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12 December 2014

Agricultural Competitiveness Taskforce
Department of the Prime Minister and Cabinet
PO Box 6500
CANBERRA ACT 2600

Re: Comments on the Green Paper on Agricultural Competitiveness

To the Agricultural Competitiveness Taskforce

The Wheen Bee Foundation Ltd welcomes the opportunity to provide comments on the Green Paper on Agricultural Competitiveness.

The Foundation is a not-for-profit, registered charity. Our mission is to support research and innovation that fosters a sustainable, viable and prosperous beekeeping industry. This is vital for national food security because of the essential pollination services provided by honey bees.

It is of grave concern to us that bees and beekeepers are not acknowledged in this Green Paper, despite the crucial role of honey bees in agriculture. As discussed below, this is despite a number of preceding inquiries acknowledging the essential role of the beekeeping industry in food security, and that the threats and challenges it faces could have significant and detrimental impacts on much of the agricultural sector in Australia, as well as the broader community.

For the information of the Taskforce we include as Appendices two previous submissions we prepared:

- submission to the Senate RRAT References Committee's Inquiry - *Industry structures and systems governing the imposition of and disbursement of marketing and research and development (R&D) levies in the agricultural sector* (Appendix 1)
- submission to the Senate RRAT References Committee's Inquiry - *Future of the beekeeping and pollination service industries in Australia* (Appendix 2).

Below are the Wheen Bee Foundation's comments on this Green Paper. Thank you for the opportunity to make this submission, and please do not hesitate to contact me if the Foundation can provide any further information or assistance.

Sincerely

Dr Shona Blair
CEO Wheen Bee Foundation, on behalf of
Dr Max Whitten AM, FAA
Chairman of the Board of the Wheen Bee Foundation

Wheen Bee Foundation Ltd
Comments on the Green Paper on Agricultural Competitiveness

Recommendation 1
The Government is urged to recognise the strategic importance of commercial beekeeping and honey bee crop pollination services for food security – both nationally and globally – and to acknowledge that the wellbeing of the industry should not be left to the vagaries of market forces.

Recommendation 2
The Wheen Bee Foundation urges the Government to assist in raising awareness within the pollination-dependent industries and the broader community of the importance of managed honey bees for optimising yields and quality of food and fibre crops, and animal production; and through these means improving agricultural competitiveness and national food security.

Recommendation 3
The Federal Government should consider the Victorian model as one working example for developing a nationally uniform policy to ensure secure access to essential floral resources for the Australian beekeeping industry.

Recommendation 4
The Wheen Bee Foundation recognises the insufficient funds available for R&D from the current statuary levy on honey. The Foundation urges the Government to establish a statuary levy on paid pollination services because of the crucial strategic importance of honey bees for crop production and food security.

Recommendation 5
Commercial beekeepers should have access to all of the support schemes available to other primary producers.

Recommendation 6
The Australian Government should continue to support the National Bee Pest Surveillance Program, and resourcing of this program should be increased commensurate with what stands to be lost if crop production is harmed by the collapse of pollination services.

Recommendation 7
A quarantine and testing facility for the import of live bees should be maintained in NSW, in the Sydney basin.

Summary

- The beekeeping industry in Australia is relatively small, but it is essential for the Australian agricultural sector because of the pollination services provided by honey bees. Pollination services play a crucial role in ensuring national food security.

- It is essential that Australia has a vibrant and sustainable beekeeping industry, which will contribute billions of dollars directly and indirectly to the Australian economy. It will do this through the production of honey and other hive products and, increasingly, through the provision of vital pollination services to a wide range of Australian horticultural, cropping and pastoral industries.

- The beekeeping industry and Australian's honey bee populations are facing serious threats and challenges. These include bee pests and diseases (in particular varroa, tracheal and tropilaelaps mites, as well as further Asian bee incursions), and lack of access to adequate floral resources needed for good bee nutrition and to help maintain viable beekeeping businesses.

- Biosecurity threats are a huge problem for the industry. Currently, beekeepers bear the cost of protecting not just their industry, but also much of the horticultural sector. This is unsustainable, and likely to negatively impact pollination dependent industries.

- Greater Federal, and better-coordinated State/Territory, beekeeping policies are urgently required, particularly with reference to floral resources on public lands such as State Forests, Travelling Stock Routes and National Parks.

- Beekeeping needs to be on the radar of all levels of government when considering any agricultural or native forest land management – however, it is often forgotten.

- As pollination services are needed across so many different industries, beekeeping often "falls between the cracks" of the current levy and R&D agricultural sector infrastructure.

- Beekeeping businesses, and their unique needs, need to be considered whenever support schemes are developed for primary producers. This industry should also be considered in trade agreements.

Background - the Australian beekeeping industry

The introduced European honey bee (*Apis mellifera*) is a cornerstone of the Australian agricultural system, which is based on introduced plants and livestock. In Australia, nearly two thirds of our agricultural production benefits from honey bee pollination[1]. Of the 100 crops that provide 90% of the world's food, over 70 are pollinated by honey bees[2].

The Australian honey bee industry consists of approximately 12,000 registered beekeepers who own a total of around 520,000 hives. Only 11 per cent of registered beekeepers have more than 50 hives, but it is estimated that they account for more than 80 per cent of Australia's total production of honey and pollination services[3].

Commercial beekeeping businesses in Australia are mainly migratory, with many hives being moved up to 10 times a year to a variety of different locations, either for honey production or for pollination services. Access to the floral resources within native forests (that is, pollen and nectar from flowering plants) is essential to build and maintain healthy honey bee populations and to ensure sustainable beekeeping businesses.

Annual Australian honey production ranges between 20,000 and 30,000 tonnes[4], and various factors can have a negative impact on the amount of honey produced. These include climatic events such as drought, flooding and heat stress, as well as the increasing incidence of bushfires. Other negative impacts on honey yields include pests, diseases, malnutrition, and in some areas, diminishing access to public land native vegetation.

<u>The value of the Australian beekeeping industry</u>

The current calculations of the beekeeping industry's gross value of production (GVP) under-values the industry. This means that the maximum contribution that the Australian Government can provide to RIRDC's Honey Bee and Pollination Program (at 0.5% of GVP), which supports honey bee research and development, is frequently capped.

In 2014, the Australian Bureau of Agriculture and Resource Economics and Sciences (ABARES) determined the GVP of the beekeeping industry in 2012-13 was $88 million, with a forecasted GVP of $92 million in 2013-14. However, the Australian Honey Bee Industry Council (AHBIC) and others in industry believe that this GVP understates the industry's value to agriculture and to the economy in general

[1] Keogh, Robinson, Mullins (2010) *Pollination Aware – The Real Value of Pollination in Australia*. RIRDC Publication No 10/081.
[2] UNEP (2010) United National Environment Program Emerging Issues: Global Honey Bee Colony Disorder and Other Threats to Insect Pollinators. www.unep.org
[3] Bee Aware website: http://beeaware.org.au/industry/
[4] Bee Aware website: http://beeaware.org.au/industry/

through pollination services and, potentially, the value of honey and honey products in medical uses[5].

At least $1.8 billion of the ~$30 billion produced annually by Australia's agricultural industries is directly attributable to honey bee crop pollination[6]. When all external benefit is counted, including goods and services and employment, the annual overall value of honey bee crop pollination services for Australia is between $4–$6 billion[7].

Pollination services

It is clear that Australia's food security and the productivity and viability of much of our agricultural sector is dependent upon honey bees. Bees foraging on flowering crops result in increased yields of higher quality human and animal foods, because of the movement of pollen between flowers. Crops differ in their responsiveness (see Table 1 below), but as an example, almonds are 100% dependent on commercial beekeepers for pollination. The Australian almond industry is currently one of the top four most productive in the world, and it is poised to enter a period of significant growth as demand increases from India and China. By 2015 this industry could be valued at $570 million – but only if Australia's faltering beekeeping industry can keep up.

If current downward trends in commercial beekeeper numbers continue, not only will we be unable to provide the necessary number of hives to support the growth of the almond industry (at least 200,000 per annum), but the almond industry could actually fail, with damaging flow-on effects for the Australian economy, particularly within rural communities.

In addition, the role of unmanaged bees in the environment is incredibly important for agriculture in this country. Since the early 1800s, wild (or feral) colonies of honey bees have become established in the Australian countryside. These unmanaged colonies are currently responsible for a considerable amount of the pollination services provided by bees in Australia – possibly more than 70%.

Threats to the crucial pollination services provided by honey bees

Beekeeping businesses are struggling due to increasing pressures on the economic viability of the industry, insecure access to essential floral resources and threats to honey bee health.

In particular, quarantine breaches resulting in the establishment of new pests and diseases pose major threats to maintaining sufficient honey bee pollination services for Australia's agricultural sector. As well as causing extreme and potentially

[5] From an Overview of the Honey Bee and Pollination Program – RIRDC (http://www.rirdc.gov.au/research-programs/animal-industries/honeybee)
[6] Keogh, R., Robinson, A., & Mullins, I. J. (2010). Pollination Aware: The real value of pollination in Australia RIRDC
[7] J Gordon & L Davis, June 2003. RIRDC publication number 03/077 RIRDC, Project number CIE–15A

devastating losses in beekeeping businesses and their managed hives, an incursion of a virulent bee pest or disease would also wipe out the wild colonies that much of the horticultural sector is currently relying on.

Based on overseas experiences, new pests like small hive beetle (*Aethina tumida*) and especially varroa (*Varroa destructor*), if it becomes established in Australia, will eliminate feral honey bee colonies. All incidental pollination by feral honey bees would cease.

For example, the small hive beetle has already greatly reduced the number of feral colonies along the eastern seaboard since its arrival around 2000. It is estimated that the spread of the varroa mite would virtually eliminate all remaining feral colonies across Australia, which have given crop growers a "free ride" since European settlement.

The threat of a varroa mite incursion into Australia is real. Any European honey bee swarm arriving on a vessel at an Australian port could be – and indeed is likely to be – carrying the mite. The arrival of Asian honey bees by ship at Australian ports, as occurred at Cairns in North Queensland, provides another pathway for the mite's incursion. It should also be noted that the mite managed to slip through New Zealand's quarantine defences, which are similar to Australia's[8]. Despite serious endeavours to prevent the spread of varroa from the north to the south islands of New Zealand, varroa quickly established and spread across the south island. It has had significant detrimental impacts on the country's horticultural sector, considerably increasing food production costs.

Frighteningly for Australia, a recent report from the CSIRO lists the loss of the pollination services provided feral European honey bees as one of the twelve potential biosecurity megashocks faced by this country[9].

[8] Cunningham & De Barro (2014), *Explainer: Varroa mite, the tiny killer threatening Australia's bees* http://theconversation.com/explainer-varroa-mite-the-tiny-killer-threatening-australias-bees-25710

[9] Simpson & Srinivasan (2014). *Australia's Biosecurity Future: preparing for future biological challenges.* CSIRO Biosecurity Flagship publication.

Table 1: Honey bee dependence for pollination of selected crops (as % of yield)

Crop	Dependence %
Tree crops	
Almond	100
Apple	100
Apricot	70
Avocado	100
Cherries	90
Citrus [a]	30 - 80
Grapefruit	80
Lemon & Lime	20
Macadamia	90
Mandarin	30
Mango	90
Nectarine	60
Orange	30
Papaya	20
Peach	60
Pear [a]	50 – 100
Plum & Prune	70
Ground crops	
Peanut	10
Broad acre crops	
Canola	15
Cotton	10
Soy	10
Sunflower [a]	30-100

Crop	Dependence %
Vine crops	
Blueberry	100
Cucumber	100
Kiwi	80
Pumpkin	100
Rock melon	100
Squash	10
Water melon	70
Seed production	
Beans	10
Broccoli	100
Brussels sprout	100
Cabbage	100
Canola	100
Carrot	100
Cauliflower	100
Celery	100
Clover	100
Lucerne	100
Mustard	100
Onions	100

[a] *Dependent on variety*

Source: Monck, M., Gordon, J., & Hanslow, K. (2008). *Analysis of the market for pollination services in Australia*. Rural Industries Research and Development Corporation (RIRDC).

