The Future of the Australian Honeybee Industry

Submission to

House of Representatives Standing Committee on Agriculture, Fisheries and Forestry

Submission prepared by

Davies Apiaries, 25th May, 2007

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Background

Davies Apiaries is currently one of WA's largest honey producers with an average annual production of some 150 tonnes. This equates to around 10% of the state's annual production. Our business is comprised of the founding business owner being John Davies who has been an apiarist for some 30 years and son Stephen who formed a partnership with John some five years ago. Both partners currently hold senior industry positions (as listed below) and collectively have considerable previous industry experience.

Current positions held include
John Davies
Chairman – Better Bees WA
Committee Member – Agricultural Produce Commission, Beekeepers Section
Committee Member – Bee Industry Consultative Committee (run by Dept Agric WA)

Stephen Davies, MBA AgriBus, MAICD
Director – Wescobee Limited, WA's only supplier owned packing Company,
Committee Member – Pollination Association of WA.

Executive Summary

This submission is in response to the House of Representatives Agriculture, Fisheries, and Forestry Committee inquiry into the future development of the Australian honeybee industry and has been prepared by DAVIES APIARIES, one of the largest honey producers in Western Australia.

In accordance with the Committee's request, this submission addresses the following topics:

- current and future prospects for the Honey Bee Industry;
- the Honey Bee Industry's role in agriculture and forestry;
- biosecurity;
- domestic & international trade issues;
- land management and security of tenure;
- current and future industry research and development.

A summary of the report addressing these issues is provided below.

Current and future prospects

- There continues to be opportunities to pursue international trade for a variety of honey bee products. The most effective avenue for the honey industry to compete with other spreads is through promoting the health qualities of honey so as to differentiate our unique product.
- As a medicinal product, some honeys (including WA's world unique Jarrah honey) are currently being used orally and as a treatment for wounds, burns, and ulcers. The ageing population and the increased amount spent on health care provides a large opportunity for the industry to promote the use of honey as a therapeutic product.
- Diversification into commercial queen bee, package bee and nucleus production for the domestic and international markets is beginning to present a viable alternative to honey production and could provide the industry with significant opportunities in the long term. This is especially the case in countries where the Varroa mite continues to destroy honeybee colonies along with a new threat in Colony Collapse Disorder.

Current and future threats

- The principal threat /risk to the Australian honey industry is the establishment of exotic bee diseases and pests, particularly the varoa mite (*varoa destructor*).
- The reduction of access to the traditional apiary site resource base on public lands. This is occurring for a wide range of reasons and is having an impact on the honey bee's industries capacity to remain viable . The industry is currently trying to address these risks with recently held workshops directed at the development of a national code of conduct for beekeepers working on public land.
- Climate change may yet present the greatest threat to the future of the apiary industry.

Role in agriculture and forestry

- The honeybee industry's gross value of production is between $60 and $65 million per annum. Around $45 million of this value comes from honey production, with the remainder coming from other products such as paid pollination services, beeswax production, queen bee and packaged bee sales, pollen, bee venom and propolis.
- Honeybee pollination is essential for some crops, while for others it raises yield and quality. Honeybee pollination provides significant value to Australian horticulture and agriculture with services being valued at $1.7 billion per annum.

Biosecurity issues

- Australia is the only major honeybee producing country in the world where varroa mite is not present. Should the pest become established in Australia it would spread rapidly unless very expensive control measures were enforced. Control costs for the pest would substantially add to costs of production and would have a devastating effect on the industry. Most small beekeepers would probably find it uneconomic to continue beekeeping and many larger beekeepers would see a significant decline in profitability.
- The disease American Foulbrood (AFB) is endemic throughout australia and most activities of state agencies are directed at controlling this disease. It is highly infectious so that actions by one beekeeper whose hives are infected can cause the disease to spread, and seriously impact on many other beekeepers. Despite all the measures to control the disease the evidence is that it continues to be prevalent at a low level.
- Collony Collapse Disorder is a relatively new phenomenon affecting the health of bee hives. Although no one knows exactly what causes it, the major symptom is the complete disappearance of adult bees in colonies while capped brood are still in the colony and the presence of honey and bee pollination. Although Australian beekeepers have not experienced colony collapse disorder, the impact this disorder has had on the US means any incursion into Australia is likely to significantly cost Australian honeybee and agriculture industries.

Trade issues

- Honey exports face ad valorem tariffs and non tariff barriers. Ad valorem tariffs range from approximately one per cent to 248 per cent. However there is also evidence of non-tariff barriers faced by Australian honey exporters. These include prohibited imports of Australian honey into some countries, quotas placed on the total amount of honey that can be exported into various countries, and cumbersome quality testing measures imposed in countries which are then not placed on their domestic honey producers.
- Australia has an enviable reputation in world markets for producing high quality, clean and green honey and honeybee products. However, this reputation is under threat from contaminated honey being imported into domestic Australian markets, or traded in international markets. This is a direct result of lax labelling laws on the country of origin.
- Domestic trade has continued to be monopolised by the two major supermarkets who's increasing market power allows them to drive down producer prices. They can in effect pay third world honey prices for domestically produced honey.

