SUBMISSION TO

The Future of the Beekeeping and Pollination Service Industries in Australia

Background

My history

I started beekeeping in NSW in 1995 after 23 years in the Army. While I started small I now manage 380 hives. I have provided pollination services for almonds, cherries, apples and seed canola. I have had bees killed but not the whole hive by chemical sprays.

The Australian Pollination Perspective

Commercial beekeepers use European Honey Bees (*Apis Mellifera*) for honey production and pollination. Very few beekeepers use native bees commercially due to their honey production being less than 3% of the European honey bee.

Very few beekeepers in Australia can make a living from just providing pollination services. Therefore most beekeepers that provide pollination services rely heavily on honey production combined with pollination to have a sustainable business.

Currently in Australia there are many feral hives that provide some pollination to most crops. This makes it less critical for growers to pay for pollination hives. For those that do pay for pollination they can use less hives than the recommended stocking rate.

The smart growers are aware that the most critical time in the crop is at flowering time – which is pollination time. This period is where with pollination the maximum effect is had on quantity and quality of the crop.

It is rare for bees to be at the correct standard to be able to go from one pollination job straight to the next pollination job. Most times the bees go from one pollination task to an area where there is an abundance of pollen and honey – often this is a Travelling Stock Reserve (TSR), State Forest or a National Park (a rare event now) to build the bees up without any exposure to chemicals to prepare for the next pollination task. Access to resource between pollination jobs is critical for a professional pollinator.

Commercially honeybees travel approx 2km for pollen and nectar. However when the bees are starving or desperate for quality pollen (needed to raise brood) the honey bees will fly at least 8km.

Submission

With Reference To:

A. (i) Food Security: Over 50% of the food we eat relies on honeybees for pollination. Not only vegetables and fruit but this also includes meat and milk. The main grasses (such as clover and lucerne) for the meat and milk industries rely heavily on honey bees for seed production. Without a viable pollination industry (which as stated above means a viable honey industry as well) the meat, milk, vegetable, fruit and almond industries will be far less viable and most will not be sustainable.

Note: Most nut crops do not need honeybees for pollination, the exceptions being macadamia's and almonds. With almonds, no bees = no nuts.

A lot of vegetable, oilseed and pasture seed production in Australia is exported to the northern hemisphere in our autumn (their spring). Therefore food security is not just for Australia but for the world.

A. (ii) Environmental: With cucurbits (melons, pumpkins, cucumber, etc) honeybees increase the yield by 400%. That equates to 25% of the water, chemicals and soil preparation required for the same yield. This is a better environmental outcome. The same applies for most crops (an increase in yield but not 400%) and any seed production industry.

There are NO scientific studies that have shown European honeybees adversely impact on the environment.

A. (iii) Financial: The seed (onion, carrot, clover, lucerne and canola) and almond industries will disappear without managed honeybees. The milk and southern Australia meat industries will have far smaller gross margins without honeybees. The macadamia nut and blueberry industries will have less profit as they rely on honeybees for pollination.

Margins will be reduced on the oilseed industries as well. With canola, honeybees increase yield by over 20% and oil content over 25% (similar figures apply to olives and lavender). Pricing for canola seed is a combination of tonnage and oil content. The higher the oil content the higher the payment.

The early flowering industries such as plums, apple and cherries will have greatly reduced margins. Apples will be of lesser quality, while there will be a greatly reduced plum, blueberry and cherry crop. This all impacts the bottom line of these industries.

If varroa mite enters Australia and there is no viable pollination industry then all the above industries will cease to exist. There will be no feral hives to provide limited pollination. Varroa mite will kill 99.9% of all feral hives. No pollination industry and no feral hives = no pollination for most crops.

Challenges Facing the Beekeeping Industry:

DOMESTICALLY

B. **(i)** **Financial Viability** – the financial viability of the beekeeping and pollination industries is marginal through low payment for honey and pollination services.

(1) Honey prices are kept artificially low because of:

Imported honey mainly from China and Argentina;

Increased supermarket margins; and

An increasing price differential between the wholesale and the retail price of honey. This is to the detriment of honey producers.

(2) Pollination prices are being kept low compared to the cost of providing a sustainable pollination service and also when compared to the USA. This is due to:

Amateur beekeepers undercutting prices,

Feral hives providing a limited pollination service,

Beekeepers with poor business skills,

Low profit margins by the pollination recipient, and

Misconceptions by the farming and agronomy communities on the pollination industry. In particular on how much work and expense is required to provide a professional pollination service. Therefore farmers and seed companies are reluctant to pay a reasonable price for pollination services.