The White Paper on Agricultural Competitiveness

The whole point of the preparation of the White Paper on Agricultural Competitiveness is to produce a strategic plan that will help Australian farmers receive better returns.

Pollination by bees has a huge positive impact on crop quantity and quality. The degree to which this occurs varies considerably (see Table 1 above). Regardless, it is well established that nearly two thirds of our agricultural production benefits from honey bee pollination[10]. With a few exceptions, such as the almond industry, not many in the horticultural sector are aware of, or are at least prepared to acknowledge, the positive impact of honey bee pollination on their crop yields.

This is probably compounded by the fact that most large farming businesses rely heavily upon agronomists for advice on what and when to plant, what pesticides and fertilisers to use, etc. Agronomists are employed by companies that produce and sell seed, fertilisers and pesticides. It is extremely unrealistic to expect that an agronomist is going to advise a farmer to use bees – even when there is considerable published scientific evidence that bees will increase yields by significant amounts (often much higher than using a different strain of the crop, or fertilizing at a certain time, etc.) – because the agronomist's company does not sell bees.

With the State/Territory and Federal governments all moving away from providing unbiased agricultural sector extension and advice, this type of scenario will only continue to skew the advice received by farmers. Therefore, in some instances at least, farmers will not be nothing like as competitive and productive as possible.

[10] Keogh, Robinson, Mullins (2010) *Pollination Aware – The Real Value of Pollination in Australia*. RIRDC Publication No 10/081.

Comments on the Green Paper on Agricultural Competitiveness

The role of the beekeeping industry in ensuring food security

The following point is included in the Terms of Reference of the Agricultural Competitiveness White Paper:

- *food security in Australia and the world through the creation of a stronger and more competitive agriculture sector*

Alarmingly, the crucial role of honey bees and the beekeeping industry in agriculture and in food security is not acknowledged in this Green Paper.

Preceding inquiries have consistently acknowledged that the beekeeping industry has an essential role in food security, and that it faces significant threats and challenges. They have also acknowledged that these threats and challenges could have considerable and detrimental impacts on much of the agricultural sector as well as the broader community. However, despite numerous recommendations from various preceding inquiries, relatively little has been done to ensure the viability of this small but vital industry.

The first of these was an Inquiry by the House of Representative Standing Committee on Primary Industries and Resources on Rural Skills, Training and Research. That inquiry resulted in the report *Skills: Rural Australia's Need,* published in February 2007. Submissions by sectors of the beekeeping industry had highlighted the plight of this small but strategically important primary industry.

Such was its concern that the House Committee recommended the establishment of a second inquiry focusing specifically on beekeeping, and its importance to a wide range of crops that benefit from pollination by the European honey bee, *Apis mellifera*.

This second inquiry resulted in the 2008 report, *More than Honey: the future of the Australian honey bee and pollination industries*. The title alone, along with its 25 recommendations, confirm the strategic importance of commercial beekeeping in providing essential pollination services for a wide range of crops that depend on, or benefit from, honey bee pollination.

It is a matter of grave concern to the Wheen Bee Foundation, peak Beekeeper Associations and many beekeepers, that little has been achieved by governments in implementing many of the key recommendations contained in the *More Than Honey* Report.

The third inquiry was a more targeted investigation by the Senate's Rural Affairs and Transport References Committee dealing specifically with the *Science underpinning the inability to eradicate the Asian honey bee*. This Senate Inquiry was triggered by a real concern that the Government's position on the inability to eradicate the Asian

honey bee from the Cairns district (Queensland) was not based on sound science. However, the Government did not accept The References Committee's recommendations. Instead, the Government provided $2 million towards a program called *Transition to Management* of the Asian honey bee, which finished in June 2013.

Most recently, the Senate RRAT References Committee's Inquiry, *Future of the beekeeping and pollination service industries in Australia*, resulted in a very disappointing report. Although the report acknowledged and discussed at length the threats to the beekeeping industry and touched on its importance to Australian agriculture, the recommendations were overall very weak.

This 2014 report showed a failure to grasp that the beekeeping and pollination industry is not just important for itself, rather that it is essential for the Australian agricultural sector, and because of this, it is in the public interest to ensure the industry remains viable. There was relatively little acknowledgment of the crucial nature of the Australian beekeeping industry to the rest of society. This is despite the phenomenal amount of evidence provided by pollinators, scientists and pollination-dependent industries showing this.

The survival of the beekeeping industry is vital for the public good because of the fact that almost two thirds of Australia's agricultural output depends on honey bees, and much of the fruits, vegetables and nuts we produce, and which are essential to feed our nation an affordable and healthy diet, need bees. If the industry collapses, food costs will increase and the impact on public health will be detrimental as many fresh fruit and vegetables may reach price points that will de-incentivise consumers from making healthy food choices. Not to mention the impact on many jobs, particularly in the rural sector.

Recommendation 1
The Government is urged to recognise the strategic importance of commercial beekeeping and honey bee crop pollination services for food security – both nationally and globally – and to acknowledge that the wellbeing of the industry should not be left to the vagaries of market forces.

Recommendation 2
The Wheen Bee Foundation urges the Government to assist in raising awareness within the pollination-dependent industries and the broader community of the importance of managed honey bees for optimising yields and quality of food and fibre crops, and animal production; and through these means improving agricultural competitiveness and national food security.

Categories for policy ideas

All 11 of the categories for policy ideas presented in the Green Paper are of relevance to the beekeeping industry, as they are to all in the agriculture sector. However, a number are crucial and these are discussed in detail below.

The crucial policy areas for the beekeeping industry include:

- Working with States and Territories
- Drought
- Research, development and extension
- Biosecurity
- Accessing international markets

Working with States and Territories

Beekeeping businesses are unique amongst Australia's primary industries because of their dependence on healthy native forests and adequate access to these for essential pollen and nectar resources. These are essential for maintaining healthy honey bee populations and sustainable beekeeping businesses. About 80 per cent of the honey produced by the Australian beekeeping industry is derived from native plants flowering on public and freehold land. Problems of access to some public land tenures and the long-term sustainability of forests/woodlands are ongoing challenges for the industry.

This issue, which is largely administrative and political in nature, is arguably the most significant faced by commercial beekeepers. Frustratingly, there are vast differences between different States and Territories and how beekeeper access to public lands is managed.

Beekeeping sites in areas such as state forests and national parks are registered and defined. This makes sense for both beekeepers and the managers of these public lands.

- If any beekeeper could turn up at any time with any number of hives, the availability of nectar could become insufficient due to excessive competition.
- It is important to know who is accessing these sites should there be any biosecurity issues.

However, despite the lack of supporting evidence (and the fact that European honey bees are now endemic across most of the country) there have been numerous pushes by various organisations charged with managing public lands to exclude beekeepers. Sometimes, this appears to sometimes be for environmental "reasons", although in fact scientific studies show these reasons to be emotional rather than based on robust science. At other times, it appears to be due to management/cost

recovery policies, as well as a lack of understanding of the nature of beekeeping and its fundamental differences to other agricultural industries such as grazing.

Beekeepers across Australia operate in an uncertain political climate with regards to access to floral resources, with each jurisdiction posing its own unique pressures on industry. For example, the Beattie Labor Government in Queensland had legislated that all commercial beekeeping activities would cease in National Parks by 2024. With the regular rezoning of State Forests as National Parks, there would be no future for commercial beekeeping in Queensland after 2024. This policy would have impacted catastrophically on crops worth in excess of $1 billion per annum, according to the then Labor Minister of Agriculture, acting on the benefit of hindsight. The Newman Coalition Government has reversed the previous Beattie Government policy on commercial beekeeping access to Queensland National Parks.

A national policy on beekeeping and access to public land is urgently needed, and should include the following considerations:

- Recognition of the strategic importance of commercial beekeeping and honey bee crop pollination services to the agricultural and food manufacturing sectors of the economy, to help ensure national and global food security.
- A viable and productive Australian beekeeping industry is heavily dependent on secure access to floral resources, in all States and Territories.
- Beekeeping on public land to be managed to maximize coexistence and minimize conflict between beekeeping and other public land uses and values.

It is well recognised that the underlying problems with declining access to floral resources have common elements across the States and Territories, and yet the various jurisdictions and peak industry bodies tend to seek local solutions. However, shared experiences would be beneficial to the whole industry. There is a missed opportunity for the Commonwealth and State Government bureaucracies to share these experiences.

In August 2013, the Victorian Government launched their *Apiculture on Public Land Policy*. This was developed in close collaboration with the Victorian Apiarists' Association and is specifically intended to assist industry expansion, cut red tape and provide beekeepers with greater access to public land.

Recommendation 3
The Federal Government should consider the Victorian model as one working example for developing a nationally uniform policy to ensure secure access to essential floral resources for the Australian beekeeping industry.

Drought

Beekeepers cannot rely on land they own for their crop production (and therefore income). Rather, they need access to native flowering plants when they are flowering and producing nectar. However, most eucalypts do not flower (and therefore produce pollen and nectar) annually. Some have a 2-3 year flowering cycle, and others much longer – with some species flowering only once every 10-12 years. These flowering events are further affected by extreme weather conditions (heat waves, floods, drought, etc.) as well as bush fires (both controlled and uncontrolled).

There are a number of schemes currently provided by Government to farmers seriously affected by drought. However, although commercial beekeepers often rely on land other then their own for generating income and maintaining sustainable businesses, drought clearly has a very detrimental impact on the beekeeping industry.

In order to protect this crucial industry, it is important that beekeepers do not fall through the cracks and that they have access to assistance schemes that support other primary producers, such as:

- Farm Household Allowance
- Drought Concessional Loans
- Pest management
- Social and mental health services
- Farm Management Deposit Scheme
- Rural Financial Counselling Service.

The fact that beekeepers are not entitled to the diesel rebate illustrates the issue of the unique nature of this primary production industry, and how it often "falls through the cracks". Commercial beekeepers must chase honey flows (that is flowering events where there is abundant nectar that the bees can turn into honey), and/or pollination events (such as taking bees to the almonds in early Spring). This involves driving truckloads of bees 100s to 1,000s of kilometres. As the diesel rebate does not apply to travel on public roads beekeeping businesses must bear all of the significant costs of fuel when other primary produces receive assistance with this considerable cost.

Recommendation 5
Commercial beekeepers should have access to all of the support schemes available to other primary producers

Research, development and extension

The Wheen Bee Foundation recently made a submission to the Senate RRAT References Committee's Inquiry into *Industry structures and systems governing the imposition of and disbursement of marketing and research and development (R&D) levies in the agricultural sector*.

Despite its crucial role in national food security, the beekeeping industry is under serious threat from bee pests and diseases, bee malnutrition, diminishing floral resources and a declining beekeeping industry, and targeted research is a key tool for addressing these threats and challenges.

The strategically important beekeeping industry is already punching above its weight in terms of supporting R&D and biosecurity. However, it is very small, especially compared to Australian agricultural and broader food manufacturing industries that rely heavily on honey bee crop pollination services. The funds generated from honey sale levies are manifestly insufficient to support the R&D needed to maintain the crucial beekeeping industry. Its collapse would have serious consequences across the rural sector and for food security.

As discussed in our submission to the Agricultural Levies Inquiry (see Appendix 1), as the agricultural levy system stands it is impossible to collect for a "service". This issue is the largest one preventing the collection of substantial financial resources that would generate significantly more R&D funds, which would not just help to protect the viability of the beekeeping industry, but also the much larger agricultural sector. Currently the levy collected to support R&D for the beekeeping industry is only based on honey sales. If a pollination service levy were to be introduced, at say $1.00 per hive per pollination event, to be collected from the recipients of the services, we estimate that an extra $800,000 – $1m plus could be generated for essential R&D.