Land management and Security of Tenure

- Without access to native flora the commercial beekeeping industry would not exist. Continued access to native flora on private but more especially public land is essential to the Australian beekeeping industry.
- In response to concerns about the impact of introduced honeybees and the apiarist's activities on the natural environment, state governments have placed restrictions on access to public land.
- Evidence suggests that honeybees have either a minor or no effect on native insect pollinators or fauna competing for nesting hollows in public forests. Managed honeybees are moved often and harvest only excess honey flows.
- At least 70 per cent of beekeeping activities in WA are undertaken on public land that is controlled by the state government. Future use of these public lands is at best uncertain.
- In addition to erosion of access to resources on public lands, the following are also threats to the floral resources accessed by beekeepers:

  land clearing for agriculture;

  forestry activities that remove flowering trees;

  replacement of felled trees with pine and other low pollen yielding eucalypt plantations;

  fire, including fuel reduction control burning and wildfires;

  reduction in vehicle access (track closures) to apiary sites;

  salinity affecting the health of the available flora;

  droughts which reduce flowering and interrupt growth cycles;

  access to native flora on private lands because of a perception by some landholders that honeybees are harmful to the ecosystem;

  aging and dying of mature eucalypt trees across the general landscape in temperate Australia with no replacement generations of trees; and

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

Research, development, and education needs

- Industry research and development is principally funded by the research levy on honey currently managed by RIRDC. Apiarists pay a levy for research, which is matched on a dollar for dollar basis by the Australian Government. The levy raises between $350 000 and $450 000 per annum and funds approximately 12 projects per year.
- The plan identified key priority areas for research and development investments to be made on behalf of the industry and Australian Government. The research and development plan's objectives are:

  pest and disease protection;

  productivity and profitability enhancement to lift beekeeper income;

  resource access security and knowledge;

  pollination research;

  income diversification, new product development; and

- The industry's gross value of production falls dramatically after a sequence of drought years and with it, industry's capacity to attract matching funds from the Australian Government. The industry is currently suffering a 'double whammy' effect (less of its own levy resources and less matching funding) at a time in its history when it can be least afforded.
- There is no provision in the current levy arrangements for Voluntary Contributions by industry to be recognised by the Australian Government and so attract matching funding for an approved project.

Recommendations to Ensure the Future Viability of the Australian Apicultural Industry.

It is the view of Davies Apiaries, who are substantial stakeholders in the Western Australian beekeeping industry, that a well structured and viable honey bee industry will meet the requirements of the Australian community in terms of ongoing pollination for food production as well as other honey bee products. For the honey bee industry to be viable into the future it is critical to have three things in place.

These are:

- a solid and profitable financial platform,
- a secure long term access to a viable apiary resource, as well as
- the continuing current healthy status of disease-free honey bees.

Unfortunately, this is not the current outlook as the Australian beekeeping industry is not financially viable and is currently operating at well below the cost of production, has a huge uncertainty in regards to the continued access to its traditional apiary sites and has the uncertainty of the invasion of serious pests and diseases. It is exceedingly difficult to invest for the future if there is no viable future industry to invest in. The Apiculture Industry does not want hand-outs, exceptional circumstances payments and the like. Nor does it want to return to a structured market system that artificially inflates prices to consumers. What the Apicultural industry does need however, is a genuinely level playing field where every stakeholder gets a fair go - a fair level of return for the effort involved. The Senate Inquiry being held by the House of Representatives Standing Committee on Agriculture, Fisheries and Forestry has the opportunity through far reaching recommendations to create a positive future for the Australian Honey Bee Industry. Failure to act now will certainly mean the demise of the Apicultural Industry in the great nation.

1. Current and Future Prospects for the Honey Bee Industry

The Australian Honey Bee Industry does have a number of strengths that it can capitalise on to increase profitability, sustainability, competitiveness, resilience, and self-reliance. These include:

- skills, enthusiasm and mobility of commercial beekeepers, which is perhaps one of the industry's greatest strengths;
- the industry is currently free from varroa mite (*Varroa destructor)* as well as a number of other pests and diseases that are endemic throughout most other countries of the world which destroy or otherwise severely impact on honeybee hives capacity to be productive.
- Australia has diverse native flora that can be used to produce a wide range of honey types (flavour and colour);
- reputation for high quality product with some good brands having been established. Awards have been won for the worlds best honey at international competitions;
- some honey and honey products have medicinal uses that should be better exploited;
- through pollination services, the industry provides major benefits to the rest of agriculture: there is strong demand for these services and the fast growth of the horticulture industry and industries that are 100 per cent reliant on honeybee pollination (for example, almonds) will ensure strong demand for pollination services into the future;
- industry has a good quality assurance program: however, more beekeepers need to adopt this; and
- the industry has good research capacity: there are several highly skilled researchers (but the industry needs to look to encouraging young researchers and obtain more funding).

Diversifying honey use

The Australian honey industry is starting to focus on honey markets that pay a premium for taste and quality, rather than selling into bulk markets where competition is primarily based on price. This is to ensure any investment into marketing and promotion can be used in its most efficient and effective manner. As such, there has been a gradual trend away from bulk honey exports towards final product export sales and this trend needs to continue and accelerate.