B. (ii) Resource Security – State Forests and National Parks are an important resource for building bees for pollination services and also as a honey resource. This is doubly important in drought years as these resources are mainly trees which can still yield honey and pollen in dry years on which to build bees for pollination.

TSR's and crown lands also provide an important resource for honeybees.

In drought years without public land resource there will be very few bees that will be at a suitable standard for pollination jobs. In the long term this will impact on food and seed prices.

National Parks are always investigating ways to deny beekeepers access to National Parks. For example – not maintaining roads therefore the beekeeper cannot access the site in their truck – even though on paper they have a National Park site.

The current land manager shake up in NSW may see a lot of TSR's disappear. This will be to the detriment of beekeepers.

B. (iii) Chemicals – in particular the new family of systemic neonicotinoid insecticides. Neonicotinoids are a brain toxin – not just an insect brain toxin. There have been no independent long term studies on the effects of systemic pesticides on soil. The insecticide when used as a seed coating translocates into the soil and then appears in the following crop as well. When used as a seed coating the whole plant takes up the insecticide – which means that the leaf tissue, sap, pollen and nectar all have small amounts of the insecticide in them.

There have been no long term studies on water quality/contamination including aquafiers, honeybees, native bees and other beneficial insects as well as native mammals and marsupials.

In the USA where neonicotinoids have been in use for a decade or more brain tumours in children under the age of ten has increased over 100% in in this time.

Batch mixing of chemicals (a regular event done by farmers and agronomists to reduce costs) can greatly increase the efficacy of these

chemicals against insects and in particular honeybees. Simply put it kills bees at far lower dosage rates.

No legally enforceable label directions for applying the chemicals and poor labeling of chemicals wrt honeybee mortality. e.g. The Label states “Do not apply to flowering plants.”. The farmer applies the chemical to a flowering crop and kills 500 managed bee hives. Clearly against the label and yet there is no recourse for the beekeeper to recover some of the $250,000 they have lost.

When spraying either by air or ground locusts/grasshoppers there should be a mandated buffer zone around all apiaries/beehives.

B. (iv) Diseases – new and mutated honey bee diseases or diseases that cross over to the honey bees (*apis mellifera*) from other bees, insects or plants. Australia is lucky in that there are bee diseases and pests that are not currently in Australia. However the gap is narrowing as recently we have had chalkbrood and small hive beetle arrive in Australia. These both adversely impact on bees.

There is very limited research and no willingness to research the greatest threat disease to Australian beekeeping, that being Apis Ceranae. It has only recently been identified in Australia and has the potential to severely disrupt beekeeping operations whether honey or pollination. Research is being conducted overseas but very little or none here in Australia.

Australia is underprepared for when Varroa mite arrives in Australia. It is a pest and not a disease. However this pest lowers the immune system of bees and ultimately the immune system of the hive which then allows disease pathogens to kill the hive.

B. (v) Lack of Independent Chemical Research Facilities within Australia. Chemical companies provide all the data when a new chemical is being registered for use within Australia. As a minimum this data needs to be independently verified. These independent tests should assess the chemicals effects on native bees and honey bees with prolonged exposure. Test should also include impacts on water quality in dams and aquafiers. This should be conducted as a minimum before registration is completed.

B. (vi) Lack of Farmer and Agronomist Knowledge of Chemical Effects on Bees and other Beneficial Insects. This includes batch mixing of chemicals and not using a lesser chemical when beneficial insects are present.

Agronomy courses cover no subjects on pollinators and their requirements. Nor do agronomy courses cover the honey bees susceptibility to chemicals.

B. (vii) Lack of Young People Joining our Industry. This is due to several reasons:

Poor financial return for effort;

It is physical work;

Irregular work hours;

No recourse when bees get killed with chemicals used by land managers; and

No resource security.

B. (viii) Poor Management of Natural Resources – this is in four parts.

First part is riverine mismanagement.

Riverine tree mismanagement is detrimental to the trees (mainly River Red Gum *{Eucalyptus Camaldulensis}*). Not only do honeybees require the river red gums to flower regularly but also to our native bees and marsupials such as possum and gliders. The same as honeybees these creatures require the nectar and pollen from the river gum flowers to thrive and survive.

