

Submission W.A. Jones, June 2007

Submission No: 52.....

Date Received: 12/6/07.....

Secretary: [Signature].....

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**House of Representatives Standing Committee
on Agriculture, Fisheries and Forestry**

Subject: Future Development of the Australian Honey Bee Industry

Submission by Warren A. Jones

I would like to introduce myself to the standing committee.

I graduated from Hawkesbury Agriculture College, Richmond in 1959. I then spent several years in tropical agriculture in TPNG managing cocoa and copra plantations, with some early oil palm nursery work. On return to NSW I joined NSW Department of Education, Rural Youth section, then transferred to the Apiculture branch of NSW Agriculture. I retired in 1995 with 34 years service to NSW Agriculture, and still in the Apiculture branch, specialising in crop pollination and pesticides affecting crop pollination and beekeeping..

I am the President of the Crop Pollination Association Inc. This association represents the beekeeper pollinators that service agriculture's pollination requirements across a broad range of crops in all eastern states, Western Australia, Tasmania and NT, which has no members at present.

We provide representation to AHBIC, the peak body established to represent all sectors of beekeeping. On a rotational basis, each state provides two representatives to the AHBIC board. Each state is also responsible for providing the chairman and the secretary for that committee for 12 months. We also have members that are establishing brokerage systems to supply individual industries with bees, as well as supplying their own bees; this trend is increasing.

The demand has never been higher for bees for pollination in Australia. The severe drought has reduced this pressure – due to reductions in available water for irrigation. Large horticulture development has also put pressure on available bees for pollination as these developments have not had in their development structure a secure supply of bees to pollinate their respective crops. Currently, almost all available bees can be used by one or two industries, leaving other industries to compete for what bees are left. Some industries may have further difficulty sourcing bees, due to many beekeepers providing bees for packages to the USA to relieve their problems. Queen bees are in short supply also in Australia.

For example, the almond industry is also competing for bees with the hybrid canola seed production in the same time frame. There is also some demand for pollination hives for brassica seed production in the same time frame. Most of the bees that are going to almonds also are required for stone and pome fruit following almonds. This is usually followed by Australian kiwi fruit. We usually see demand from legume pasture seed industries, clovers being first followed by lucerne December to March. Seedless watermelon/rockmelon production requires bees from October to March. Sunflower seed production is from December onwards.

Timing of pollination requirements in other states vary; for example Tasmania has, due to its climate, a later requirement for honey bee pollination. All but the early crops of canola/brassica/legume seed production escape the severe shortage of available pollination due to the production of the Tasmanian Leatherwood honey crop – beekeepers do receive reasonable compensation in their pollination price structure for mainly onion crop seed production.

The Northern Territory has severe problems, as there is not enough bees to supply their developing agriculture/horticulture needs; they have the ground and water but not the bees. A large section of the bees leave almonds to return to their normal honey production pursuits, leaving the bulk of the pollination in the hands of specialist pollinators who work supplying bees to agriculture. The vegetable seed industries do pay higher for their hives, but the broadacre areas of legume seed production only pay what the almond industry pays for their pollination hives, around \$55 Aust., their USA counterparts are receiving up to \$160 US per hive for the same service.

If we have to choose a project to support, I think that all are equal. Almonds are not the only crop that requires 100% pollination – vegetable/pasture/canola and many other seed crops are 100% reliant on honeybees to produce seed.

Since leaving NSW Agriculture, my wife Jasmin, son Bryn and I have established a 1200 to 1500 hive professional pollination service to agriculture and horticulture. Our business conducts 4000 to 5000 individual services using the above hives on a rotational basis throughout the year.

I also act as a consultant to horticulture and agriculture but most of my expertise is used to support the businesses that we service – we advise clients on bee stocking rates and pesticide usage on a crop to crop basis. We have some pollination projects that have developed over a number of years. To be successful as a crop pollinator you have to have a very full knowledge of how the chemicals being used in a crop could harm the pollinating bees. We have to use either personal experience or overseas research as there is no Australian research.