As outlined above, the current calculations of the beekeeping industry's gross value of production (GVP) under-values the industry. This means that the maximum contribution that the Australian Government can provide to RIRDC's Honey Bee and Pollination Program (at 0.5% of GVP), which support honey bee research and development, is frequently capped. Unless this is more accurately determined the potential benefit of any extra funds generated from a pollination service levy could not be fully realised.

Biosecurity

The current Australian honey producer levies are set at **2.3c/kg** for annual honey sales greater than 600kg. These levies fund:

- Research and Development– **1.5c/kg**
- EADRA Biosecurity – **0.7c/kg** (provides resources for the Emergency Animal Disease Response Agreement (EADRA) and is also used to meet industry's contribution to the National Bee Pest Surveillance Program)
- National Residue Survey (NRS) – **0.1c/kg** (manages the risk of chemical residues and environmental contaminants in foods including honey, which is a requirement for Australian honey to be exported to the EU).

However, the beekeeping industry (via the Australian Honey Bee Industry Council (AHBIC)) is working with government to increase the levy to **4.6c/kg** and to raise the threshold to 1,500 kilograms on retail sales of honey.

The levy increase is to pay for improved industry biosecurity – endemic pest and disease management and surveillance of exotic bee pests and pest bees. However, the contributions to current R&D levy and the NRS levy will not be changed.

The honey bee industry has had to bear the burden of funding critical R&D and biosecurity programs, which provide benefits that are being substantially captured by other primary producers growing crops that require honey bee pollination services for optimum yields.

For example, the beekeeping industry is currently bearing the brunt of funding "varroa-preparedness", even though once this mite invades Australia (which it inevitably will) it will have a huge and negative impact on many pollination-dependent industries. However, the size of the beekeeping industry means there are insufficient funds to give many in the Australian agricultural sector the best chance of minimising the impact of varroa on their businesses and outputs.

This unpalatable decision to increase the honey levy was approved by industry despite the fact that the bulk of this increase is to provide biosecurity services that were previously provided by State Governments.

Although we have the National Bee Pest Surveillance Program (formerly the Sentinel Hive Program), Australia's continued status as "varroa mite free", and our current freedom from these other biological threats, is arguably due more to luck than the robustness of the Surveillance Program. Plant Health Australia (PHA) has been managing the program nationally (since 2011), with contracts with each jurisdiction (except ACT). It is co-funded by the Australian Honey Bee Industry Council ($75K), Horticulture Australia Limited (HAL) ($75K) and Department of Agriculture ($60K). This means a national total of only $210,000 for port surveillance/prevention of establishment of exotic bee pests.

An invasion by varroa alone could cost Australia $70 million a year, with far-reaching consequences for our agricultural sector and food manufacturing industries, and yet our national surveillance program is funded at just $210,000 a year! In addition the relatively small and financially challenged beekeeping industry is expected to meet the costs of essential biosecurity for the nation. The existing figure does not reflect the required tasks and programs that would be needed to seriously attempt to prevent pest incursions, and deal with them swiftly if they did occur.

The loss of feral European honey bees in Australia, through a parasite such as the varroa mite and the diseases it can transmit, is a potential megashock for Australia's plant industries. This loss would immediately impact numerous fruit and vegetables, sunflower and certain nuts (e.g. almond and macadamia). A study conducted in 2003 estimated that the loss of feral honey bees in Australia could result in the loss of more than 20,000 full-time-equivalent jobs. As the varroa mite is an example of a pest that cuts across both the plant and animal industries, coordination and collaboration across the different industries is crucial in understanding and addressing this threat[11].

Another significant biosecurity concern for industry is the proposal to relocate the honey bee quarantine facility to the new national AQIS facility at Mickleham, Victoria. The current facility at Eastern Creek (Sydney) is scheduled to close in August 2015 and the 2008 inquiry recommended the establishment of a new facility.

However, the location of the multi-purpose quarantine station that is planned for Victoria is far from ideal for honey bees. This is due to lack of essential floral resources and poor weather conditions in that area. The proposed removal of vegetation around the Mickleham Facility to discourage birds is a further matter of concern. In addition, many of the main users of the current facility are based in NSW.

Recommendation 6
The Australian Government should continue to support the National Bee Pest Surveillance Program, and resourcing of this program should be increased commensurate with what stands to be lost if crop production is harmed by the collapse of pollination services.

Recommendation 7
A quarantine and testing facility for the import of live bees should be maintained in NSW, in the Sydney basin.

[11] Simpson & Srinivasan (2014). *Australia's Biosecurity Future: preparing for future biological challenges.* CSIRO Biosecurity Flagship publication.

Accessing international markets

Imported honey is not subject to the same quality assurance testing that Australian honey must undergo when it is being exported, and Australian honey is often "left off the table" when government is negotiating trade agreements. In addition, labelling laws mean that it is not always obvious to Australian consumers that they are buying cheaper and potentially inferior imported honey.

Appendix 1

Submission from the Wheen Bee Foundation to the Senate RRAT References Committee's Inquiry - Industry structures and systems governing the imposition of and disbursement of marketing and research and development (R&D) levies in the agricultural sector.

Submitted on: 20 November 2014

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20 November 2014

Committee Secretary
Senate Rural and Regional Affairs and Transport References Committee
PO Box 6100
Parliament House
Canberra ACT 2600

Re: Submission to the Senate RRAT References Committee's Inquiry
Industry structures and systems governing the imposition of and disbursement of marketing and research and development (R&D) levies in the agricultural sector

Dear Committee Secretary

The Wheen Bee Foundation Ltd welcomes the opportunity to provide a submission to the Senate Standing Committees on Rural and Regional Affairs and Transport with regards to the current inquiry into Australia's agricultural levy system.

The Foundation is a not-for-profit, registered charity. Our mission is to support research and innovation that fosters a sustainable, viable and prosperous beekeeping industry. This is vital for national food security because of the essential pollination services provided by honey bees.

Attached is the Wheen Bee Foundation's submission to this inquiry. We are happy to provide more information to the Committee as required, including at any public hearings.

Sincerely

Dr Shona Blair
CEO Wheen Bee Foundation, on behalf of

Dr Max Whitten AM, FAA
Chairman of the Board of the Wheen Bee Foundation

Submission to the Senate RRAT References Committee's Inquiry
Industry structures and systems governing the imposition of and disbursement of marketing and research and development (R&D) levies in the agricultural sector

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Recommendation 1
Recognising the insufficient funds available for R&D from the current statuary levy on honey, the Wheen Bee Foundation urges the Government to establish a statuary levy on paid pollination services because of the crucial strategic importance of honey bees for crop production and food security

Recommendation 2
The Wheen Bee Foundation urges the Government to address the way the gross value of production (GVP) is calculated for the beekeeping industry to better reflect the industry's true economic value, and to therefore allow higher levels of dollar-for-dollar matched funding from levies

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Summary

- The beekeeping industry in Australia is relatively small, but it is essential for the Australian agricultural sector because of the pollination services provided by honey bees. Pollination services play a crucial role in ensuring national food security

- The current honey levy system provides insufficient funds to enable R&D which addresses the numerous threats to the beekeeping industry. This shortfall is due to the small commodity-based levy revenue that is generated from honey sales

- The current commodity-based levy system does not allow levies to be collected on services

- A change in the levy system to permit a levy on the pollination service provided by beekeepers to horticultural businesses would generate significantly more funds to support R&D. This extension would directly benefit the recipients of pollination services, as well as the beekeeping industry

- The current calculations of the beekeeping industry's gross value of production (GVP) under-values the industry, and this means that the maximum contribution that the Australian Government can provide to RIRDC's Honey Bee and Pollination Program (at 0.5% of GVP) is frequently capped

Background - the Australian beekeeping industry[12]

The introduced European honey bee (*Apis mellifera*) is a cornerstone of the Australian agricultural system, which is based on introduced plants and livestock. Of the 100 crops that provide 90% of the world's food, over 70 are pollinated by honey bees. In Australia, nearly two thirds of our agricultural production benefits from honey bee pollination.

The Australian honey bee industry consists of approximately 12,000 registered beekeepers who own a total of around 520,000 hives. Only 11 per cent of registered beekeepers have more than 50 hives, but it is estimated that they account for more than 80 per cent of Australia's total production of honey and other honey bee-related products, and pollination services.

Commercial beekeeping businesses in Australia are mainly migratory, with many hives being moved up to 10 times a year to a variety of different locations, either for honey production or for pollination services.

Annual honey production ranges between 20,000 and 30,000 tonnes, and various factors have a negative impact on the amount of honey produced. These include climatic events such as drought, flooding and heat stress, as well as the increasing incidence of bushfires. Other negative impacts on honey yields include pests, diseases, malnutrition, and in some states, diminishing access to public land native vegetation.

The current official estimate of the gross value of production (GVP) from the beekeeping industry from honey, other hive products (including beeswax, queen bees and packaged bees, pollen and propolis) and paid pollination services is $92 million a year. However, as discussed in detail below, this relatively small GVP understates the industry's value to agriculture and the economy.

Since the early 1800's, wild (or feral) colonies of honey bees have become established in the Australian environment. These unmanaged colonies are currently responsible for a considerable amount of the pollination services provided by bees in Australia – possibly more than 70%.

Honey bees foraging on flowering crops results in increased yields of higher quality human and animal foods. Crops differ in their responsiveness. Some, such as almonds and white clover, are 100% dependent on bees. The annual value of honey bee pollination services measured by crop yield increases has been estimated by RIRDC to be $2billion, and overall, $4-6billion to the national economy.

[12] Summarised from information on the Bee Aware website: http://beeaware.org.au/industry/; and Keogh, R., Robinson, A., & Mullins, I. J. (2010). Pollination Aware: *The real value of pollination in Australia* RIRDC

Quarantine breaches resulting in the establishment of new pests and diseases pose major threats to maintaining sufficient honey bee pollination services for Australia's agricultural sector. As well as causing extreme and potentially devastating losses in managed hives, an incursion of a virulent bee pest or disease would also wipe out the wild colonies that much of the horticultural sector is currently relying on. For example, the small hive beetle (*Aethina tumida*) has already greatly reduced the number of feral colonies along the eastern seaboard since its arrival around 2000. It is estimated that the spread of the varroa mite (*Varroa destructor*) would virtually eliminate all remaining feral colonies across Australia, which have given crop growers a "free ride" since European settlement.

Current Australian honey levies[13]

Australian honey producer levies are set at **2.3c/kg** for annual honey sales greater than 600kg. These levies fund:

1. **Research and Development (R&D)** – a levy of **1.5c/kg** is matched by the Australian Government and managed by the Rural Industries Research and Development Corporation (RIRDC)
   Honey bee R&D targets pest and disease research, productivity, profitability, the role of flora in honey bee management, extension, communication and capacity building
2. **EADRA Biosecurity** – a levy of **0.7c/kg** provides resources for the Emergency Animal Disease Response Agreement (EADRA) and is also used to meet industry's contribution to the National Bee Pest Surveillance Program
3. **National Residue Survey** (NRS) – a levy **of 0.1c/kg** manages the risk of chemical residues and environmental contaminants in Australian food products including honey. This is a requirement for Australian honey to be exported to the European Union

However, the industry (via the Australian Honey Bee Industry Council (AHBIC)) is working with government to increase the levy to **4.6c/kg** and to raise the threshold to 1,500 kilograms on retail sales of honey.

At beekeepers conferences and through postal voting, 86% of industry respondents voted in favour of the levy increase, and 92% of industry respondents voted in favour of lifting the threshold.

The levy increase is to pay for improved industry biosecurity – endemic pest and disease management and surveillance of exotic bee pests and pest bees. However, the contributions to current R&D levy and the NRS levy will not be changed.

