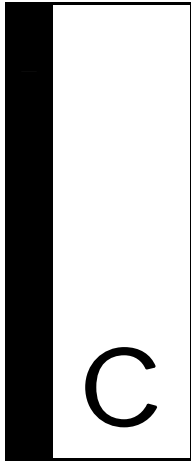


Appendix B – The Inquiry

- 1.1 The inquiry into the future development of the Australian honey bee industry was referred to the House of Representatives Standing Committee on Agriculture, Fisheries and Forestry on 15 March 2007 by the then Minister for Agriculture, Fisheries and Forestry, the Hon Peter McGauran Truss MP. The inquiry lapsed at the prorogation of the 41st Parliament on 15 October 2007. The inquiry was re-referred to the House of Representatives Standing Committee on Primary Industries and Resources by the Minister for Agriculture, Fisheries and Forestry, the Hon Tony Burke MP on **X May 2008**. A copy of the terms of reference is at page **xi**.
- 1.2 The committee's inquiry was advertised in April 2007, inviting members of the public to make written submissions for the committee's consideration. Letters inviting submissions were also sent to all State Premiers, Chief Ministers, relevant Commonwealth, State and Territory government departments and peak bodies and individuals. Information concerning the inquiry was also made available on the committee's website.¹
- 1.3 During the inquiry, the committee received 92 submissions, from a range of Commonwealth, State and Territory agencies, industry organisations, companies and individuals. A list of submissions received by the committee is at Appendix C. A list of other documents of relevance to the inquiry which were formally received by the Committee as exhibits can be found at Appendix D.

1 At <<http://www.aph.gov.au/house/committee/primind/honeybee/index.htm>>.

- 1.4 The committee held 6 public hearings for the inquiry. These provided the committee with opportunities to hear at first hand the views of the people affected by current and future issues concerning the Australian honey bee industry. A list of the organisations and individuals who gave evidence to the committee is at Appendix E. The transcripts of evidence recorded from the public hearings, along with the submissions, are available on the committee's website.



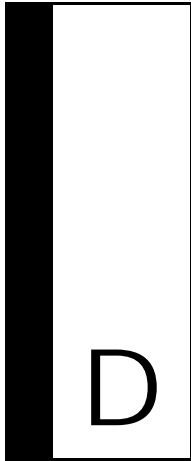
Appendix C – List of submissions

Number	Individual/Organisation
1	Mr Murray Arkadieff
2	Mr Peter Doven
3	Mr David Leyland
4	Mr J.F. Ward
5	Mr Peter Barnes
6	Mr Trevor Monson
7	South Australian Apiarists' Association Inc.
8	Mr Robert Buntine
9	Dr Anne Dollin
10	Mr Gavin Jamieson
11	Mr Roy Barnes
12	Mr Rodney Ruge
13	Mr Ken Gell
14	South Australian Farmers' Federation
15	Mrs Marie & Mr Colin Murley
16	Mr Doug Margetts
17	Ms Gretchen Wheen

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- 18 Mr John Rhodes
- 19 Amateur Beekeepers Society of South Australia Inc.
- 20 Department of Agriculture, Fisheries and Forestry
- 21 Beekeepers Association of the ACT
- 22 Central Victorian Apiarists Association
- 23 Mr John Edmonds
- 24 Department of Agriculture and Food, Western Australia
- 25 Queensland Government
- 26 Mr D. G. Keith AM
- 27 Victorian Farmers Federation
- 28 Mr Rodney Gell
- 29 Northern Territory Department of Primary Industry, Fisheries
and Mining
- 30 Mr John Tadman
- 31 Mr Neil Bingley
- 32 Western Australian Beekeepers' Association
- 33 CSIRO
- 34 Wescobee Limited
- 35 Mr Tim Malfroy
- 36 Mr Neil Renshaw
- 37 Australian Queen Bee Exporters Pty Ltd
- 38 Dr Max Whitten
- 39 Homa Therapy Association of Australia
- 40 Australian Honey Exports Pty Ltd.
- 41 Mr Rodney Whitehead
- 42 Mr Trevor and Mrs Marion Weatherhead
- 43 Mr Neville Bradford
- 44 Mr Shawn Sykes
- 45 Mr Peter McDonald

46	Dr Maxwell Hunter
47	Mr Martin Butler
48	Mr Paul Griffiths
49	Ipswich & West Moreton Beekeepers Association Inc.
50	Mr Lloyd Hancock
51	Mr Stephen Davies
52	Mr Warren Jones
53	Mr Allan Baker
54	Rural Industries Research and Development Corporation
55	Capilano Honey Limited
56	Australian Honey Bee Industry Council
57	Australian Hydroponic & Greenhouse Association
58	Kuyan Apiaries & West Coast Honey
59	Mr Kieren Sunderland
60	The Australian Queen Bee Breeders Association Inc.
61	Mr Michael Leahy
62	Mr Stephen Richardson
63	Tasmanian Beekeepers' Association Inc
64	Geelong Beekeepers Club
65	NSW Apiarists' Association Inc.
66	Mr Peter Crisp MLA
67	Queensland Beekeepers' Association Inc.
68	Northern Tablelands Branch, NSW Apiarists' Association
69	Mrs Jodie Goldsworthy
70	Tasmanian Crop Pollination Association
71	Victorian Apiarists' Association Inc.
72	Department of Primary Industries and Water, Tasmania
73	Government of South Australia