In addition, honey packers and marketers are trying to diversify honey use. The most promising to date has been the research conducted into using honey's that have active properties for medicinal purposes.

Using honey for medicinal purposes

As a medicinal product, honey is currently being used orally and as a treatment for wounds, burns and ulcers. Currently there is no competition from major importers (except from New Zealand) as other countries have yet to find suitable flora that has the same types of properties.

Four aspects of honey's composition provide its antibacterial activity. These include the low water content which inhibits microbial growth, low pH, hydrogen peroxide forming when honey is diluted with water by the action of the enzyme glucose oxidiase, and a number of other uncharacterised compounds that contribute to anti-microbial activity.

Although most honeys have anti-microbial properties due to the production of hydrogen peroxide, active property honeys are favoured for their medicinal purposes as they have some as yet undiscovered property that provides extra anti-microbial activity. Some advantages of high activity honey are that it not only stops the microbial process in wounds, but it stimulates the healing process, which is in contrast to conventional topical anti-microbial agents. Furthermore there has been no evidence to show that organisms will develop a resistance to honey, which is also in contrast to some other manufactured antibiotics.

With the ageing population and the increased amount spent on health care there is a large opportunity for the industry to promote the use of honey as a therapeutic product. Due to its unique properties and the inability of large scale honey producers in other countries to produce this type of honey, Australian producers should be able to command a high price premium. Continual promotion of the product's healing capabilities compared with conventional medicines within large, high income markets such as Europe and North America provides the industry with the opportunity to diversify its farm income and tap into a potentially huge health care market.

Diversification of the industry

Although the majority of revenue in the honeybee industry comes from the production of honey, there are some significant prospects in the future for the industry to diversify their revenue source and increase profitability. This includes the development of a professional domestic honeybee pollination industry, and exports of queen bees and packaged bees to other countries around the world. For example, the United States, which has had its honeybee industry decimated by the Varroa mite and is under further threat from Colony Collapse Disorder, both of which are not present in Australia, has an immediate need for significant numbers of imported bee products.

Paid pollination services

Australia is the largest commercial producer of almonds in the Southern Hemisphere. The production of almonds is 100 per cent dependent on honeybees, and stocking rates are dependent on the maturity of the orchard and the strength of the honeybee colonies used. The demand for honeybee hives is expected to increase by at least as much as the annual growth in the industry.

The primary area that produces almonds in Australia is in South Australia (60 per cent) and the Riverina area in Northern Victoria. This is due to the favourable climatic and topographical conditions.

However, although it is expected that there will be sufficient numbers of hives to service this market within Australia, some of these hives will have to be sourced from interstate which will require beekeepers travelling long distances. Therefore beekeepers, while they may have the capability to provide an adequate pollination service, may find it not economically viable to do so. A similar situation applies in the Ord River area in Northern WA where there is a large amount of horticultural activity and beekeepers are required to travel long distances from the South West of the state to service the pollination contracts. At present it remains uneconomical to service these pollination contracts. Although paid pollination services represent a large opportunity for the honeybee industry, there are substantial risks and commensurate costs associated with providing these services.

Queen bees, packaged bees and nucleus units

Diversification into commercial queen bee, package bee and nucleus production for the domestic and international market presents a viable secondary income to honey production and could provide the industry with opportunities in the long term. This is especially the case for exports into the US, where the Varroa mite continues to destroy honeybee colonies along with a new threat in Colony Collapse Disorder.

Queen bees

In order to capitalise on the opportunities provided by the increasing overseas markets and expand demand for Australian queens in those markets, the industry needs to:

- invest in improving efficiency in the production of queen bees;
- increase access to queen bee breeding educational programs and formalise the recognition of skills within the industry;
- assist potential queen bee breeders in undertaking market research and establishing distribution channels to overseas markets;
- promote and market the use of Australian queens within overseas markets, educate the industry on the assistance Austrade provides in establishing new export markets and better direct the funding available to small to medium size enterprises under the Export Market Development Grant;
- continue to develop better breeds of queens through the continuing support of the Western Australian breeding program, the establishment of an industry owned breeding program and where appropriate importing superior genetic material;
- ensure research findings are disseminated throughout the entire industry; and
- continue to minimise the risk of the introduction of exotic disease into Australia.

Although there seems to be a large demand for Australian queens, improving and increasing the breeding stock will ensure Australian queen bee breeders can compete with alternative suppliers in the future. In the long term, the success of the queen bee-breeding sector will depend on the quality of Australian queens relative to the rest of the world. This means Australian queens should continue to be bred for their honey-gathering potential, good temperament, high disease resistance, low swarming tendency, and quality brood rearing patterns. However, it also means the industry needs to continually invest in minimising any disease risks, as a lapse in quarantine would be extremely detrimental to this industry.

Packaged bees and Nucleus Units

The package bee industry has been slow to develop since the late 1980s. However, since then the market has expanded to include Canada, the Middle East, Western Europe and most recently the US. This has been primarily driven by the varroa free status that Australian bees enjoy and the capacity for Australian producers to deliver strong colonies at the start of the Northern Hemisphere spring.