On behalf of the industry the AHBIC is also promoting the following administrative changes:

[13] Source: http://honeybee.org.au/programs/honey-levy-reform-and-increase/

- Changing the Emergency Animal Disease Response Agreement biosecurity component into an Emergency Plan Pest Response Deed (EPPRD) biosecurity component
- Increasing the newly established EPPRD biosecurity from **0.7c/kg** to **2.9c/kg** to help industry fund established and exotic pest and disease biosecurity activities
- Establishing a Plant Health Australia levy of **0.1c/kg** to pay for AHBIC annual subscription fees
- Changing the management of the AHBIC Contingency Fund from Animal Health Australia to Plant Health Australia
- Raise the threshold of honey produced from which the levy applies from **600kg** to **1,500kg** per annum to make the collection costs more efficient

In summary:

Current Levy	Current Rate	Proposed Levy	Proposed Rate
Research and Development	1.5	Research and Development	1.5
EADRA Biosecurity*	0.7	EPPRD Biosecurity	2.9
National Residue Survey	0.1	National Residue Survey	0.1
		PHA levy	0.1
Total	**2.3c/kg**		**4.6c/kg**

*The EADRA Biosecurity component is currently paying for PHA membership annually, however, to become solely a member of PHA, a new PHA levy that is designed specifically for paying membership fees needs to be established.

The beekeeping industry has agreed that these levy changes are very important and necessary to help protect the viability of the industry. However, the changes will not generate extra, much needed, funds for R&D.

The need for R&D funds and a case for change

It is well established that productivity and viability of much of our agricultural sector, and hence food security, is dependent upon honey bee pollination. However, this industry is under serious threat from bee pests and diseases, bee malnutrition, diminishing floral resources and a declining beekeeping industry. Targeted research is a key tool for addressing these threats and challenges.

Although the strategically important beekeeping industry is already punching above its weight in terms of supporting R&D and biosecurity, it is very small, especially compared to Australian agricultural and broader food manufacturing industries that rely heavily on honey bee crop pollination services. The funds generated from honey sale levies are manifestly insufficient to support the R&D needed to maintain the

crucial beekeeping industry. Its collapse would have serious consequences across the rural sector and for food security.

The primary industries commodity-based R&D statuary levy system

The primary industries commodity-based R&D statuary levy system has been responsible for many innovations that have improved profitability and sustainability of the agricultural sector, with significant flow on benefits to the broader community.

Its genesis was the Rural Industries Research Act 1985 passed by Parliament under the guidance of Labor's Primary Industries Minister, the Hon John Kerin. Despite subsequent amendments to the Act, it has always enjoyed bipartisan political support. The most significant administrative changes since 1985 have been the corporatisation of most Councils, and the amalgamation of many Councils (e.g. about five grain-related Councils have been melded into the Grains R&D Corporation) to reduce overheads and improve cross-commodity benefits. This scheme is the envy of many other countries.

The Honey Bee R&D Council, one of 15 inaugural Councils, was established in 1985, and its first Chairman was Dr Max Whitten. In 1992, on the retirement of Dr Whitten, the Council was reformed as a Honeybee Advisory Committee within Rural Industries Research and Development Corporation (RIRDC). Then in early 2014 and on the advice of the Advisory Committees for the Honey Bee and Pollination programs, RIRDC combined the programs under a single RD&E Plan.

Honey bee related R&D supported through this Act is unique in two important ways when compared to the other agricultural R&D entities:

1. It is by far the smallest of the RIRDC Programs because the value of honey compared to other commodity-based programs is very small – especially compared with commodities such as beef, wool, cotton, wheat, etc.

2. There have been significant flow-on benefits of Honey Bee Program-funded research outcomes to producers of other commodities who need pollination services to ensure viable and profitable crops and industries

The small beekeeping industry is bearing the burden for many others

The small and struggling beekeeping industry, whose strategic importance has been comprehensively recognised in a number of recent parliamentary inquiries, is not well placed to support the level of R&D that is required to maintain its own economic viability or to continue to provide essential pollination services.

However, the honey bee industry has had to bear the burden of funding critical R&D, and other programs, which provide benefits that are being substantially captured by

other primary producers growing crops that require honey bee pollination services for optimum yields.

For example, the beekeeping industry is currently bearing the brunt of funding "varroa-preparedness", even though once this mite invades Australia (which it inevitably will) it will have a huge and negative impact on many pollination-dependent industries. However, the size of the beekeeping industry means there are insufficient funds to give many in the Australian agricultural sector the best chance of minimising the impact of varroa on their businesses and outputs.

The willingness of beekeepers to wear more than their fair share of the burden is illustrated by their voting this year to double the statuary levy (from 2.3c/kg to 4.6c/kg as detailed above).

This unpalatable decision was approved by industry despite the fact that the bulk of this increase is to provide biosecurity services that were previously provided by State Governments. None of this levy increase will be directed towards R&D – which remains at 1.5c/kg of honey sold by those producing more than 1,500 kg/year.

In the last financial year the RIRDC Honey Bee Program received approximately $350K in honey levy funds (above the recent average of $322K). Even when matched dollar-for-dollar by the Federal Government this leaves a very small pool of funds to address the numerous industry challenges through R&D.

A simple solution - pollination services should be used to generate levy funds

Currently the levy collected to support R&D for the beekeeping industry (for honey production and the provision of pollination services) is based on honey sales. Consequently, we are placing Australia's food security at risk.

The solution is simple, and it embraces a "user pay" philosophy. If the statuary levy system is extended from the *commodity-based* honey scheme to include one where pollination *services* are used to collect a levy as well, it will significantly increase the funding base for critical R&D on honey bees as the nation's primary providers of pollination services.

As the agricultural levy system stands it is impossible to collect for a service – this issue is the largest one preventing the collection of substantial financial resources that would generate significantly more R&D funds, which would not just help to protect the viability of the beekeeping industry, but also the much larger agricultural sector.

If a pollination service levy was to be introduced, requiring those recipients of the service to contribute to ensuring the sustainability of this service, significant funds could be generated. This would also mean that the financial burden was spread

across all who benefit from the R&D endeavouring to ensure sufficient, healthy Australian honey bee populations.

How much could a pollination service levy generate?

Paid pollination is on the increase in Australia, and this trend will continue with growing investment in certain crops, such as almonds. The impact of bee pests and diseases on wild or feral hives is also resulting in an increasing demand for paid pollination with managed hives. Recently, passionfruit growers were forced to seek paid pollination services because of inroads on feral colonies caused by the spread of the small hive beetle.

Some examples of paid pollination requirements in Australian agriculture include:

Almonds

- Almonds are the biggest user of paid pollination industry, as they are entirely reliant on the pollination services of managed honey bees
- Honey bees are recognised as the most efficient and practicable pollinating insects of almond blossom, and are in huge demand worldwide for their pollination service
- The size of the Australian almond industry has doubled in the past 10 years, and will continue to grow with increasing demand from India and China
- *Almond pollination in Australia currently requires 240,000 hives/year*[14]

Some other bee-dependent crops

- As a case study Hunidue Apiaries manage 2,000 hives that are used for paid pollination services for a number of different crops
- This business starts with almond pollination and then moves to cherries and other soft fruits, then onion seeds, safflower, watermelons, pumpkins, rockmelons, lucerne seeds and then finally citrus (oranges)
- *Hunidue Apiaries provides the equivalent of approximately 10,000 hives for pollination events throughout their pollination season (which generally lasts from August to March), by moving their hives to the different orchards and farms as required for their different flowering times*[15]

Further, from the conservative estimates provided in *Pollination Aware* the number of hives required to meet the potential demand for pollination services in the absence of a contribution from feral colonies (such as when varroa becomes established) could reach about 750,000 during peak periods, and over 1,725,000 hives could be needed across the county over a year. Although this was based on data from 2005/06, so it is likely to under-estimate current requirements.

[14] Pers comm: Trevor Monson, Pollination Broker – Monson's Honey & Pollination
[15] Pers comm: Elwynn Papworth, Pollination Broker – Hunidue Apiaries

It is difficult to acquire exact data on the number of hives currently being used to provide paid pollination services across the whole country. However, it is estimated that 30-50% of commercial beekeepers provide pollination services to farmers and around 75% of this is paid pollination (rather than just via in-kind arrangements), and that there are currently around 800,000 – 1,000,000 hives required for yearly pollination events[16].

If a pollination service levy were to be introduced, at say $1.00 per hive per pollination event to be collected from the recipients of the services, we estimate that an extra $800,000 to $1 m plus could be generated for R&D

The impact of the undervaluing of the worth of the beekeeping industry

The current calculations of the beekeeping industry's gross value of production (GVP) under-values the industry, and this means that the maximum contribution that the Australian Government can provide to RIRDC's Honey Bee and Pollination Program (at 0.5% of GVP) is frequently capped.

In 2014, the Australian Bureau of Agriculture and Resource Economics and Sciences (ABARES) determined the GVP of the beekeeping industry in 2012-13 was $88 million, with a forecasted GVP of $92 million in 2013-14 (ABARES 2014). AHBIC and others in industry believe that this GVP understates the industry's value to agriculture and to the economy in general through pollination services and, potentially, the value of honey and honey products in medical uses[17].

It should also be noted that with the trend of more beekeeping businesses moving to pollination services (rather than relying solely on honey production), less honey will reach the market for human consumption because it will be increasingly used as an energy source for the bees during pollination.

In other words, as the strategic importance of bees grows, the gross "value" of the industry, as measured by honey sales, would diminish.

[16] From *Pollination Aware* (https://rirdc.infoservices.com.au/items/10-081); Pers comm: Bryn Jones, President of the Crop Pollination Association; and Pers comm: Dr Doug Somerville, Technical Specialist Honey Bees – NSW DPI

[17] From an Overview of the Honey Bee and Pollination Program – RIRDC (http://www.rirdc.gov.au/research-programs/animal-industries/honeybee)

Appendix 2

Submission from the Wheen Bee Foundation to the Senate RRAT References Committee's Inquiry - Future of the beekeeping and pollination service industries in Australia.

Submitted on: 1 April 2014

Wheen Bee Foundation Limited
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ABN: 84 139 073 082

Ms Toni Matulick
Committee Secretary
Senate Rural and Regional Affairs and Transport References Committee
PO Box 6100
Parliament House
Canberra ACT 2600

Re: Submission to the Senate RRAT References Committee's Inquiry -
Future of the beekeeping and pollination service industries in Australia

Dear Ms Matulick

The Wheen Bee Foundation is a not-for-profit organisation. Our mission is to support research, innovation and training to improve national food security by striving to ensure a viable and prosperous beekeeping industry and, through it, effective honey bee crop pollination services. Without a healthy beekeeping industry, essential pollination services for many of our agricultural crops are put at risk. In other words, *Food Security Needs Bee Security*. More information about the Foundation is on our website www.wheenbeefoundation.org.au).

We thank the Senate for establishing this Inquiry into the future of beekeeping and pollination service industries in Australia. It follows, and builds on, three recent Parliamentary Inquiries relating to the beekeeping industry.

The first of these was an Inquiry by the House of Representative Standing Committee on Primary Industries and Resources on Rural Skills, Training and Research. That Inquiry resulted in the Report, *Skills: Rural Australia's Need* published in February 2007. Submissions by sectors of the beekeeping industry had highlighted the plight of this small but strategically important primary industry.

Such was its concern that the House Committee recommended the establishment of a second Inquiry focusing specifically on beekeeping, and its importance to a wide range of crops that benefit from pollination by the European honey bee, *Apis mellifera*.

This second Inquiry published a Report in May 2008 called *More Than Honey: the future of the Australian honey bee and pollination industries*. The title alone, along

with its 25 recommendations, confirm the strategic importance of commercial beekeeping in providing essential pollination services for a wide range of crops that depend on, or benefit from, honey bee pollination. Throughout our current submission we refer to a number of recommendations from the *More Than Honey* Report that relate to bee security and food security.