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- 74 Mrs Elwyne Papworth
- 75 Mr David Clifford
- 76 Mr Philip McPherson
- 77 Kangaroo Island Beekeepers Association
- 78 Mr Ken Grossman
- 79 NSW Government
- 80 Forests & Forest Industry Council of Tasmania
- 81 Mr Adrian Jones
- 82 Department of Agriculture, Fisheries and Forestry
(supplementary to Submission No. 20)
- 83 Department of Agriculture, Fisheries and Forestry
(supplementary to Submission No. 20)
- 84 Department of Environment and Conservation, Western
Australia
- 85 Mr Rodney Ruge
(supplementary to Submission No. 12)
- 86 Mr Trevor Monson
(supplementary to Submission No. 6)
- 87 Mr Trevor Weatherhead
(supplementary to Submission No. 42)
- 88 Tasmanian Beekeepers' Association Inc
(supplementary to Submission No. 63)
- 89 Mr Des Willmott
- 90 Centre for Plant and Food Science, University of Western
Sydney
- 91 Department of Primary Industries and Water, Tasmania
(supplementary to Submission No. 72)
- 92 Dr Max Whitten
(supplementary to Submission No. 38)

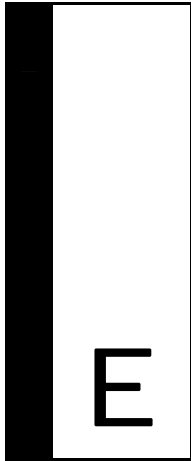


Appendix D – List of exhibits

1. CONFIDENTIAL
2. Material tabled by the Victorian Apiarists' Association Inc at the Public Hearing, 25 July 2007
 - The Economic Value and Environment Impact of the Australian Beekeeping Industry (Gibbs and Muirhead, 1998)
3. Material tabled by the Victorian Apiarists' Association Inc at the Public Hearing, 25 July 2007
 - Development of Victorian State Government Performance Indicators for Sustainable Forest Management – VAA Submission
4. Material tabled by the Victorian Apiarists' Association Inc at the Public Hearing, 25 July 2007
 - Biosecurity Australia, Revised Draft Import Risk Analysis Report Part A, Re: Importation of Apples from New Zealand – VAA Submission
5. Material tabled by the Victorian Apiarists' Association Inc at the Public Hearing, 25 July 2007
 - Country of Origin Labelling – FCAAA submission to FSANZ
6. Material tabled by the Victorian Apiarists' Association Inc at the Public Hearing, 25 July 2007
 - American Foul Brood exotic strains variants – extracts from NSW Department of Primary Industries Library Services

7. Material tabled by the Victorian Apiarists' Association Inc at the Public Hearing, 25 July 2007
 - Honey Bees In Australian Conserved Forests – AHBIC policy document
8. Material tabled by the Victorian Apiarists' Association Inc at the Public Hearing, 25 July 2007
 - The Impact of Public Land Management Practices on Bushfires in Victoria, Current State Government Inquiry – VAA Submission
9. Material tabled by Mr Bob McDonald at the Public Hearing, 25 July 2007
 - 'Beekeeping generates income from the natural environment without destroying habitat'.
10. Material tabled by Mr Bob McDonald at the Public Hearing, 25 July 2007
 - VAA Submission to the Ministerial Taskforce for Bushfire Recovery
11. Material tabled by Max Hunter at the Public Hearing, 25 July 2007
 - Apiary Code of Practice
12. Material tabled by Mr Gavin Jamieson at the Public Hearing, 25 July 2007
 - Wilsons Promontory National Park, *Draft Management Plan*, December 2000
13. Material tabled by Mrs Elwyne Papworth at the Public Hearing, 25 July 2007
 - Capilano Honey Limited, Quota Honey Price Schedules
14. Material tabled by Mrs Elwyne Papworth at the Public Hearing, 25 July 2007
 - Flora and Fauna Guarantee – Scientific Advisory Committee: *Final Recommendation on Nomination for Listing*
 - Flora and Fauna Guarantee – Information Paper No.1, *Guidelines for Nominating Items for listing*
 - Flora and Fauna Guarantee – Information Paper No.2, *Guide to the Flora and Fauna Guarantee Regulations 1991*