My work with NSW Agriculture enabled me to identify some of the limiting factors in crop production where honey bees were necessary to secure an economic crop return. I was working with agronomists and horticulturists and the Entomology branch to provide the answers we needed. We worked with farmers, horticulturists and beekeepers, held field days, produced Agfacts and videos. We also had a Biological/Chemical Research Institute at Rydalmere where problems used to be sent for analysis.

RIRDC project DAN 29 was a project to investigate the Lucerne plant from every aspect, from seed production – pest management also plant breeding and honey bee pollination requirements. Refer "Pollination efficiency and management of honey bees in Lucerne seed production", NSW Agriculture and Fisheries, 1990 (final report to the honey research council – project DAN5H). A \$110,000 project funded by Australian Meat and Livestock Corporation and Honey Bee Research funds.

In conjunction with the Entomology Dept, developed an Agfact to address the problem of residual effects of pesticides, fungicide, miticides on honey bees – this document was the first Australian document (“Pesticides affecting Beekeeping and Crop Pollination”, NSW Agriculture Agfact no. A8.9.7, Agdex 481/687, First Edition 1989) Then followed several others by other state and federal departments, expanding the material available.

I still rely heavily on overseas work, as the chemical companies do not supply enough information for growers or beekeepers to make an informed decision on which chemical to use if bees are being used to set seed, fruit or nuts. There has also been an increase of micro encapsulated chemicals, which cause concern to beekeepers and pollinators, worldwide. No research work was available on the development of neonicotinoids at this time.

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

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

We prepare our bees during winter and spring for the season ahead. Our first crop pollination contract is:

- (1) Canola – seed treated with a neonicotinoid. Bees required Aug/Sept.
- (2) Kiwi Fruit – no chemical – organic. Bees required Sept/Oct
- (3) Brassica vegetable production and onion seed production – now not seed-treated or sprayed, due to the seed company withdrawing the use of neonicotinoids over a 4-5 year period. We lost a lot of bees; the company lost a lot of seed. Outcome – we don’t lose bees and the company maximizes its seed production. This is very intensive pollination using small enclosures/large enclosures and glasshouses. Some 600 hives are used of various sizes. This company is global with operations in 16 countries. Hives are in the enclosures for only 21 days due to their queen stopping laying on entry to the units. Bees required July - December
Refer to Enza Zaden profile.
- (4) Seedless water melons October to April – to our knowledge no use of neonicotinoids, but weekly fungicide application. Very hard to maintain colonies of bees past 4 weeks in the fields, so hives are replaced on a four-weekly basis. Large areas – 200 ha plus.

(5) Sunflowers – neonicotinoids treated seed. Bees only required for 2 weeks to pollinate the crop. Bees required Dec - March

(6) Cotton – neonicotinoids treated seed, and other pesticides are applied. Results not good for bees. Bees required Dec – Jan. Part of research project on cotton pollination with University of Western Sydney.

(7) Lucerne seed production – chemical – various. No neonicotinoids. Bees required Dec – March.

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

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

The ABC Radio National program “All in the Mind” Our neurotoxic world (part two) Industrial chemicals – a silent pandemic. 17 February 2007:

The above program highlights many problems relating to pesticides, on page 9 of 12; direct quote:

“Phillipe Grandjean: “You have to look at it in perspective, because we have a situation here where everything is legal as long as it just passes the current regulatory requirements. We have now a situation where all chemicals are innocent unless you can prove otherwise.

“I’m trying to push for a precautionary approach to chemicals – you could call it a prudent approach, a logical approach – because we know so much about many chemicals, that they can have unexpected effects, and therefore we should really work the other way around preventing exposures to chemicals unless we can show that they are unlikely to be hazardous. That would be the logical way of dealing with it but unfortunately, right now, we are exposing ourselves and our children, pregnant women, to chemicals that are untested, with unknown effects, and we are just crossing our fingers that everything will be okay – and that’s not reasonable.”

The neonicotinoids first gained registration in 1992 when imidacloprid, the best known, was registered. Others soon followed developed in Japan during the 1980s.

We have had systemic insecticides before to watch out for when pollinating a crop, but nothing as efficient as the neonicotinoids that attack the nervous system of the target insect – upsetting their ability to navigate, impair enzyme activity, leading to impairment of memory and brain metabolism of bees.