The industry it trying to capitalise on these qualities by establishing export markets and developing distribution channels and direct contacts in other overseas countries as well as continuing to supply products into existing markets.

Issues that are threatening industry prospects

Although the honeybee industry has many current and future prospects, they are currently under threat by two primary risks associated with the industry - establishment of the Varroa mite and reduced access to public lands.

Should the Varroa mite become established in Australia it would continue to spread rapidly unless very expensive control measures were rigorously enforced. Most colonies not treated with an appropriate treatment regime would be killed. Control costs for the pest would substantially add to costs of production and would have a devastating effect on the industry. Most small beekeepers would likely find it uneconomic to continue beekeeping and many larger beekeepers would see a significant decline in profitability.

Without access to native flora the commercial beekeeping industry would not exist. Continued access to native flora is absolutely essential to the Australian beekeeping industry. Even though, at present, the number of sites in national parks is not great, these lands contain important species and the threat is that over time, more forest land which is now accessible to beekeepers will be made inaccessible with the spread of national parks and other conservation reserves.

In order to reduce the risk from declining access to public lands, the industry has already developed an action plan to drive it towards a national code of conduct and then on to an Environmental Management System.

2. The Honey Bee Industry's role in Agriculture and Forestry

The value of the honeybee industry to Australia

The honey bee industry's gross value of production is between $60 and $65 million per annum. Around $45 million of this value comes from honey production, with the remainder coming from other products such as paid pollination services, beeswax production, queen bee and packaged bee sales, pollen, bee venom and propolis. Therapeutic honey is an exciting prospect for the industry. Annual honey production is approximately 30 000 tonnes, one third of which is exported. However this amount can vary significantly due to adverse weather patterns (for example, droughts).

The value of pollination in Australian agriculture and forestry

Honeybee pollination is essential for some crops, while for others it raises yield and quality. Honeybee pollination provides significant value to Australian horticulture and agriculture with services being valued at $1.7 billion per annum in 1999-2000. If honeybee pollination were to stop completely, large losses would be felt in a horticulture sector that produces around $3.8 billion per annum. This is because approximately 65 per cent of horticultural and agricultural crops produced in Australia require pollination services from honeybees. Pollination can occur through paid pollination services and/or incidental pollination. Paid pollination involves employing an apiarist to place bees on the grower's land in order for the bees to pollinate crops. Honey production is a secondary objective for the apiarist. With incidental pollination, the apiarist's specific purpose is to produce honey, and pollination of crops is a positive externality received by growers.

Both paid honeybee pollination services and incidental honeybee pollination increase the value of crops to growers through an increase in yield and an increase in quality. This means that pollination has a direct impact on welfare for those growers who benefit from pollination services. In addition, there are positive benefits to the entire agriculture industry due to flow-on effects from an increase in the value of crops, and positive benefits from pollination to consumers as it increases production (thereby putting downward pressure on prices) while providing better quality.

Consequently any loss in honeybee pollination services will mean a loss in welfare to growers and consumers. Losses from the absence of pollination services would be split between producers who would forfeit horticulture and broad acre crop income and consumers who would suffer a sudden and sometimes complete decline in the availability of many fresh fruits, nuts, vegetables and honey. Although some of these crops could be replaced through imports, Australia's capacity to import many of the affected products would be limited by quarantine restrictions. This means prices for the reduced supply of fresh fruits, vegetables, nuts, and honey would be driven up by the reduction in supply, thereby reducing access to these goods and also reducing consumer welfare.

The speed with which Australian horticulture and agriculture would recover from a loss in honeybee pollination services of the type that might occur from the introduction of Varroa mite will depend on several factors. One is the extent that other pollinators can replace the honeybee. In the case of almonds no other insect pollinator is possible so a loss in honeybee pollination services would represent a direct loss to the almond industry. A second factor is the profitability of current crops and their ability to absorb additional production expenses. A third is the impact on markets from a large-scale switch in enterprises, including the diversion of exports back to Australia and the potential for imports to pass quarantine and 'plug' local production gaps.

3. Biosecurity

Some serious pests and diseases that affect honeybees are present in Australia. However, there are very serious mites that are still exotic to Australia that pose a real threat of incursion. These include the varroa mite (*Varroa destructor*), the mite *Tropilaelaps clareae* and tracheal mite (*Acarapis woodi*). If these mites enter Australia and are able to establish, the impact on the honeybee industry and the pollination of horticulture and agriculture could be devastating.

In addition, the honeybee industry faces many diseases. The most serious endemic diseases are:

- American foulbrood (AFB), caused by the bacterum *Paenibacillus larvae;*
- European foulbrood (EFB), caused by the bacterium *Melissococcus pluton;*
- chalk brood caused by the fungus *Ascosphaera apis;*
- Nosema caused by the protozoan parasite *Nosema apis;*
- Sacbrood caused by the sacbrood virus; and
- Small hive beetle (*Aethina tumida*), introduced into Australia in around 2001 in New South Wales and spreading fast.

There are many other pests, diseases or predators of honeybees such as wax moth, ants, cane toads, the rainbow bee eater and others. Generally these can be controlled by good beehive management.