15. Material tabled by Dr Max Whitten at the Public Hearing, 10 August 2007
 - *American Bee Journal*, Volume 147, No. 8, p.663.
16. Material tabled by Dr Max Whitten at the Public Hearing, 10 August 2007
 - Proposed Australian Centre for Weed Research
17. Material tabled by Queensland Beekeepers' Association at the Public Hearing, 10 August 2007
 - Sticker
 - Pamphlet
 - Cookbook
18. Material tabled by Mr Rex Carruthers, Queensland Beekeepers' Association Vice-President at the Public Hearing, 10 August 2007
 - *Hansard (Qld)*, 11 November 2004, p. 3554
19. Material tabled by Mr Trevor Weatherhead at the Public Hearing, 10 August 2007
 - *Boxes to Bar Hives: Beekeeping History of Queensland* by Trevor Weatherhead
20. Material tabled by Mr Trevor Weatherhead at the Public Hearing, 10 August 2007
 - Rapid Alert System for Food and Feed
21. Material tabled by the Forests and Forest Industry Council of Tasmania at the Public Hearing, 3 September 2007
 - Tasmanian Apiary Industry Profile (August 2005)



Appendix E – List of public hearings and witnesses

Wednesday, 13 June 2007 - Canberra

Department of Agriculture, Fisheries and Forestry

Ms Victoria Anderson, General Manager, Industry Leadership and Development Branch

Dr Bob Biddle, A/g Chief Veterinary Officer, Product Integrity Animal and Plant Health Division

Mr Peter Liehne, National Manager, Animal and Plant Quarantine

Dr Robyn Martin, General Manager, Animal Biosecurity, Biosecurity Australia

Mr Steve McCutcheon, Executive Manager, Product Integrity Animal and Plant Health Division

Mr Tony Nicholson, Senior Policy Adviser, Forest Industries Branch

Mr Michael Ryan, A/g General Manager, Horticulture and Wine Branch

Wednesday, 25 July 2007 - Wangaratta

Individuals

Mr Robert Buntine
Mrs Jodie Goldsworthy
Dr Maxwell Hunter
Mr Gavin Jamieson
Mr Michael Leahy
Mr Philip McPherson
Mrs Elwyne Papworth
Mr Rodney Whitehead

Central Victorian Apiarists Association

Mr Rodney Gell, President
Ms Judith Turner, Secretary

Victorian Apiarists' Association Inc.

Mr Linton Briggs AM, Executive Councillor
Mr Ken Gell, President
Mr Robert Gordon McDonald, Vice President

Victorian Farmers Federation Horticulture Group

Mr Robert Herbert McDonald, President, Beekeepers Branch

Wednesday, 8 August 2007 - Canberra

Rural Industries Research and Development Corporation

Mr Des Cannon, Chairman, Honey Bee R & D Committee
Mr Trevor Monson, Member, Honey Bee R & D Committee
Dr Peter O'Brien, Managing Director
Ms Margie Thomson, General Manager, Established Rural Industries,
and Research Manager, Honey Bee R & D Program

Friday, 10 August 2007 - Brisbane

Individuals

Mr Roy Barnes

Mr Lloyd Hancock

Mr Don Keith AM

Mr Trevor Weatherhead

Dr Max Whitten

Capilano Honey Limited

Dr Ben McKee, Group Operations Manager

Ipswich & West Moreton Beekeepers Association Inc.

Mr George Pallot, President

Queensland Beekeepers' Association Inc.

Mr Peter Barnes, Wide Bay Branch Representative

Mr Neville Bradford, Executive Member, Brisbane Branch Representative

Mr Rex Carruthers, Vice-President

Mr Bob Johnson, Secretary

Mr Rodney Ruge, President

The Australian Queen Bee Breeders Association Inc.

Mrs Paula Dewar, National Secretary

Wednesday, 15 August 2007 - Canberra

Australian Honey Bee Industry Council

Mr Stephen Fewster, Chair

Mr Stephen Ware, Executive Director

Mr Ken Gell, Member; and President FCAAA

Monday, 3 September 2007 - Tasmania

Forests and Forest Industry Council of Tasmania

Mr Lindsay Bourke, Member

Mr Peter Ewington, Apiary Representative

Mr Sean Riley, General Manager

Mr Des Willmott, Beekeeper Member, Apiary Working Group

Mr Julian Wolfhagen, President, Tasmanian Beekeepers' Association

Mr Graham Sargison, Manager Field Services, Forestry Tasmania

Tasmanian Beekeepers' Association Inc

Mrs Jennifer Direen, Member

Mr Julian Wolfhagen, President

Mr Hedley Hoskinson, Executive Member

Tasmanian Crop Pollination Association Inc.

Mr Lindsay Bourke, President

Mr Lawrence Cowen, Executive Member, Apiary Liaison Committee

Mr Hedley Hoskinson, Executive Member

Tasmanian Government

Mr Graham Sargison, Manager Field Services, Forestry Tasmania

Mr Robin Thompson, Manager, Extensive Agriculture Branch, and
Chairman, Apiary Liaison Committee, Department of Primary
Industries and Water