It is a matter of grave concern to The Wheen Bee Foundation, peak Beekeeper Associations and many beekeepers that little has been achieved by governments in implementing many of the key recommendations contained in the *More Than Honey* Report.

The third Inquiry was a more targeted investigation by the Senate's Rural Affairs and Transport References Committee dealing specifically with the *Science underpinning the inability to eradicate the Asian honey bee*. This Senate Inquiry was triggered by a real concern that the Government's position on the inability to eradicate the Asian honey bee from the Cairns (Queensland) district was not based on sound science. However, the Government did not accept The References Committee's recommendations. Instead the Government provided $2 million towards a program called *Transition to Management* of the Asian honey bee, which finished in June 2013.

The Asian honey bee is now established around Cairns. The Cairns incursion, and its handling, has provided valuable lessons about how to detect and eradicate future incursions of this pest bee. Previously, Australia was not well placed to detect, nor respond effectively, either administratively or technically, to such incursions. Our submission to the fourth, and current, Inquiry addresses these opportunities based on recent research findings by Dr David Guez.

Attached is the Wheen Bee Foundation's submission to the Senate Inquiry *Future of the beekeeping and pollination service industries in Australia.* We would be delighted to have the opportunity provide further information at the Committee's public hearings.

Sincerely

Dr Shona Blair
CEO Wheen Bee Foundation, on behalf of

Dr Max Whitten AM, FAA
Chairman of the Board of the Wheen Bee Foundation

Wheen Bee Foundation Submission to the Senate Inquiry

Future of the beekeeping and pollination service industries in Australia

Executive summary

This Inquiry comes at a pivotal moment in the history of Australia's agricultural and food manufacturing sector, which is worth hundreds of billions of dollars annually to the country's GDP.

As we speak - as far as we know - Australia has one of the few economies globally that is not beset by the wide-ranging issues caused by faltering honey bee pollination services. Previously generally taken for granted worldwide, and indeed here at home, there is now well-publicised evidence that:

i) These services, often provided by beekeepers for little remuneration, are critical for food security, as well as the ongoing success of many kinds of economically important agricultural industries; and
ii) The multiple environmental and economic stresses now being suffered by Australian beekeepers and honey bees are impairing their ability to serve the national interest.

The Wheen Bee Foundation has 21 recommendations that will help reduce stress on the Australian beekeeping industry, so that they can not only continue to play their essential role at the heart of Australia's agricultural sector, but can develop the capacity to support future expansion of these industries.

We know it is essential that the government leads investment in protection and development of pollination services provided by managed honey bees - an important form of national agricultural infrastructure - especially at a time when such services are collapsing globally.

Relatively modest investment would be required for targeted, industry-relevant research that would improve Australia's ability to manage pests that have already invaded, and our prospects of maintaining quarantine against invasive foreign bees and bee pests, which to be frank has so far occurred by good luck rather than good management.

Food security needs bee security.

The Wheen Bee Foundation provides the following recommendations for the Committee:

Recommendation 1
The Government is urged to recognise the strategic importance of commercial beekeeping, and honey bee crop pollination services, both nationally and globally for

food security, and to acknowledge that the wellbeing of the industry should not be left to the vagaries of market forces.

Recommendation 2

The Wheen Bee Foundation urges the Government to assist in raising awareness within the pollination-dependent industries and the broader community of the importance of managed honey bees to national food security.

Recommendation 3

The Australian Government and State/Territory Governments implement Recommendation 5 of the More Than Honey Report, which urges establishment of national 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 and pollination-dependent industries.

Recommendation 4

Governments consider the Victorian model as one working example for the development of a nationally uniform policy for ensuring floral resource security for the Australian beekeeping and the honey bee pollination-dependent industries.

Recommendation 5

The Australian Government fund further research into the impact of fire management on native forest biodiversity, and the Australian beekeeping industry in particular.

Recommendation 6

Annual reporting on the "State of the Industry" should be conducted, and this should include the number and locations of commercial operations and hives, honey and other hive product yields and economic value, income from pollination services, beekeeper demographics and training undertaken.

Recommendation 7

Improved, targeted and appropriate education and training opportunities, including schemes like apprenticeships, be made available for the beekeeping industry in Australia, and that these cover beekeeping skills, as well as areas such as biosecurity, marketing and communication.

Recommendation 8

The Australian Government establish a National Centre for Honey Bee and Pollination Industry research, training and extension; provide funding to a level commensurate with the value of the industry to Australian agriculture and the broader economy; and sufficient to effectively address current and foreseeable technical challenges threatening the long-term viability of the beekeeping industry.

Recommendation 9
There should be a more rigorous inspection of honey that is imported to Australia, so that it can be subject to the same quality assurance prescriptions as Australian honey is subjected to when it is exported to other countries.

Recommendation 10
Australian honey, hive products and live bees need to be considered when trade agreements are being negotiated with other countries.

Recommendation 11
The Australian Government, through the Department of Agriculture, continues to support the National Bee Pest Surveillance Program, and that resourcing be increased commensurate with what stands to be lost, with a greater responsibility for funding taken by pollination-dependent industries and government.

Recommendation 12
The ABARE Research paper, *A benefit-cost framework for responding to an incursion of* Varroa destructor (June 2012), be reviewed to include a broader approach to assessing benefits of eradication; and some effort be made to assess costs involved with containment and eradication options in order to better inform policy responses to varroa incursions.

Recommendation 13
A quarantine and testing facility for the import of live bees be maintained in NSW, in the Sydney basin.

Recommendation 14
A review be conducted by the ACCC in regard to the legality of the practice of labelling predominantly imported honey with small amounts of Australian honey as "Made in Australia" to determine if this practice satisfies the "substantially transformed" criteria contained within the Country of Origin labelling laws.

Recommendation 15
As part of any future mandatory health related labelling changes, honey be given adequate consideration to ensure accurate health messaging is balanced against negatively swaying consumers' purchase decisions based on a simplistic system that only provides the public with part of the information.

Recommendation 16
The Inquiry should encourage the Australian Government to implement Recommendations 2, 3, 16, 24 and 25 of the *More Than Honey* Report, all of which emphasise the need for public investment in targeted research to support the pollination services provided by Australian beekeepers to our agricultural industries.

Recommendation 17

An annual report outlining outcomes and progress on issues affecting industry be prepared by the relevant federal government department, and presented to industry via AHBIC.

Recommendation 18

The Government and relevant industries review the effectiveness of the current *Pollination Australia* organisation and structure and set key performance targets and industry reporting requirements for its management to achieve.

Recommendation 19

The Government is urged to encourage the revitalising of *Pollination Australia*, and to broaden the basis for industry participation in funding vital R&D on pollination services by permitting, under law, the collection of a statutory levy on pollination services.

Recommendation 20

Government must recognise the opportunity afforded by the 2007 incursion of Asian honey bee into Cairns to improve Australia's capacity to detect and eradicate future incursions.

Recommendation 21

The Commonwealth Government, along with the beekeeping industry and pollination dependent industries, support continued research effort to develop effective and specific feeding and bait stations for early detection and eradication of future incursions of Asian honey bees.

Term of Reference a:

The importance of these industries from a food security, environmental and financial point of view

Food security

The beekeeping industry role in the horticulture and agriculture sectors of the national economy has been well articulated during previous Commonwealth Inquiries and a RIRDC Honey Linkages Workshop in 2007. Table 1 lists some of the more important bee-dependent crops.

Table 1: Honey bee dependence for pollination of selected crops (as % of yield)

Crop	Dependence %
Tree crops	
Almond	100
Apple	100
Apricot	70
Avocado	100
Cherries	90
Citrus [a]	30 - 80
Grapefruit	80
Lemon & Lime	20
Macadamia	90
Mandarin	30
Mango	90
Nectarine	60
Orange	30
Papaya	20
Peach	60
Pear [a]	50 – 100
Plum & Prune	70
Ground crops	
Peanut	10
Broad acre crops	
Canola	15
Cotton	10
Soy	10
Sunflower [a]	30-100

Crop	Dependence %
Vine crops	
Blueberry	100
Cucumber	100
Kiwi	80
Pumpkin	100
Rock melon	100
Squash	10
Water melon	70
Seed production	
Beans	10
Broccoli	100
Brussels sprout	100
Cabbage	100
Canola	100
Carrot	100
Cauliflower	100
Celery	100
Clover	100
Lucerne	100
Mustard	100
Onions	100

[a] *Dependent on variety*

Source: Monck, M., Gordon, J., & Hanslow, K. (2008). *Analysis of the market for pollination services in Australia*. Rural Industries Research and Development Corporation (RIRDC).

It is clear that Australia's food security and the productivity and viability of much of our agricultural sector is dependent upon honey bee pollination.

For example, the Australian almond industry is currently one of the top four most productive in the world, and is poised to enter a period of significant growth as demand increases from India and China. By 2015 this industry could be valued at $570 million – if Australia's faltering beekeeping industry can keep up. Almonds are 100% dependent on commercial beekeepers for pollination. If current downward trends in commercial beekeeper numbers continue, not only will we be unable to provide the necessary number of hives to support this growth (at least 200,000 per annum), but the almond industry could fail, with damaging flow-on effects for the Australian economy.

Other examples include cherries and apples, the productivity of which are also highly dependent on honey bee pollination. Honey bee pollination of cotton has been measured to increase crop yields of up to 16% (RIRDC Pollination Publications, www.rirdc.gov.au/publications). Certified seed production from important livestock pasture species such as white clover and lucerne varieties is an important industry that relies heavily (100% in the case of white clover) on managed honey bee pollination. These pasture legumes also return tens of thousands of tonnes of soil-enriching nitrogen to Australian farmlands annually. The fitness of these species is geared very much to honey bee pollination during flowering periods to set seed (NZ Ministry of Agriculture and Fisheries).

It is unconscionable that responsibility for this nation's food security should be shouldered by a small contingent of commercial beekeepers. This was made clear by the outcomes of earlier government inquiries.

Collectively, commercial beekeepers have neither the expertise nor the resources to act as major guardians of our national food security. Further suggesting that beekeepers also shoulder the substantial financial and operational burden for the national biosecurity arrangements necessary to maintain the integrity of their services is an abrogation of responsibility by governments, and by the larger industries that rely on, or benefit from, honey bee pollination services.

Efforts by the beekeeping industry and Government to address this problem through the establishment of an umbrella entity, Pollination Australia, to engage the pollination-dependent industries have faltered. Similarly, a serious attempt - supported financially by the Wheen Bee Foundation - to establish a Cooperative Research Centre on Honey Bees and Pollination, was unsuccessful due to the diversity of stakeholders involved.

This Inquiry should recognise not only the obvious national interest in protecting Australian food security and productivity, but also the clear failure of the market to safeguard the continuity of a viable honey bee pollination service industry.

Environmental importance

The European honey bee, *Apis mellifera*, is an introduced member of the Apidae family that successfully naturalised in Australia in the early 1800s. Forty years later, the Landsborough expedition of 1862 noticed that the eastern Australian hinterland forests and woodlands were well stocked with wild European honey bees. The natural spread of wild honey bee colonies across much of Australia's native bushland would have been complete by the end of the 19th century, and did so without credible evidence of significant impact on the native biota. With the introduction of migratory beekeeping early in the 20th century, commercial beekeeping has become an integral component of Australia's primary industries.

What makes apiculture unique amongst Australia's primary industries is its dependence on the existence of a healthy natural estate - and reasonable access to this asset for essential pollen and nectar resources. About 85% of the honey produced by the Australian beekeeping industry derives from native plants flowering on public and freehold land. Problems of access to some public land tenures and the long-term sustainability of forests/woodlands are ongoing challenges for the industry.

Maintaining the stability of this intimate relationship between beekeeping, a healthy environment and food security is vital for our economic and social wellbeing.