Exotic Pests and Diseases

Varroa mite

Australia is the only major honeybee producing country in the world where varroa mite is not present. Should the pest become established in Australia it would continue to spread rapidly unless very expensive control measures were enforced. Control costs for the pest would substantially add to costs of production and would have a devastating effect on the industry. Most small beekeepers would probably find it uneconomic to continue beekeeping.

There would be other implications of varroa mite becoming established in Australia. Most feral colonies of bees and native bee colonies would be destroyed and this would have serious implications for pollination of many horticultural and agricultural crops. While this may increase demand for pollination services by managed bees, the price of such services would likely rise substantially, thereby increasing the cost of production for horticultural and agricultural products that rely on pollination in some way.

The host of varroa mite is the Asian honeybee *Apis cerana.* A swarm of these bees could easily go undetected on a ship and once in an Australian port an incursion could easily take place if the Asian bees settle in Australia and are infected with varroa mite. Because of the migratory activities of beekeepers, and the difficulty of detecting the mite in early stages of infection, the disease, once introduced, is likely to spread rapidly perhaps even before detection. An eradication attempt would be decided on the nature of the incursion, but in all probability, would be extremely costly if such an attempt were to be decided upon at all. If an eradication attempt were successful, it would be the first time any country would have achieved this.

Although it is unlikely that a varroa mite incursion would wipe out all honeybees within Australia, it is likely that all feral honeybee colonies could be wiped out, leaving horticulture and agriculture producers with no option but to purchase pollination services. This would add a significant amount to their cost of production and reduce Australia's competitive advantage. This situation is currently occurring throughout the world but would be particularly devastating in Australia due to the heavy reliance by agriculture of pollination by feral bees.

Tropilaelaps and tracheal mite

Tropilaelaps is much smaller than varroa but would have even a more devastating effect on the Australian honeybee industry if the pest became established here. Its host is *Apis dorsata* the giant honeybee. However, the chances of it being introduced are less than for varroa because it is not present in countries such as USA and Europe. Tropilaelaps can be controlled by use of acaricides but it would be expensive to eradicate. If that option was not possible, it would severely impact on the profitability of the industry due to the high control costs.

The Tracheal mite infects bees' tracheas and slowly weakens and eventually kills them. *Apis mellifera* has a reasonable degree of tolerance to the mite and establishment of the pest would not be as serious as varroa or tropilaelaps.

Endemic diseases

Many of the endemic diseases are widespread and mostly are not of major concern if good beekeeping practices are maintained. For example, viral diseases such as sacbrood are frequently present in colonies and only become a problem under certain conditions when colonies are under stress. The same goes for most of the fungal diseases such as Nosema and Chalkbrood. Incidents of those diseases are minimised by good husbandry or in some cases antibiotics can be used to control them. Even EFB infection can be minimised by good beekeeping practices.

American Foulbrood

The disease which is of most concern is AFB, and most activities of state agencies are directed at controlling this disease. It is highly infectious so that actions by one beekeeper whose hives are infected can cause the disease to spread, and seriously impact on many other beekeepers.

This disease is caused by the bacterium (*paenibacillus larvae).* It infects and kills only the bee larvae but if left unchecked it will affect the hive and honey production, and eventually the colony will die out. The disease is spread in many ways, including by infected bees drifting into healthy hives, healthy bees robbing a weak infected hive, healthy bees feeding on contaminated honey or where watering places are contaminated by infected dead bees. Importantly, the disease is also spread by beekeeping practices such as interchange of combs of brood and honey between infected and healthy hives. The migratory nature of beekeeping means that unless beekeepers are vigilant in testing for the disease in their hives, the disease can spread very quickly.

Despite all the measures to control the disease the evidence is that it continues to spread, although to a degree, the reported increase in occurrences could be due to better detection methods – honey can be tested for AFB spores but honey as a rule is not regularly tested. Even though AFB is a notifiable disease, it is very difficult for state agencies to enforce compliance of their state legislation. This is exacerbated by the migratory nature of commercial beekeeping operations, the very large number of small hobby beekeepers and the limited and, in some cases, decreasing resources of state agencies devoted to beekeeping inspection activities.

Wax moth and small hive beetle

Although wax moth and small hive beetle do not pose as much a threat to the industry as some pests, the control of these pests is still significant for the industry.

Currently there are only two products that have been registered to control wax moth, including fumitoxin coated insecticide tablets and sanphos fumigation tablets. These products may also have an application in dealing with small hive beetle.

However in order to use these products, beekeepers have to undertake training courses through TAFE to gain a certificate of competency in fumigation. This means beekeepers are required to do a ChemCert, SmartTrain or similar two day course.

It is the industries belief that the training requirements for the use of these products is too rigid and that they impose an unnecessary cost on the industry.

Other biosecurity concerns

Colony collapse disorder

Collony Collapse Disorder is a relatively new phenomenon affecting the health of bee hives. Although no one knows exactly what causes it, the major symptom is the complete disappearance of adult bees in colonies while capped brood are still in the colony and the presence of honey and bee pollination. The disappearance of adult bees means all production of honeybee products stops and the brood left in the hive dies.

