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Department of Agriculture and Food  
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**DEPARTMENT OF AGRICULTURE AND FOOD  
WESTERN AUSTRALIAN**

**SUBMISSION**

to

**PARLIAMENT OF AUSTRALIA  
THE HOUSE OF REPRESENTATIVES  
AGRICULTURE, FISHERIES AND FORRESTRY COMMITTEE**

**NEW INQUIRY INTO THE FUTURE DEVELOPMENT  
OF THE AUSTRALIAN HONEYBEE INDUSTRY**

**25 May 2007**

# Submission to the inquiry into the Future Development of the Australian Honeybee Industry

## Introduction

Western Australia (WA) apiculture industry is committed to quality assurance and ensuring that apiary products are clean, safe and free from chemical contamination. This commitment offers the apiculture industry a distinct trade advantage in exporting honey and other apiary products.

Western Australia is also in a unique position, being free from the endemic bee disease European foulbrood (EFB) and the exotic bee pest Small hive beetle (SHB), both found in eastern Australia. Along with the other states, WA is also free of the serious exotic bee pests *Varroa* mites, *Tropilaelaps* and other mites. The high health status of WA's apiculture industry is a result of, and dependent on tight border biosecurity and strong industry commitment to surveillance and disease reporting.

The WA apiculture industry is organised into four key groups: the WA Farmers Federation (WAFF), WA Beekeepers Association (WABA), Pollination Association of WA (PAWA) and the WA Apiarists Society (WAAS). These organisations have cooperated with the Department of Agriculture and Food, Western Australia (DAFWA) to develop and endorse the WA BeeGuard™ Industry Protection Plan. BeeGuard™ was introduced in 2001 and encompasses biosecurity, surveillance, emergency response, and industry Research & Development (R&D). The plan identified the major threats to the WA apiculture industry and management strategies to address these threats.

Details of this plan can be obtained at:

<http://www.agric.wa.gov.au/pls/portal30/docs/FOLDER/IKMP/AAP/HBH/HEA/beeguardindustry.htm>

## 1. Current and future prospects

There is a strong partnership between the WA apiculture industry and DAFWA which is centred on the Bee Industry Consultative Committee (BICC). The BICC meets 3–4 times a year to consider biosecurity and R&D issues relating to the WA apiculture industry.

### *Market opportunities*

Honey will continue to be the main apiary product produced by the WA apiculture industry. Because Australia's honey has unique qualities and flavours and being relatively 'clean and green', there is the opportunity to capitalise on marketing and promoting branded Australian quality products to the world market as well as developing and marketing medicinal honey such as produced from Jarrah (*Eucalyptus marginate*) forests.

Enhancing the demand for honey by education and promotion of the types of foods to which honey can be best suited (not only as a spread) and maximising the different floral types and flavours available, provides the industry with a large array of markets. It also has the advantage of diversifying risk associated with a decrease in demand for the generic product.

More market research needs to be undertaken both on the domestic and international front to provide the apiculture industry with the ability to formulate efficient and effective marketing strategies and production schedules based on up to date information on trends in Australia and abroad.

### *Pollination*

There is a growing market for pollination services, especially with the expansion of the almond industry both within Australia and in other countries such as Canada and United States, to take advantage of Australia's freedom from the *Varroa* mite (*Varroa destructor*). Another emerging export industry is the supply of package bees (package and nucleus hives) and queen bees.

### *Access to flora resources*

The supply of bees is very much dependent upon access to native flora resources across Australia. Conservation and Land Management agencies have been actively removing long established apiary sites out of national parks and reserves. Hundreds of apiary sites have many years of historical information of honey production attached to them which are important together with weather data for forecasting future honey crops.

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

The apiculture industry will require sound, professional and well-presented arguments and will need to establish its own environmental credentials through the adoption of an Environmental Management System (EMS) to halt further restrictions on access to the national parks and nature reserves and to demonstrate that the current policy can be reversed.