Financial importance

The economic importance of the beekeeping industry stems from the fact that so many other agricultural and downstream industries are dependent on, or benefit from, honey bee pollination. This trickle-down effect has been articulated by the Australian Food and Grocery Council (AFGC) in its submission to this Inquiry. The AFGC comprises more than 178 entities, which constitutes around 80% of the gross dollar value of the processed food, beverage and grocery products sectors, with an annual turnover in the 2012-13 financial year of $111 billion. The dependence of agricultural production on the beekeeping industry obviously impacts many AFGC-related industries, which are reliant not just on honey as an ingredient, but also fruits, vegetables, seeds, nuts and proteins derived from livestock grazing on pasture grasses such as clover and lucerne, for the production of many and various foods and drinks.

The annual value of honey and other hive products production is around $100 million per annum at the farm gate in Australia. $1.8 billion of the ~$30 billion produced annually by Australia's agricultural industries is directly attributable to honey bee crop pollination (Keogh, R., Robinson, A., & Mullins, I. J. (2010). *Pollination Aware: The real value of pollination in Australia* RIRDC).

When all external benefit is counted, such as goods and services, employment and so on, the annual overall value of honey bee crop pollination services for Australia is between $4–$6 billion. This conclusion was reached in the Centre for International

Economics Study, *Valuing honeybee pollination* (J Gordon & L Davis, June 2003. RIRDC publication number 03/077 RIRDC, Project number CIE–15A.)

Attachment 1 includes an edited extract of evidence submitted by the Victorian Apiarists' Association Inc to the 2008 *More than Honey* Inquiry. Their statement provides further detail on how important honey bees are to the national economy and to the public benefit.

Term of Reference a:

The importance of these industries from a food security, environmental and financial point of view

Recommendation 1

The Government is urged to recognise the strategic importance of commercial beekeeping, and honey bee crop pollination services, both nationally and globally for food security, and to acknowledge that the wellbeing of the industry should not be left to the vagaries of market forces.

Recommendation 2

The Wheen Bee Foundation urges the Government to assist in raising awareness within the pollination-dependent industries and the broader community of the importance of managed honey bees to national food security.

Term of Reference b:

Current challenges facing the beekeeping industry domestically and internationally, and its future sustainability

Despite its key role in food security, commercial beekeeping in Australia, as well as globally, faces significant threats.

The predominant threats to the Australian industry are:

1) Increasing pressures on the economic viability of the industry
2) Insecure access to floral resources
3) Honey bee health

At a time when it should be expanding and prospering, providing pollination services at the scale required to support the growth of agricultural industries, the Australian commercial beekeeping industry is in decline, and has been for a number of years. There has been a 30% decrease in the number of commercial beekeepers nationally – a loss of around 600 individual businesses[18] - since the 2008 *More than Honey* Report. This is both alarming and disappointing given the content of that report, which both articulated the problem and provided 25 recommendations for its remedy.

Commercial beekeepers in the USA and Europe are currently suffering well-publicised catastrophic losses - in recent years up to 50% loss of hives, and pollination power, annually - through Colony Collapse Disorder (CCD). CCD is a complex syndrome but is a measure of increased collective stress on bees (and beekeepers). It has not yet been observed in Australia and as of this moment we appear to be still free of one of the major contributing factors, infestation with the pest mite varroa. However, we can anticipate that similar trends of CCD will be observed here if and when varroa becomes established in unmanaged and managed hives across the country.

In 2010, around one-fifth of the 500,000 commercial beehives in Australia provided paid honey bee crop pollination services. If pollination by unmanaged honey bees was eliminated by varroa mite (or another pest incursion), up to 750,000 managed honey bee colonies would be needed to provide pollination services every season - far exceeding Australia's current apiary capability. If our commercial beekeeping industry continues to decline, it will be extremely difficult to meet pollination service requirements (Keogh, R., Robinson, A., & Mullins, I. J. (2010). *Pollination Aware: The real value of pollination in Australia* RIRDC).

Targeted research is a key tool for addressing these threats and challenges. However, as the beekeeping industry is relatively small, especially compared to Australian agricultural and broader food manufacturing industries that rely heavily on honey

[18] Decline calculated based on 2013/2014 Beekeeper numbers as stated in the draft *National Bee Biosecurity Program*, prepared by Plant Health Australia Feb 2014.

bee crop pollination services, financial input needs to be above the current levels based on the Commonwealth statutory honey levy system and relevant RIRDC programs. The demonstrable failure of market forces to protect the public interest concerning food security shows that investment of public money in research into the prevention and treatment of honey bee pests and diseases, and broader industry issues, is justified and in the national interest.

Regrettably, Australia does not have reliable annual, centrally reported data on the "State of the industry" – so the success (or failure) of any programs introduced to address the issues faced by industry are hard to measure. Ignorance may be bliss, but with the national interest at stake it is also indefensible.

Domestic challenges for the Australian beekeeping industry

1) *Declining economic viability of beekeeping*

In Australia, and worldwide, the number of commercial beekeepers is on the decline primarily because of poor economic viability of their businesses.

Factors contributing to the decline in the economic viability of beekeeping include:

- Insecurity around access to floral resources and the threats of honey bee pests and diseases (see next section)
- Low prices being paid for honey and pollination services, compared with costs of production
- Significantly increased costs to beekeeping operations, particularly around vehicles, fuel and labour, and more intensive hive management needed to control bee pest and diseases
- Lack of tertiary or vocational training opportunities for those in the industry, and a growing need within the industry for expertise beyond "traditional" beekeeping skills, such as marketing, communications, business management and strategic planning
- Long hours and extended periods away from home in a physically demanding profession
- The average age of commercial beekeepers in Australia is over 50 and continuing to rise, and it is similar in most significant beekeeping countries

All of the above, combined with the modest financial returns, reduce the attractiveness of the industry to new recruits. These problems were largely recognised in the *More Than Honey* Report and addressed in its 25 recommendations. Varroa will eliminate unmanaged hives and it will lead to a loss of managed hives, at least initially. While this shortage will increase pollination service fees for beekeepers, it is risky to assume that the remaining beekeepers will have the capacity to increase hive numbers to meet industry needs.

2) *Access to nectar and pollen floral resources*

Reduced and insecure access to the floral resources that commercial beekeepers need to build up and maintain strong and healthy hives, and to produce enough honey to sustain viable businesses, is placing significant pressure on the industry.

Nectar and pollen floral resources are being affected by:

- The destruction of native forests through land clearing from clear felling, dieback, firewood harvesting, etc., and the very long time periods (tens of years) before replanting can produce an adequate nectar source again
- The impacts of climate change on the capacity for clear-felled native forest to successfully regenerate
- What appears to be an increasing incidence of severe bushfire damage to native forests and woodlands, which renders some floral resources unproductive for several years
- Timing of planned burning to reduce forest floor fuel loads - fire can escape and/or burn too hot, so flowering potential is compromised
- Increasing urbanisation
- Restricted access to some public land native forests through changes to government policy, and the complexity of navigating three layers of government, which can have conflicting policies.

For example, the Beattie Labor Government in Queensland had legislated that all commercial beekeeping activities would cease in National Parks by 2024. With the regular rezoning of State Forests as National Parks, there would be no future for commercial beekeeping in Queensland after 2024. This policy would have impacted catastrophically on crops worth in excess of $1 billion per annum, according to the then Labor Minister of Agriculture, acting on the benefit of hindsight. The current Newman Coalition Government has reversed the previous Beattie Government policy on commercial beekeeping access to Queensland National Parks.

Beekeepers across Australia operate in an uncertain political climate with regards to access to floral resources, with each jurisdiction posing its own unique pressures on beekeepers.
The Wheen Bee Foundation submits that it is time for consideration to be given to the development of a nationally uniform beekeeping on public land access policy, consistent with the 2007 *Skills: Rural Australia's Need* Report and with the *More Than Honey* Report, which include the following considerations:

- Recognition of the strategic importance of commercial beekeeping and honey bee crop pollination services to the agricultural and food manufacturing sectors of the economy, to help ensure national and global food security
- A viable and productive Australian beekeeping industry is heavily dependent on secure access to floral resources, in all States and Territories
- Beekeeping on public land to be managed to maximize coexistence and minimize conflict between beekeeping and other public land uses and values

We note that, due to recognition the critical resource issue reviewed in the 2008 *More than Honey* Report, the Victorian apiculture industry diligently applied itself to achieving a better deal for beekeepers and the wider community through sustained, collaborative government-industry enterprise.

We recognise that the underlying problems with declining access to floral resources have common elements across the States and Territories, and yet the various jurisdictions and peak industry bodies tend to seek local solutions. However, shared experiences would be beneficial to the whole industry. There is a missed opportunity for the Commonwealth and State Government bureaucracies to share these experiences.

The Victorian approach could serve as a model for other jurisdictions to consider. Because of the real benefits in sharing experiences across jurisdictions, the Foundation provides an excerpt from the Victorian Government's newly developed policy for beekeeping on public land, which defines the overarching basis and objectives of the policy (Appendix II).

Recommendations 5, 6 and 7 in the 2008 *More Than Honey* Report relate to Resource Security. The Wheen Bee Foundation gives due consideration to these recommendations in our Attachment, which outlines the Victorian experience on Floral Resource Security. Our recommendations to the current Inquiry (Rec 3, 4 and 5) arise from the relevant discussion in the Attachment.

3) *Pests, diseases and honey bee health*

National honey bee health is under increasing pressure due to:

- Intermittent inadequate nutritional resources
- More intensive hive management to adequately prepare for the delivery of pollination services
- Extreme weather conditions - particularly cool, dry springs and excessively hot summers
- Increased events of apiary migrations
- The use of pesticides and other chemicals, which are harmful to honey bees, in the agricultural and horticultural industries
- Increasing expectations by state governments for industry self-regulation and management of pests and diseases

These factors can combine to stress honey bees, as well as being exposed to an ever increasing number of bee pests and diseases. CCD, which is a huge issue for the beekeeping industry in the USA and Europe, is seen as a reflection of aggravated stress on commercial honey bees.

Challenges faced by honey bees due to pests and diseases include:

- Small hive beetle (originally from Africa) and the microbial parasite, *Nosema ceranae* - which are already well established in Australia and causing problems for beekeepers
- American foulbrood, European foulbrood and Sacbrood are other established honey bee diseases that cause problems for Australian beekeeping businesses
- The mite *Varroa destructor*, which has spread throughout all beekeeping countries - except Australia - has had a devastating impact on honey bees; without intervention infestation can kill a colony within a season
- Varroa also spreads other bee diseases such as viruses, which can linger in hives even where varroa has been eradicated (It has been estimated that varroa mite could cost Australian plant industries between $21 and $50 million per year for over thirty years (RIRDC Pub. No. 13/068) – however, this seems to be a significant underestimation as varroa could be the tipping point for many commercial beekeepers and the loss to the almond industry alone would be well in excess of $50 million pa)
- Other honey bee mites (including Tropilaelaps mite (*Tropilaelaps clareae*), Tracheal mite (*Acarapis woodi*)) are significant pathogens of the global beekeeping industry, but not yet established here. Australia currently lacks the diagnostics and facilities even to be able to detect these mites quickly and accurately; similarly for a range of other bee pests
- A range of viruses of honey bees present in Australia that include chronic paralysis virus, sacbrood viruses, Israel acute paralysis virus, Kashmir bee virus, black queen cell virus and cloudy wing virus. Other viruses, such as acute bee paralysis virus and deformed wing virus cause bee mortality when associated with varroa mite infestations and these viruses are not yet present in Australia
- Other bee species from Asia also pose a threat due to the diseases they can be carrying and/or them exhibiting aggressive/honey robbing behaviour towards our honey bee, *Apis mellifera* (these include the Asian honey bee, *Apis cerana* (which is discussed later in this submission), giant honey bee (*Apis dorsata*), dwarf honey bee (*Apis florea*), and recently identified species about which little is known - *Apis andreniformis*, *Apis koschevnikovi*, *Apis nigrocinta*, and *Apis nuluensis*)
- Africanised bees (*Apis mellifera scutellata* and its hybrids) and the Cape honey bee (*Apis mellifera capensis*) also represent threats to our honey bee industry
- Honey bees are susceptible to a variety of bacterial, fungal and viral diseases that are aggravated by poor bee nutrition, intensive management practices, exposure to agricultural chemicals and movement over long distances

Many of the pest and diseases constraints on Australia's beekeepers are common to beekeepers in other countries. Australia benefits enormously from accessing overseas knowledge, which we adapt and adopt to create local innovation. Collectively, we have significant R&D capability in Australian research institutions -

CSIRO, universities and state departments. However, this effort is not well coordinated, and it is under-resourced. The *More Than Honey* Report made a number of recommendations to redress these problems (Recs 2, 3, 16 and 24). Regrettably, despite recent efforts, none have been adequately implemented.