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

Bumble bees

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

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

In addition, the industry is concerned that the bumble bee will compete for nectar and pollen with the honeybee, and because the bumble bee can forage at lower temperatures they have a competitive advantage over the honeybee (ie they can start foraging earlier in the morning).

The honeybee industry is also concerned that feral bumble bee colonies might be dangerous to the environment. This is because bumble bees specialise in pollinating certain types of flora, which includes many agricultural weeds. This means these weeds become more prolific, thereby invading native vegetation and in some cases choking rivers. It is therefore the position of the industry that bumble bees should not be introduced on the mainland of Australia.

4. Domestic & International Trade Issues

Non-tariff barriers faced by Australian honeybee exporters

Honey exports face ad valorem tariffs and non tariff barriers. Ad valorem tariffs range from approximately one per cent to 248 per cent. However there is also evidence of non-tariff barriers faced by Australian honey exporters. These include prohibited imports of Australian honey into some countries, quotas placed on the total amount of honey that can be exported to other countries, and unfair quality testing measures imposed on Australian bee exports into other countries that are not placed on domestic honey producers..

The risk of contaminated honeybee products

Australia has an enviable reputation in world markets for producing high quality, clean and green honey and honeybee products. However, this reputation is under threat from contaminated honey being imported into Australia, or exported to international markets, and also from lax labelling laws on the country of origin.

'Made in Australia' and 'Product of Australia' labelling

The Australian government has been leading international attempts to harmonise 'country of origin' descriptions. The place where goods are made is important in the international trading context, and for the domestic market for both producers and consumers. Labelling rules regarding the country of origin are administered under the Trade Practices Amendment (Country of Origin Representations) Bill and it is the responsibility of the Australian Competition and Consumers Commission (ACCC) to enforce this. Any business that deliberately misrepresents the country of origin is subject to the full weight of the *Trade Practices Act.*

In general, to claim a good is 'Made in Australia' it must have been substantially transformed in Australia and at least 50 per cent or more of the cost of manufacturing the good must have been incurred in Australia. To claim the product is a 'Product of Australia', each significant ingredient of the product must have come from Australia and virtually all processes in its production must have happened in Australia (ACCI, 2005).

Although in the short term it may be profitable for Australian distributors to label these products as Australian made, it is not an appropriate long term strategy if they want to continue supplying and developing their markets in the future. Any discovery of a contaminated product labelled 'Made in Australia' creates a perception within the international market that the Australian industry is either using an unacceptable level of antibiotics or it does not have the appropriate testing arrangements in place, both of which are detrimental to Australia's image

5. Land Management and Security of Tenure

Access to public lands

Without access to native flora the commercial beekeeping industry would not exist. Continued access to native flora to a smaller extent on private but more especially public land is absolutely essential to the Australian beekeeping industry.

Access to native forests on public land is essential for the honeybee industry - state forests, national parks, Crown lands, etc contain the vast majority of remaining native forest which provide most of the floral resource on which the industry depends for winter dormancy, timely build-up of beehive colonies and the honey flows which make up the majority of honey produced in Australia. Honeybees are often rested and/or built up again in strength in the native forests on public lands after completing the pollination services which generate very little honey and on which Australian agriculture and horticulture depends for food production.

As the commercial beekeeping industry is migratory, beekeepers require access to a number of apiary sites within many different areas in any given year. Furthermore, the same apiary sites used in a particular production season are unlikely to be used from one year to the next. For example, eucalypts, which provide an estimated 60-80 per cent of the WA industry's floral resource, often flower on at least a bi-annual basis with many other eucalypts flowering on a even more irregular and infrequent basis. The flowering cycle of eucalypts is also greatly affected by droughts with typical consequences being a reduced overall flowing, reduced flowering times and more noticeably in recent times, a substandard level of secretion by the flowering species that results in a reduction in the quality of the honey.

In response to concerns about vehicular access to hives and the dubious research conducted by various conservation organisations (including state bodies) targeting the unsubstantiated impact of introduced honeybees on ecological processes, state governments have continued to place restrictions on access to public lands. For example, the Queensland and Northern Territory state governments have a policy of denying beekeepers access to national parks. Similarly in WA, the state has imposed a moratorium on issuing of any further apiary sites within National Parks and apiarists have also been removed from a number of conserved areas. Most importantly, as is evidenced above, there has been a nation wide trend toward taking public lands out of resource use purposes and placing them under conservation tenures. By and large the Beekeeping Industry supports the conservation of public lands and has been active in the past in bringing about these changes. This has now come back to hurt the Australian Honey Bee industry because at the very least, 60 per cent of beekeeping activities are undertaken on public land that is now controlled by state governments that have a conservation agenda in mind. Future access to these lands is now at best uncertain. The Australian honeybee industry has and continues to suffer a gradual and sustained erosion of access to resources on public lands and this trend has to be reversed, or at the least halted, if there is to be a viable Honey Bee industry in Australia into the future.