Riverine mismanagement comes in two forms:

(i) water mismanagement – environmental flows in the river at the wrong time of the year. This causes the river red gum trees to be scalded (the sap boils from the hot water submerging the trunk of the tree) which adversely effects the trees (the Barmah forest currently is a great example of this). Outside winter and early spring environmental flows can only occur where there has been a good (75-100mm) rain event to lower ground temperatures. Water flowing over hot ground (no rain event) increases in temperature the further it flows downstream – this hot water flooding river gum forests on the floodplains boils the sap of the tree and severely damages the health of the tree.

(ii) floodplain mismanagement – fire and prolonged dry spells kills a lot of young trees that germinated after a flood. Now with fire being tightly controlled and environmental flows flooding areas on a

regular basis all trees that germinate grow to a maximum of approx 6m tall. These trees are too close together (and will not get thinned in National Parks) never grow taller than 6m (there is only so much energy in the soil) and therefore these trees do not develop hollows for birds and marsupials. In dry times it is the big trees that yield nectar for honeybees as well as native animals and insects.

As an aside these area of higher tree densities will slow the flood water, increase flood heights and prolong the flood in these areas along the river. The thinning of river red gum trees benefits more than just the beekeeping community.

Second part is Fire Mismanagement.

Our natural resource managers tend to only plan hazard reduction burns in spring. This distorts the plant species within the forest or scrubland and reduces biodiversity. Lack of biodiversity in the forest or scrubland is to the detriment of honey bees as well as native bees and marsupials.

Different plant species will survive a spring burn to those of an autumn burn. Spring germinators are designed to survive a hot dry summer whereas autumn germinators are designed to survive frosty wet winters and are then established enough to survive a hot dry summer.

Fire management of natural resources should alternate between spring and autumn burns.

The current fire practice of mosaic burns is a good management practice.

Third part is Logging Intensity

Currently in NSW Forests NSW is logging at a rate that is not sustainable. The tree size is diminishing and the result is very few large trees left in the area. Large trees are required for their hollows for such animals as the greater glider and the powerful owl. In the Eden area the chip mill was established in the 1970's. For a sustainable forest each coup should be logged a maximum of four times in 60-70 years. Most coups have been logged more than this in the first 40 years.

Logging practices and the resulting burning of logging trash has changed the tree species mix of the forest. In the original chip mill contract Forests NSW was to conduct forest surveys (determining tree species mix before logging for the chip mill) and another survey at the 30 – 35 year mark. At this time this has not been completed or at least the results advertised. A

diverse forest mix is vital for honeybees and our native birds, bees and marsupials.

In Tasmania logging continues to occur in old growth forests – a lot of which are leatherwood forests. Leatherwood honey is unique in the world. A lot of people around the world know of Tasmania due to leatherwood honey. This is a unique resource that is being lost due to a lack of vision by land managers.

Fourth part is Forest NSW Softwood and Hardwood Policies

I knew not where else to put this.

Softwoods. Forests NSW softwood industries are expanding. In most cases this is by harvesting native forests/scrublands and then planting to softwoods. Softwood forests provide no benefit to honeybees, native bees, native birds and marsupials (other than shelter for kangaroos and rabbits).

The softwood arm grows two blackberry plants and one rabbit for every softwood tree that they grow – maybe a small exaggeration. For all other land managers blackberries are a noxious weed – a point that the softwood managers seem to ignore. In Australia rabbits are responsible (directly and indirectly) for the extinction of more plants and animals than any other species which includes humans. Forests NSW do minimal rabbit control work.

Hardwoods. Forests NSW hardwood industry runs at a loss each year and is subsidized by the NSW taxpayer. This loss is for two main reasons: selling the public hardwood resource too cheap, and both hardwood and softwood divisions are not run along commercial principals.

With Forests NSW selling hardwood products below the cost of production (the land is free and with little or no feral plant and animal costs) it makes farm forestry a non profitable industry. If farm forestry was more viable, private land managers would plant different tree species (as part of the holistic landscape as farm forestry) which would be a resource that beekeepers/pollinators could use. Farm forestry has the potential to be of much benefit for the environment, native animals, birds and insects as well as beekeepers.

B. (ix) Cotton Industry – the expanding cotton industry is of concern not just for beekeepers but also other agricultural industries. Industries that are located near cotton farms and rely on pollination for a financially viable crop eg melons, pumpkins, onion seed, etc are most at risk.