## **2. Role in agriculture and forestry**

The economic value of pollination services to agricultural industries is significant. Honeybees play an important role with crops such as almond and cucurbit (watermelon and rockmelon), which are dependent on bees for pollination, and therefore production, as well as canola, sunflower and the apple and stone fruit industries. Research conducted through DAFWA in two projects looking at the benefit of bees in pollinating canola crops and stone fruit (cherry) showed a 16 and 23% increase in seed yield respectively. Honeybee pollination produced large gains in yields using newly developed systems of disposable beehive units, known as Beetubes. Growers of these orchard and horticulture crops are reluctant to acknowledge research information which shows bees can improve yields.

The high feral bee density in the WA environment contributes to current yields but because feral bees are not professionally managed, the yields can be quite variable. Low yields are usually blamed on weather conditions or on the effect of previous year's yields. Education of farmers, horticulturists and agricultural students on the benefits of honeybees is lacking. Irrigation, genotype, fertiliser and soil are all components that growers understand, but the important part of how crops are fertilised by insects to form fruit is often overlooked.

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

The timber industry has reduced the number of mature trees available to beekeepers. Therefore, beekeepers are more reliant on older growth forests that are now being incorporated into national parks and nature reserves under forest agreements. Consequently, beekeepers are in constant uncertainty about the availability of sites for their apiaries, and as a result are unsure about the future of their apiculture industry.

This uncertainty has an implication in the way beekeepers invest in their own operations and facilities. Since the 1980's there has been a decrease in the number of commercial beekeepers operating in the state. This is being compounded by the ageing beekeeping population, because young potential beekeepers are increasingly reluctant to invest their time in an uncertain industry.

A large number of apiary sites in national parks and nature reserves now restricted or removed from use under the 'Precautionary Principle' were once state forests with many having been continually used by beekeepers for more than 70 years.

### **3. Biosecurity issues**

Western Australia is free of two important pests and diseases present in other states – European Foulbrood (EFB) and Small hive beetle (SHB). WA's disease free zone status for EFB has recently been recognised by the New Zealand Government and this resulting in a considerable market advantage for WA beekeepers. Maintaining this disease free zone status is a high priority for the WA apiculture industry.

AFB is an endemic disease in Australian. All states and territories are managing the disease in similar ways but there is no coordinated national approach. Animal Health Australia (AHA) held a national workshop on AFB in September 2003, but there has been little development of a national approach since then. A national approach to AFB management and control is warranted.

The benefits of the Northern Australian Quarantine Service (NAQS) and the ongoing National Sentinel Hive Program (NSHP) for exotic bees and the pests and diseases they may be carrying remains essential to the honeybee industry. The threat of Africanised bees, Asian bees, *Varroa* mites, *Nosema ceranae*, *Tropilaelaps*, and other pests and diseases is real. Ongoing vigilance and biosecurity measures are needed to keep these exotic pests and diseases out of Australia. Apart from the negative impacts of these pests on production, their presence may require industry to use extensive chemical means of control, thereby jeopardizing the 'clean and green' image of Australian honey, and further compromise market access.

Maintaining the integrity of the border between WA and other states and territories infected with EFB is essential. The prevention of movement of SHB from infested areas in eastern Australia into WA also remains essential.

### **4. Trade issues**

Beekeepers exporting consignments of bees advise that the Australian Quarantine and Inspection Service (AQIS) fees are such that for small orders of queen bees exported overseas, AQIS charges double the cost to the buyer. Because of this the orders are abandoned in many cases. This issue is unique to breeder queen bees where usually the order is for fewer than 10 queen bees but where many individual orders world-wide can be a significant income stream for a beekeeper.

A full time development officer employed to co-ordinate the package bee and queen bee export market is warranted. The benefit of this export market in total sales could run to \$20-30 million. Export of packaged bees is an opportunity being exploited in the face of the current world shortage of bees, particularly in the United States and could be one of the success stories of the rural sector. However, current regulations are unnecessarily restricting this export industry.

Most countries to which bees are sent for pollination purposes are not concerned about the existence of the diseases present in apiaries in Australia. For example, the United States will accept bees from American foulbrood (AFB) affected hives, as long as this is advised in export documents. This is so that bees can be managed appropriately on arrival. However, the export process is unnecessarily complicated by the need to trans-ship at major airports. In particular, a container of bees from WA destined for the United States may require change of aircraft at Melbourne or Sydney. However, evidence of AFB in the exporting hives prevents this trans-shipment, due to state quarantine requirements. The risks posed by trans-shipping are very small (probably insignificant) and legislation needs to be amended to facilitate this trade.