Land management issues on public and private areas

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

- Land clearing for agriculture - some 30-40 per cent of apiary sites in WA is on private land. Continued clearing impacts negatively on available floral species for honeybees. While broad-scale clearing of farming areas has been curtailed in recent years, there continues to be a persistent decline in both the quality and quantity of the remaining vegetation due to poor management of these areas by landholders.
- Forestry activities that remove flowering trees - mature flowering trees are removed and harvested a second time before maturation as a honey resource. This is an issue on both public and private forested land.
- Replacement of felled trees with pine and low pollen yielding eucalypt plantations - densely planted radiata pine and blue gum monocultures harvested before maturation are of little value to the honeybee industry.
- Fire, including back burning and natural bushfires - destroying the value of traditional apiary areas. There is evidence of increasing bushfire prevalence and intensity, particularly in native heath areas, with the result being little or no rejuvenation of native species important for honeybees due to there being no seed set of those species since the previous fire event. Climate change will continue to exacerbate this trend.
- Reduction in vehicle access to potentially high yielding apiary sites - public land converted to conservation areas often has access routes removed as part of the 'rehabilitation' processes.
- Droughts which reduce flowering and interrupt growth cycles- again there is evidence that Australia is entering a long phase of dryer than average climatic conditions similar to the first half of the twentieth century.
- Access to native flora on private lands because of a perception by some landholders that honeybees are harmful to the ecosystem or concern that bee stings may expose the landholder to potential litigation.
- Aging and dying of mature eucalypt trees across the general landscape in temperate Australia - many farm trees are reaching the end of their 100 year plus lifespan. This would not be an issue in itself if these areas had younger ages of the same species of vegetation, but that is not the case for a variety of reasons. The most obvious being the overgrazing of stock in the understorey of these areas which destroys the younger generations of vegetation.

In addition to public and private land access restrictions, there are a series of major issues relating to the decline in the quality of the industry's floral resources. `Increase in the area of crops such as canola, almonds and others is not offsetting the loss of native resource.

Climate change

The dominant native flora of Australia is programmed to survive for lengthy periods of minimal water supply, but in so doing during such periods, flowering activity is virtually non-existent. Long term climate change that may have the impact of increasing drought durations and frequency will equate to reduced reliability of the floral resources within Australia to regularly and reliably flower. These long-term dry periods may also invoke an escalation in fire events, which potentially removes a floral resource for many years until regrowth is mature enough to return to a regular flowering pattern. Exacerbating this is that without regular and reliable flowering in the years prior to the fire event there is a much reduced seed bank from which regeneration can occur and this clearly has an adverse impact on the quality of regeneration of the native vegetation.

Prolonged droughts followed by periodic 'normal seasons' will also see dramatic differences in the total honey crop obtained by the industry from year to year, which will affect the marketability of such a commodity and the regularity of income.

6. Current and Future Industry Research and Development Needs

Industry research and development is principally funded by the research levy on honey currently managed by RIRDC. Apiarists pay a levy for research, which is matched on a dollar for dollar basis by the Australian Government. The levy raises between $350 000 and $450 000 per annum and funds approximately 12 projects per year.

The industry has voted to support an increase in the levy over the life of the new research and development plan. The levy has increased from 0.8 cents/kg of honey sold by apiarists to 1.2 cents/kg in 1 July 2006 and will increase again to 1.5 cents/kg from 1 July 2009. The levy will increase research and development funds available to the industry by approximately $200 000 per annum when Australian Government matching funds are added to the additional levy.

The 2007-2012 plan reflects the state of the industry in 2006 – a supply-limited producer with the ability to provide a suite of quality products all with issues in profitability, training, resource access and pest and disease management. The plan was prepared with knowledge of the issues raised during its' preparation and an annual budget of between $600 000 and $700 000 per annum. The plan identified the key priority areas for research and development investments to be made on behalf of the industry and Australian Government. The Research and development plan's objectives are:

- pest and disease protection;
- productivity and profitability enhancement to lift beekeeper income;
- resource access security and knowledge;
- pollination research;
- income diversification, new product development;

The plan proposes that 45 per cent of available budget be allocated on pests and diseases and a further 10 per cent be allocated to pollination research.

The plan has insufficient resources to manage industry's response to an outbreak of Varroa mite or the holistic development of the pollination industry.

7. Recommendations to Ensure the Future Viability of the Australian Honey Bee Industry

For the Australian Honey Bee industry to supply bees for pollination services to benefit the wider community with horticultural food, with honey as a food, as an export contributor to the countries GDP and to remain as an employer in the Australian economy the apiary industry first and foremost needs to be **profitable**. This is currently not the case, with honey producers currently selling honey at up to 20% below the cost of production on an Australia-wide basis. To achieve a return to profitability for the industry which in turn will allow the industry to operate in a sustainable and viable manner this enquiry needs to take action on three critical issues and take action accordingly.

Industry Profitability.