International challenges for the Australian beekeeping industry

In addition to the above, there are international challenges placing pressure on the Australian beekeeping industry. Imported honey is not subject to the same quality assurance testing that Australian honey must undergo when it is being exported. Australian honey is often "left off the table" when government is negotiating trade agreements. In addition, and as discussed in detail below, labelling laws mean that it is not always obvious to Australian consumers that they are buying, cheaper and potentially inferior, imported honey.

Term of Reference b:

Current challenges facing the beekeeping industry domestically and internationally, and its future sustainability

Recommendation 3

The Australian Government and State/Territory Governments implement Recommendation 5 of the *More Than Honey* Report, which urges establishment of national 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 and pollination-dependent industries.

Recommendation 4

Governments consider the Victorian model as one working example for the development of a nationally uniform policy for ensuring floral resource security for the Australian beekeeping and the honey bee pollination-dependent industries.

Recommendation 5

The Australian Government fund further research into the impact of fire management on native forest biodiversity, and the Australian beekeeping industry in particular.

Recommendation 6

Annual reporting on the "State of the Industry" should be conducted, and this should include the number and locations of commercial operations and hives, honey and other hive product yields and economic value, income from pollination services, beekeeper demographics and training undertaken.

Recommendation 7

Improved, targeted and appropriate education and training opportunities, including schemes like apprenticeships, be made available for the beekeeping industry in Australia, and that these cover beekeeping skills, as well as areas such as biosecurity, marketing and communication.

Recommendation 8

The Australian Government establish a National Centre for Honey Bee and Pollination Industry research, training and extension; provide funding to a level commensurate with the value of the industry to Australian agriculture and the broader economy; and sufficient to effectively address current and foreseeable technical challenges threatening the long-term viability of the beekeeping industry.

Recommendation 9

There should be a more rigorous inspection of honey that is imported to Australia, so that it can be subject to the same quality assurance prescriptions as Australian honey is subjected to when it is exported to other countries.

Recommendation 10

Australian honey, hive products and live bees need to be considered when trade agreements are being negotiated with other countries.

Term of Reference c:

Current biosecurity arrangements for imported and exported honey, apiary products, package bees and queen bees

Quarantine

The biggest biosecurity threat to the Australian beekeeping industry is an invasion of one or more of the bee pest species that currently are not resident in this country. Risks associated with the business of importing or exporting hive products or bees, while secondary, also have the potential to negatively impact the beekeeping industry.

While the varroa mite poses the most imminent and serious biosecurity threat, there are other biosecurity risks for the beekeeping industry. These include other mites such as Tropilaelaps (*Tropilaelaps clareae*) and Tracheal (*Acarapis woodi*) mites. Other bee species, especially the Asian honey bee, are also a threat. However, to date, there are no cost-benefit analyses of the impact of an incursion by pests or diseases, other than varroa.

The Wheen Bee Foundation notes that the response to any future varroa incursion will be predicated on the ABARE Research paper, *A benefit-cost framework for responding to an incursion of varroa destructor* (June 2012). We believe that this report is flawed in a number of areas, especially:

1. Underestimation of the economic losses likely to be caused by the spread of varroa – and hence underestimation of the economic benefits of successful eradication of varroa – due to lack of consideration of any losses to the broader supply chain that uses honey or pollination-dependent primary produce for further value-adding or food manufacturing;
2. Its unrealistic assumptions about the capacity of beekeepers to increase hive numbers on the simple assumption of higher demand for pollination services following the spread of varroa; and
3. Because it does not provide an estimate of the cost of containment or eradication of a varroa incursion.

We note that currently the document seems to be underpinning and justifying a defeatist policy approach that is matched by lack of investment by government in regard to biosecurity. We therefore urge a review of the document to provide a more balanced assessment to assist decision-makers to respond to biosecurity and industry challenges in a more informed manner.

Although we have the National Bee Pest Surveillance Program (formerly the Sentinel Hive Program), Australia's continued status as 'varroa mite free', and our current freedom from these other biological threats, is arguably due more to luck than the robustness of the Surveillance Program. Plant Health Australia (PHA) has been managing the program nationally (since 2011), with contracts with each jurisdiction

(except ACT). It is co-funded by the Australian Honey Bee Industry Council ($75K), Horticulture Australia Limited (HAL) ($75K) and Department of Agriculture ($60K). This means a national total of only $210,000 for port surveillance/prevention of establishment of exotic bee pests.

An invasion by varroa alone could cost Australia $70 million a year, with far-reaching consequences for our agricultural sector and food manufacturing industries, and yet our national surveillance program is funded at just $210,000 a year! In addition the relatively small, and financially challenged, beekeeping industry is expected to meet the costs of essential biosecurity for the nation. The existing figure does not reflect the required tasks and programs that would be needed to seriously attempt to prevent pest incursions, and deal with them swiftly if they did occur. The frailty of the current system is demonstrated by the inadequacy of response to the recent Asian honey bee incursion into Cairns (described further below).

Also, there are no practical diagnostic tests for pests such as the Tracheal mite, through lack of funding for R&D.

While PHA is currently working to put more in place, the required programs are large, complex and expensive. It is vital that appropriate federal funding be available to maintain the National Bee Pest Surveillance Program. It is critical that our nation has an early warning system of any honey bee pest or disease incursion. We must have a range of effective surveillance methods such as sentinel hives, catch-boxes, remote surveillance hives, hobby beekeeper surveillance, etc. There is a need for greater involvement from, and training for, Commonwealth staff at ports, as well as state agencies, hobby beekeepers, etc. Training needs to include areas such as diagnostics, awareness and communication.

Post-entry quarantine arrangements for honey bees

Another significant biosecurity concern for industry is the proposal to relocate the honey bee quarantine facility to the new national AQIS facility at Mickleham, Victoria. The current facility at Eastern Creek (Sydney) is scheduled to close in August 2015 and the 2008 Inquiry recommended the establishment of a new facility.

However, the location of the multi-purpose quarantine station that is planned for Victoria is far from ideal for honey bees. This is due to lack of essential floral resources and poor weather conditions in that area. The proposed removal of vegetation around the Mickleham Facility to discourage birds is a further matter of concern. In addition, many of the main users of the current facility are based in NSW.

When varroa or other pests arrive, it will be essential that we have a working system in place to be able to import varroa-resistant or other relevant stock from the USA, NZ and/or Europe. A quarantine facility in the Sydney basin would best meet this need. The existing Elizabeth Macarthur Agricultural Institute (EMAI) near

Campbelltown in western Sydney is managed by the NSW Department of Agriculture, and has many advantages over the proposed Victorian site. It should be considered as a better alternative replacement when the Eastern Creek facility is closed. Earlier advice within the Australian Government that the NSW Department of Agriculture was not interested in this suggestion appears incorrect, and this option should be further explored before construction of a stand-alone, sub-optimal honey bee quarantine facility commences in Victoria.

Term of Reference c:

Current biosecurity arrangements for imported and exported honey, apiary products, package bees and queen bees

Recommendation 11

The Australian Government, through the Department of Agriculture, continues to support the National Bee Pest Surveillance Program, and that resourcing be increased commensurate with what stands to be lost, with a greater responsibility for funding taken by pollination-dependent industries and government.

Recommendation 12

The ABARE Research paper, *A benefit-cost framework for responding to an incursion of* Varroa destructor (June 2012), be reviewed to include a broader approach to assessing benefits of eradication; and some effort be made to assess costs involved with containment and eradication options in order to better inform policy responses to varroa incursions.

Recommendation 13

A quarantine and testing facility for the import of live bees be maintained in NSW, in the Sydney basin.

Term of Reference d:

Australia's food labelling requirements, and how these affect the beekeeping industry

The Wheen Bee Foundation is aware that its mission to maintain food security via honey bee health and pollination services is intrinsically linked with the financial viability and sustainability of beekeeping businesses. Without a financially viable industry there is likely to be a further decline in national commercial beekeeper numbers, and consequently negative impacts on food security.

Food labelling is an important issue that influences consumer purchase decisions, and in turn impacts on the financial returns to Australian beekeepers. Whilst these topics will invariably be covered in detail by other submissions to this Inquiry, from entities more closely aligned with the market, the following brief observations are made for the Committee's consideration.

100% Australian

Consumers are often willing to pay a premium if they believe they are supporting Australian producers. As it stands there is confusion surrounding the "Made in Australia" claim on many products that are actually a blend of imported and Australian honey. This confusion is likely to result in customers genuinely wishing to support Australian beekeepers but inadvertently diverting their investment to imported products. It would be helpful for the beekeeping industry to be assisted by the ACCC to test the legality of the practice of labelling imported and Australian honey as "Made in Australia".

Following an ACCC investigation the issue of labelling should be more generally addressed as part of broader food industry review of country of origin labelling regulations.

"Health" labelling

The Foundation notes that plans are underway for a "traffic light system" or something similar, with the aim making it easy to identify at a glance the "healthiness" of foods, based on a rating determined by the levels of fats, sugars and salt.

Such a system is likely to label honey as "bad" or "red", despite scientific evidence of its potential as a prebiotic (Conway, Stern, Tran (2010) *The Value-adding Potential of Prebiotic Components of Australian Honey*. RIRDC Publication No. 09/0179), and the fact that at the standard consumption of 1 to 2 tablespoons a day the sugars in honey are not detrimental as part of a balanced diet, and in fact may be beneficial.

Term of Reference d:

Australia's food labelling requirements, and how these affect the beekeeping industry

Recommendation 14

A review be conducted by the ACCC in regard to the legality of the practice of labelling predominantly imported honey with small amounts of Australian honey as "Made in Australia" to determine if this practice satisfies the "substantially transformed" criteria contained within the Country of Origin labelling laws.

Recommendation 15

As part of any future mandatory health related labelling changes, honey be given adequate consideration to ensure accurate health messaging is balanced against negatively swaying consumers' purchase decisions based on a simplistic system that only provides the public with part of the information.

Term of Reference e:

The recommendations from:

1) ***The House Standing Committee on Primary Industries and Resources 2008 report More than Honey: the future of the Australian honey bee and pollination industries; and***
2) ***The Rural Affairs and Transport References Committee 2011 report Science underpinning the inability to eradicate the Asian honey bee***

1) Recommendations from the 2008 *More Than Honey* Inquiry

The *More Than Honey* Inquiry was a sequel to a broader inquiry by the House Standing Committee on Primary Industries and Resources into Rural Skills, Training and Research. In its February 2007 Report this broader primary industry Inquiry concluded, and made recommendations accordingly:

- "*The Committee was convinced by the evidence it had received from various stakeholders in the honey bee industry, both in written submissions and during hearings, that the honey bee industry plays an important role in the continuation of a healthy agriculture industry*" (Clause 4.48)
- "*The Committee agrees that there is an urgent need for adequate funding to be made available so that a research CRC can be created to address the serious threats facing the industry today*" (Clause 4.49)
- "*The committee would also like to see a government sponsored committee representing all stakeholders convened to address the issues of access for beekeepers to national parks*" (Clause 4.50)

The House Standing Committee was satisfied that the need to address the problems facing the beekeeping industry, and the flow-on implications for the much larger pollination-dependent industries, was so great that it established an Inquiry specifically to deal with these issues. These wider ramifications of the subsequent honey bee Inquiry are reflected in the title of its 2008 Report, *More Than Honey*: *the future of the Australian honey bee and pollination industries*. The 2008 *More than Honey* Report contains 25 recommendations that, if enacted, would be of great benefit to industry.