The cotton industry regularly applies chemicals (neonicotinoids) that are deadly to honeybees, native bees and beneficial insects. Often the spray is applied by aerial spraying which often results in spray drift to non target areas. No research has been done to determine what effect these chemicals have on our marsupials and riverine environments.

In the last two years over 1,000 bee hives have been killed by chemicals applied to cotton crops without regard to bees. Many more hives have been adversely affected by these chemicals. This has been all at the expense of the beekeeper, primarily due to poor and non legally enforceable chemical labeling laws.

The few in the cotton industry that spray their cotton with no regard for honey bees is having two negative effects on the bee industry (pollination and honey):

a. Cotton is often grown near rivers. Often the bee resource (honey and pollen) is along the river. Due to the risk of spraying, beekeepers are now not placing their bees on the resource (near cotton). This results in higher costs to the beekeeper that has to travel further to find honey and pollen for their bees.

b. Beekeepers refusing pollination jobs where cotton is grown close by. Spray risk is one factor when a professional pollinator assesses a potential job. This will impact on the melon and seed growers that have cotton crops nearby. This will be exacerbated as the cotton industry continues to expand.

INTERNATIONALLY

B. (i) Honey Production Standards – Australia currently has B Qual plus other quality assurance schemes for honey production. This provides a trace back system for any honey contamination found. Most imported honey is not produced to the same high standard as that of Australian producers and very few have a trace back system in place.

All imported honey should be tested for heavy metals and chemicals to ensure it is of similar standard to the Australian produced honey.

B. (ii) Lack of Auditing on International Honey Extraction and Bottling Plants – these overseas operators should pay for the same services as Australian honey producers. This will help ensure the international product is to the same standard as the Australian product. The same standard should apply

to imported honey and the Australian honey. Currently the Australian honey standard is higher. This higher standard is because the beekeeper pays the costs associated with quality assurance and the upgrading of extraction plants to the current standard. To level the playing field (so to speak) imported honey should be at the same high standard as Australian honey.

C. Current Biosecurity Arrangements: Current biosecurity arrangements are obviously failing. Recent examples of honey bee pests entering Australia include:

Chalkbrood;

Small Hive Beetle; and

Asian Bees at Cairns.

There has been no or very little research on how these pests affect native bees and other beneficial insects.

The sentinel hive program is a great idea and will help with biosecurity. It is important to the beekeeping industry in Australia that funding for this program be continued.

D. Australia's Food Labelling Requirements. Current labeling laws allow ambiguity in labels. Current laws allow imported honey to be blended with Australian honey and then labelled as if to appear the honey is an Australian Product.

Synthetic honey (corn syrup plus other additives) is being marketed to look like honey and is often mistakenly bought by consumers thinking it is honey.

Labelling laws need to be tightened so that Product of Australia means that the product within the container is 100% Australian. This law will benefit many more industries that the Australian honey industry.

E. Recommendations from the 2008 Standing Committee. Very few of these have been adopted. If the government wants a financial and sustainable Australian pollination and honey industry (also almond and seed industries) then the recommendations that have not been adopted should be adopted as a matter of priority.

CONCLUSION

The pollination industry is currently surviving (not thriving) which has a lot to do with almond pollination providing a base cash flow for most pollinators and beekeepers in the Eastern States. Without almond pollination monies a reasonable percentage of beekeepers/pollinators would not remain in business. However with rising costs, a barely increasing wholesale honey price and ageing beekeepers it is not known how long the pollination industry can meet the needs of all those industries that rely on pollination.

Guaranteed public resource access, better research facilities for bee diseases and independent chemical research will help ensure the pollination industry survives. Better honey labelling laws and legally enforceable chemical labelling laws will also benefit the pollination industry.

The survival of the pollination industry is to the benefit of many other industries and critical to the survival of other industries. The combination of these other industries and the pollination industry is required to provide FOOD SECURITY not just for Australia but for the world.

Just like many industries rely on a good transport system to remain in business, many industries rely on a sustainable pollination business to remain in business.

RECOMMENDATIONS

Implement the remaining recommendations from the 2008 report.

Legislate to have chemical labeling laws legally binding.

Remove any ambiguity from chemical labels with regard to bee toxicity.

Legislate to better define honey labeling laws.

Fund and develop an independent chemical testing laboratory.

Fund and establish a bee disease research centre.

In combination with the states – develop a plan for long term secure public resource access for beekeepers.

Stephen Targett

This submission can be placed on the website.

I am willing to meet with any Inquiry representatives to provide further evidence if required.