Currently the Australian Honey Bee Industry is not profitable. It is presently operating at well below the cost of production. The principle income for the vast majority of the apiculture industry is honey production for which it received over the previous financial year an average of $2.00 per kg. The current estimated **cost of production exceeds $3.00 per kg**. There needs to be change in government policy that enables primary producers to achieve a return on production that is comparable to Australian economic conditions and input costs. Currently the price of honey received by Australian producers is based on the lowest of third world prices, costs and quality. This is due to the power and dominance of supermarket chains using soft import requirements and regulations to dictate low prices to producers which in turn allows them to apply exceedingly high mark-ups at the retail level. If just $1.00 per kg on honey could be moved from supermarket profit back to beekeepers returns, the turnaround represents a 50% increase in overall returns to the beekeeper (from 2.00 to 3.00 per kg) which still only delivers a return that equals production costs, yet this same $1.00 per kg shift from the supermarkets is only an 11% reduction in profit, down from **78% to 67% on every kilo of honey sold**. As the above figures clearly demonstrate, the increase to producers is critical for the survival of the industry as a whole, and is a very minor shift of wealth away from share holders of these powerful supermarkets back to producers.

ACTION – The Federal government must have a complete review of the current situation of the duopoly of the two major supermarkets and review whether this current situation really is competitive or in the best interests of nation. The Federal Government is the only level at which the necessary policy changes can be made to give Australian producers a fair go, changes that would also benefit a number of other agricultural industries. From the standpoint of our industry, the consumer receives no real benefit because prices are clearly not reflective of a truly competitive environment and the producer also does not benefit as they are continually forced to accept third-world prices for a product that has been produced to a first-world standard. If we as an industry cannot produce to this price level then consumers and producers continue to lose because the industry goes bankrupt (eventually) and consumers then have no choice but to purchase third-world quality honey as this is all that will be available to them.

Security of Tenure and the Honey Bee Industry's Status.

The Australian Honey Bee Industry is quite logically an agricultural industry principally administered by the respective state governments. The majority of the primary resource base however, that is vital to the honey bee industry's future viability is administered under the various environmental arms of the said state governments. There is a clear conflict of interest, which is reflected within the current policies, between apicultural activity on those public lands managed by the environmental arms of the state governments and the environmental / conservation objectives of those same environmental departments that formulate the policies. It is very clearly evident, particularly in more recent times that apiculture is considered as the lowest priority in all issues. Furthermore, the impositions of ever increasing management regulations which are clearly directed at further restricting apiary activities and consequently its use of public lands continue to erode the viability of the apiary industry. Management plans for conserved lands are just another restriction on the beekeeping industry, which are drafted on the basis of mostly unsubstantial grounds to which the beekeeping industry has no recourse. Only government at the highest level can change the approach taken by the policy makers within the environmental arms of the state governments and the level of priority then given to the Apiculture industry.

ACTION. The Federal government needs to recognize the true value of the Apiculture industry and lift the level of importance given to the apiculture industry at both state and commonwealth levels. This in turn would then ensure that environmental policy makers take seriously the needs of the Apiculture industry in their planning and management processes. Further, the enquiry needs to address the Apiculture industries need for long term security to a reliable resource base. Without the above, the industry will not have a stable base with which to operate effectively and viably into the future.

Maintain Pest and Disease Free Statue.

The Australian Apiculture Industry and even more so, Western Australia, presently enjoys the most disease and pest free environment for honey bees in the world. Australia can keep it that way if there is a genuine desire to do so, and we most certainly need too. The general attitude of most government and heads of industry seems to be "not if - but when" varroa mites and other pests will arrive. In our view the attitude should be "Australia will keep the pests out – what resources do we need to achieve this". Australia is relatively isolated compared to other continents where pests of bees have spread easily. There is no valid reason why we should not be able to keep pests out at the points of entry with adequate resources applied. We have done so to now, so why not into the future. If honey bees are of such great importance to agriculture as a provider of pollination services and hence the wider community, then committing the appropriate resources now to ensure the continued disease free status, instead of facing the huge costs after an incursion has occurred should surely be the primary objective of government at all levels in collaboration with the industry.

ACTION: This inquiry needs to ensure that sufficient and appropriate resources be committed on an ongoing basis to ensure that Australia's present honey bee pest and disease free status is maintained.

CONCLUSION

It is the view of Davies Apiaries, who are substantial stakeholders in the Western Australian beekeeping industry, that a well structured and viable honey bee industry will meet the requirements of the Australian community in terms of ongoing pollination for food production as well as other honey bee products. For the honey bee industry to be viable into the future it is critical to have three things in place. These are:

- a solid and profitable financial platform,
- a secure long term access to a viable apiary resource, as well as
- the continuing current healthy status of disease-free honey bees.

Unfortunately, this is not the current outlook as the Australian beekeeping industry is not financially viable and is currently operating at well below the cost of production, has a huge uncertainty in regards to the continued access to its traditional apiary sites and has the uncertainty of the invasion of serious pests and diseases. It is exceedingly difficult to invest for the future if there is no viable future industry to invest in. The Apiculture Industry does not want hand-outs, exceptional circumstances payments and the like. Nor does it want to return to a structured market system that artificially inflates prices to consumers. What the Apicultural industry does need however, is a genuinely level playing field where every stakeholder gets a fair go – a fair level of return for the effort involved. The Senate Inquiry being held by the House of Representatives Standing Committee on Agriculture, Fisheries and Forestry has the opportunity through far reaching recommendations to create a positive future for the Australian Honey Bee Industry. Failure to act now will certainly mean the demise of the Apicultural Industry in the great nation.

8. References

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