R&D related recommendations (2, 3, 16 and 24) from the House Standing Committee on Primary Industries and Resources 2008 More than Honey *Report*

Below we comment on a number of the recommendations (2, 3, 16 and 24) from 2008 *More than Honey* Report, which relate to research, development and training.

The Commonwealth Government, under the leadership of RIRDC, supported the establishment of Pollination Australia. The purpose of this enterprise was to encourage and coordinate participation in R&D programs by those agricultural industries that stood to benefit from effective pollination services. However, it

seems that Pollination Australia has been unable to achieve this, given the unwillingness of those industries to make any meaningful financial contribution to developing a CRC bid in 2012.

Consequently, *More Than Honey* **Recommendations 16** and **24,** which urged establishment of a '*national centre for honey bee and pollination industry research, training and extension*' to be funded by the Commonwealth at a level of $50 million per annum have not eventuated. This demonstrates the failure of market forces to protect the public interest concerning food security. The nation can no longer rely on the small beekeeping industry to carry a major responsibility for national food security. The government should implement **Recommendations 2** and **3** of the *More than Honey Report,* which urge greater public funding for targeted, applied research into pollination services by honey bees and alternative pollinators.

The case for increased public funding to ensure a viable beekeeping and pollination services industry has become even more urgent given threats listed earlier in this submission. In order to facilitate greater industry support for research into pollination services, the Government should implement **Recommendation 25** of the *More than Honey Report*, which proposes that the '*Australian Government alter research funding arrangements to allow for a levy on pollination services*'. Indeed, a key to implementing **Recommendations 2, 3, 16**, and **24** is the collection of a statutory levy on pollination services. With increasing reliance by pollination-dependent industries on the services of commercial beekeepers - all the more so if varroa decimates wild colonies, which currently provide "incidental and free" pollination for some crops and pastures - then they will have little choice but to "pay their way". It would be an administrative means of achieving engagement by the pollination-dependent industries that has largely been lacking to date.

Biosecurity related recommendations (9, 10, 13 and 14) from the House Standing Committee on Primary Industries and Resources 2008 More than Honey *Report*

Although other submissions to this Inquiry are likely to address these previous biosecurity-related recommendations in more detail, the Wheen Bee Foundation has prepared some comments on the 2008 recommendations for consideration.

We discussed a number of biosecurity issues earlier in the submission. With regards to **Recommendation 9** to '*fast track the pre-registration of pesticides and other chemicals necessary to combat a varroa incursion*', we do not agree with this recommendation, given what has happened overseas with the heavy use of chemicals and development of resistance.

Although we have Bayvarol (Flumethrin) and Apistan (Tau-fluvalinate) registered for emergency use in Australia, it could be argued that registration for these products should be removed due to the hugely problematic amount of resistance to these products being seen around the world. When resistant chemicals are used,

international beekeepers are using more of the pesticides, and as a consequence residue issues arise. However, the fast-tracking of emergency use/minor use permits of organic treatments (including oxalic acid, hopguard, etc) could be useful for industry. For example, there is currently an emergency use/minor use permit for Thymol gel in place. A similar registration for Mite Away Quick Strips (Formic Acid) would be helpful for industry.

It should also be noted that this area should be broadened to deal with pests and diseases in addition to varroa, for example *Tropilaelaps* and *Acarapis* spp.

With regards to **Recommendations 10, 13** and **14** in the *More Than Honey* Report, the industry, through its peak body AHBIC and with PHA, is currently working to change the levy system that is in place to enable the collection of funds to be used for a National Bee Biosecurity Program (http://honeybee.org.au/programs/honey-levy-reform-and-increase/national-bee-biosecurity-program/).

The purpose of this program is to focus on the management of established pests and diseases of honey bees in Australia, as all levels of government have indicated there is a need to prioritise biosecurity investment and its greatest return on investment is in the prevention, surveillance and detection of exotic pests. Consequently, state governments are directing resources away from the management of established pests and diseases, and the beekeeping industry is attempting to address the issues caused by these with its very limited resources.

However, the cost of levy collection is unsustainably high for our small industry. More flexibility in how levies can be collected, and/or a movement away from full cost-recovery by collection bodies would be of great benefit to industry, as this would leave more funds to spend on research and other ways of addressing biosecurity issues.

It is imperative that we have better diagnostic standards available for the rapid detection of exotic pests. These should be established under the guidance of the Subcommittee for Plant Health and Diagnostic Standards (SPHDS), which answers to the Plant Health Committee. There are currently significant shortfalls in our ability to detect a number of exotic pests (for example Trachea mite). Unless rapid detection methods can be developed, standardised, approved and made available to state/commonwealth quarantine, ports, etc. we could have significant and established incursions of exotic pests before we realise it, and at stage that is too late for eradication.

Given the strong national interest and failure of the market to invest in the necessary targeted, applied research, government investment in the form of financial support for Pollination R&D, Honey Bee R&D and a Honey Bee CRC is imperative. Continuation of the National Bee Pest Surveillance Program (formerly the Sentinel Hive Program) is also crucial.

2) Science underpinning the inability to eradicate the Asian honey bee

The RAT References Committee's Enquiry and its Report, *Science underpinning the inability to eradicate the Asian honey bee*, was triggered by a real concern that the government's position on the infeasibility of eradication of the invasive Asian honey bee from the Cairns (Queensland) district was not based on sound science. On consideration of all the evidence, the Committee did conclude that the "ineradicability of the incursion" was indeed questionable and accordingly recommended that '*the Consultative Committee on Emergency Plant Pests (CCEPP) reconsider the question with the intent that the National Management Group (NMG) review its position*'. In other words, the NMG was being urged to reverse its position and accept, based on the best scientific advice and with reference to the precautionary principle, that further attempts at eradication should be made.

In its response, the Government noted that the CCEPP did reconvene but could not reach consensus. The NMG then reconvened on 11 May 2011. It also failed to reach consensus but determined '*that it is not technically feasible to achieve eradication*'. As a compromise, the Government provided a further $2 million to '*support a national pilot program to facilitate the transition of action from eradication to the ongoing management of Asian honey bees*'. The Transition to Management Program ran from 1 July 2011 until 30 June 2013. There have been no further attempts to eradicate invasive swarms of the Asian honey bee.

Lessons learned from this event have been many and important. Australia was not well-placed to detect, nor respond effectively (either administratively or technically), to such incursions. These defects were noted during the *House Standing Committee on Primary Industries and Resources Enquiry*, which resulted in the 2008 *More Than Honey* Report.

A primary reason for the perceived inability to eradicate the Asian honey bee from Cairns was the fact that no feeding station or baiting system was available to effectively and selectively attract foraging Asian honey bee workers. A huge and highly commendable effort was made by the Queensland Department of Agriculture, with volunteer support from many Queensland and interstate beekeepers, to eradicate the Asian honey bee incursion. This effort was in vain because the bait stations did not spontaneously attract Asian honey bee foragers. The complete lack of specificity also raised concerns about adverse impacts of fipronil on non-target species, especially native social bees such as *Tetragonula* (previously known as *Trigona*) spp.

It should be noted that the concern and eventual substantial effort to eliminate the Cairns incursion of Asian honey bee arose from the belief expressed by scientists that the Asian honey bee had the potential to spread over much of Australia, and that it posed a very serious threat to the commercial beekeeping industry, to pollination services and to biodiversity. These predictions were based on the Asian honey bee's ability to spread rapidly throughout diverse habitats in Papua New

Guinea and, more recently, to out-compete, to the point of elimination, the European honey bee in the Solomon Islands.

Recent, and current on-ground ecological research in Cairns by Dr David Guez (University of Newcastle; recipient of RIRDC Honey Bee grant, using funds provided by the beekeeping industry: Develop an attractant specific to *A. cerana* Java strain) does not support the prediction that this particular incursion of Asian honey bee poses such a serious national threat. The Cairns incursion probably resulted from a single swarm carrying a single queen. Inbreeding depression, combined with sterile offspring resulting from crosses between Asian honey bee queens and *A. mellifera* drones, would place a heavy genetic burden on Asian honey bee colonies as they migrate out of the Cairns region.

Ecological factors mitigating against the spread of the Asian honey bee include:

- The inability of Asian honey bee to respond to infestations of the small hive beetle (itself a serious exotic pest of *A. mellifera* since its arrival around 2000)
- The inability to respond to green ant predation
- Contrary to the Solomon Island situation, it is out competed by *A. mellifera* foragers and prone to robbing by *A. mellifera*

The likely response to these threats by Asian honey bee colonies was to abscond. It is probable that the majority of Asian honey bee swarms detected were absconders and not a true indication of an expanding population. If this interpretation is correct, then it provides further support for the conclusions reached by Dr Evan Sergeant - and not Dr Roger Paskin who had concluded that the increasing swarm incidence demonstrated the spread of Asian honey bee was unavoidable (Drs Sergeant and Paskin's conflicting models on the spread of Asian honey bee from Cairns were central to the conclusions drawn around the eradicability of the 2007 Cairns incursion of Asian honey bee).

Dr Guez has also made substantial progress in designing feeding stations that are efficient and selective in attracting Asian honey bee foragers. The new feeding stations involve colour, shape but, more importantly, he has identified odour sources that attract Asian honey bee and not European honey bee. Evidence suggests that relocating the station, say on a weekly basis, would minimise any collateral damage to native pollinators such as Trigona spp.

It is now likely that a practical feeding and baiting system for Asian honey bee will be available in the near future. This raises the possibility that a "proof of concept" local eradication program could be devised and evaluated in the Cairns area. This will require the issuance of a permit to trial fipronil or some other bait poison.

The value of this activity would be to greatly enhance our preparedness to detect an Asian honey bee incursion (ie has relevance to our national surveillance capability), and also increase our capacity to eradicate any incursion following early detection.

There are also positive implications for early detection and eradication of varroa if it arrives with a future incursion of Asian honey bee.

Term of Reference e:

The recommendations from:

1) ***The House Standing Committee on Primary Industries and Resources 2008 report More than Honey: the future of the Australian honey bee and pollination industries; and***
2) ***The Rural Affairs and Transport References Committee 2011 report Science underpinning the inability to eradicate the Asian honey bee***

Recommendation 16

The Inquiry should encourage the Australian Government to implement Recommendations 2, 3, 16, 24 and 25 of the *More Than Honey* Report, all of which emphasise the need for public investment in targeted research to support the pollination services provided by Australian beekeepers to our agricultural industries.

Recommendation 17

An annual report outlining outcomes and progress on issues affecting industry be prepared by the relevant federal government department, and presented to industry via AHBIC.

Recommendation 18

The Government and relevant industries review the effectiveness of the current *Pollination Australia* organisation and structure and set key performance targets and industry reporting requirements for its management to achieve.

Recommendation 19

The Government is urged to encourage the revitalising of *Pollination Australia*, and to broaden the basis for industry participation in funding vital R&D on pollination services by permitting, under law, the collection of a statutory levy on pollination services.

Recommendation 20

Government must recognise the opportunity afforded by the 2007 incursion of Asian honey bee into Cairns to improve Australia's capacity to detect and eradicate future incursions.

Recommendation 21

The Commonwealth Government, along with the beekeeping industry and pollination dependent industries, support continued research effort to develop effective and specific feeding and bait stations for early detection and eradication of future incursions of Asian honey bees.

Term of Reference f:
Any related matters

We do not have any further comments for the Committee.