As beekeeper pollinators we never worried about seed treatment as the seed was protected without the translocation of the chemical throughout the whole plant with the ability to reconcentrate at high levels in tip growth and reproductive parts.

Most labels on neonicotinoids state that crop residue from seed treated or sprayed crops cannot be grazed, and in some cases the user is advised to have a good MRL (max or min residual level) in place for export. I don't know if our residue testings have evaluated how much neonicotinoids is now in our food chain. This should include meat, all vegetables, fruit and nuts. Some neonicotinoids are registered for use on up to 140 crops in as many countries.,

The publication “Protecting Honey Bees from Chemical Pesticides” by Maryann Frazier, Senior Extension Associate, Penn State:

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

Refer also to section 1.4 of enclosure “Roles, Use classes and residual toxicities of Pesticides to be used on Flowering Crops”, address to 12th annual conference Crop Pollination Association Inc. by W.A. Jones, August 2004.

The beekeeping industry needs “seed” funding for all issues listed in the terms of reference with special reference to item (6) The research and development needs of the industry. Also a review of existing industry and Government work that has been undertaken for the honey bee industry.

The ageing of our industry members, and the need for this generation to keep going to try and hand over to the next generation an industry that will adequately support agriculture in the future is essential for food production as we know it.

Also I would like to see a bee body protein test developed at a cost the industry can afford. Bee body protein is a tool that can be used to assist the beekeeper to supply bees to agriculture, bees with a long life expectancy. Work by G. Kleinschmidt at Gatton College should be revisited and expanded.

Thank you for the opportunity to express a view. As president of the Crop Pollination Association Inc. and on behalf of our members we welcome any support.

As pollinators we forego honey production to provide specialist pollination services to agriculture/horticulture. Our Association would welcome the opportunity to increase our membership; we have over the past 4 years tried to keep up with developments in pollination. We have held our conferences in areas of need, and have tried to present company or crop profiles to better spread our services as specialist pollinators. For a beekeeper to transfer from honey production to specialist pollinator is a big challenge, as is also the challenge of growing a crop to produce seed, fruit or nuts that must have pollinators to produce an economic crop.



Warren A. Jones

Further reading (copy enclosed with this submission):

- (1) "All in the Mind" - Transcript, ABC Radio National 17.2.2007 "Our neurotoxic world (pt two): Industrial chemicals – silent pandemic? (12 pages)
- (2) "Protecting Honey Bees from Chemical Pesticides", paper, Maryann Frazier, Senior Extension associate, Penn State (3 pages)
- (3) "Colony Collapse Disorder in Honey Bee Colonies in the United States" 29.3.2007, Prepared testimony of Diana Cox-Foster, Professor Dept of Entomology, The Pennsylvania State University before the US House of Representatives Committee on Agriculture, Subcommittee on Horticulture and Organic Agriculture. (5 pages)
- (4) Crop Pollination Association Inc., 13th Annual Conference papers, August 2005. (includes Enza Zaden presentation)
- (5) Crop Pollination Association Inc., 14th Annual Conference papers, August 2006
- (6) National Council of Pollination Associations Inc. Newsletter, Autumn edition 2007, No. 41
- (7) "Roles, Use classes and Residual Toxicities of Pesticides to be used on Flowering Crops" address by W.A. Jones to Crop Pollination Association Inc. 12th Annual Conference August 2004

ADDITIONAL INFORMATION HELD BY THE COMMITTEE

ATTACHMENT TO SUBMISSION NO. 52

ATTACHMENT:

- All in the Mind – Transcript, ABC Radio.
- Protecting Honey Bees from Chemical Pesticides.
- Colony Collapse Disorder in Honey Bee Colonies in the United States.
- Crop Pollination Association Inc., 13th Annual Conference Papers, August 2005.
- Crop Pollination Association Inc., 14th Annual Conference Papers, August 2006.
- National Council of Pollination Associations Inc. Newsletter, Autumn Edition 2007, No. 14.
- Roles, Use, Classes and Residual Toxicities of Pesticides to be used on flowering Crops.