## **5. Impact of land management and bushfires**

As previously indicated the moratorium in place by the Department of Environment and Conservation (DEC) has exceeded the initial expectations of the beekeepers when the policy first arose in the early to mid 1980s. Research funded by beekeepers apiary site levies has concluded and shows that honeybees have little impact on the environment.

A number of other scientific reviews have been published showing honeybees have little or no effect on the natives in the environment, be it plants or animals.

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

## **6. Research and Development needs of the industry**

There are about five researchers who study honeybees in a full time capacity throughout Australia. A number of other researchers carry out projects involving honeybees but these are outside of their normal research focus. Training of people for future honeybee researchers is largely non-existent. It can take up to 5 years postgraduate work for any researcher on the subject of honey bees to become efficient in understanding and managing the complex and behavioural and social system. Most of the current researchers are aged 50 years or more and in 10 to 15 years will be retiring. Adequate research support by way of salaries and operational expenses need to be provided to ensure ongoing R&D in the apiculture industry. Joint ventures between federal and state Departments of Agriculture and the apiculture industry could be explored.

DAFWA has the only state based and salaried full-time honeybee researcher in Australia. Because of the relative isolation of WA apiaries, the potential for inbreeding in bees is present. Although inbreeding has not yet occurred, there needs to be a mechanism in place to introduce genetic material from overseas (e.g. bee semen). In addition to addressing the inbreeding issue, new genetic characteristics being developed elsewhere in the world may be desirable, such as characteristics related to disease resistance and enhanced productivity.

Effective research into the nutrition of bees, their longevity and productivity is needed. The gate value of the apiary industry to WA is about \$12 million and contribution to

agricultural and horticultural crops through pollination is estimated to be \$90 million annually.

Research into the value of honey and hive products as a therapeutic agent is needed. Ongoing research into enhancing disease resistance in bees is vital. In particular resistance to AFB, EFB, *Varroa*, and nose mosis caused by *N. ceranae*, would yield positive benefits to the industry in Australia, and provide a degree of preparedness should any of these exotic pests and diseases enter the country.

To advance the apiculture industry, a strong focus of research is needed into two main areas. These are honeybee nutrition and queen bee breeding. Both are pivotal in the whole bee enterprise. Honeybee pollination is another area where there is inadequate research undertaken to quantify the benefits of these insects. A vibrant apiculture industry provides significant benefits to other agricultural and horticulture industries.

Another area largely neglected is for a strong marketing side to the honey/pollen /wax /pollination business to be developed. This is the largest area of impact where dollars spent, return potentially many more dollars back for beekeepers. An example in WA was the research on honey for antimicrobial activity. Honey from the Jarrah tree was identified to have effective antimicrobial activity. After extension of this information, Jarrah honey is now in high demand, and is one of the highest priced honey products in WA. Further efforts in marketing of this unique honey would contribute to the profitability and sustainability of the industry, and may encourage a younger group of people into the business. This all has a flow on beneficial effects for the agriculture and forestry sectors.

## **7. Existing industry and government work**

From the government perspective DAFWA's apicultural researcher has on-going research projects in the area of honeybee nutrition and honey pollination on behalf of the bee industry almond industry respectively. Research is limited by there being only the one person in this role and the fact that research grants of Commonwealth funding by Rural Industry Research and Development Corporation (RIRDC) do not allow or permit additional salaries for extra staff to be employed on a full time basis. Only short term employment can be offered and the research manager finds this particularly difficult because of the considerable effort to train temporary staff. Future research needs require additional employment of a technician/research assistant on a full-time basis. It is understood this situation applies in all other state Department of Agriculture agencies. As suggested previously, joint funding ventures between federal and state Departments of Agriculture, and the apiculture industry may facilitate further research.

In WA there is a good working partnership between government and the apiculture industry. This relationship is centred on the Bee Industry Consultative Committee which is a group from government (DAFWA) and industry to consider biosecurity, industry development and R&D issues.

Department of Agriculture and Food Western Australia  
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