



# Update August 2010

The RIRDC engaged Pestat Pty Ltd to develop a CRC bid for the Honeybee and Pollination industries. The first phase of that project is a scoping exercise to establish whether there is sufficient interest and commitment to make a bid credible. The scoping has included consultation with a wide variety of stakeholders and interested parties.

Here is a summary of progress to date.

### **The CRC bidding process.**

The plan is to submit a bid in 2011, which will be Selection Round 14 in the now annual CRC competition. Round 13 is now underway and while round 14 has not been opened by the Commonwealth Minister for Industry, Innovation, Science and Research, the best advice is that it will be, in late 2010. The selection criteria are not expected to change, so it is sensible to proceed using the measures required for Round 13 bids.

There are three selection criteria:

1. The Centre will undertake excellent-quality research that addresses issues of economic, environmental and/or social significance to Australia
2. The outputs from the proposed research, when implemented, will deliver high levels of economic, environmental and/or social benefits to Australia.
3. The proposed collaboration will marshal the appropriate participants and other resources necessary to achieve the proposed outputs.

An application must score highly on each criterion to be competitive, as the contest for a CRC is intense.

### **The Honeybee and Pollination sectors**

The honeybee industry is an agricultural keystone activity for Australia, and it is an industry in transition.

While honey production has a creditable, but globally modest, annual gross production value of \$80 million<sup>1</sup>, the value of European honey bees

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<sup>1</sup> The naturalised European honey bee supports an Australian honey and bee products industry valued at approximately \$80 million (industry estimate) per year (Source: Australian Honeybee Industry Council Submission no. 56, p. 28, to the House of Representatives Standing Committee Inquiry into the Future Development of the Australian Honeybee Industry).

(*Apis mellifera*) to agricultural production is reckoned in terms of billions of dollars.

Taking into account all plant based industries and wool, meat and dairy production, it is estimated 65%<sup>2</sup> of agricultural production involves pollination from honeybees. It is also estimated that bees contribute directly to between \$4-6 bn of agricultural production, mostly from unpaid sources such as feral bee colonies, but also from a small paid pollination industry (turnover about \$3.5 million p.y.)<sup>3</sup>

The pivotal place of pollination in the food chain earns the sector its 'keystone' status.

Recognition of the global significance of honeybees for ecosystems and human food production has been eclipsed by devastating declines in both feral and managed bee populations, especially in Europe and in Northern America, mostly caused by spreading parasites and pathogens. The United States, for example have lost more than a third of their honeybees (~1.8 million colonies) within the last 2 years. This has led to rising food prices and pressure on the remaining pollination capacity. While Australia is at present free of the devastating Varroa mite and the ravages of colony collapse disorder, geographic isolation may not preserve us indefinitely.

Among the variety of pressures on the apiary industry are its population dynamics. The average age of beekeepers (inc those with 1.000+ hives) was 58 (in 2007)<sup>4</sup>. It is to be expected that, over the next decade, there will be a significant change in the industry's profile; much experience will be lost but younger, adaptable and innovative players will enter the field. New research and education programs can be expected to find a receptive audience.

### Research Priorities

There are a number of existing priority lists for the sector.

1. RIRDC (along with AHBIC and HAL) has identified six honeybee R&D priorities, with pest and disease management receiving the most weighting. (see [http://www.rirdc.gov.au/programs/established-rural-industries/honey-bee/r&d-plan/r&d-plan\\_home.cfm](http://www.rirdc.gov.au/programs/established-rural-industries/honey-bee/r&d-plan/r&d-plan_home.cfm)). They are:

- Pest and disease protection
- Productivity and profitability enhancement to lift beekeeper income
- Resource access security and knowledge

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<sup>2</sup> Australian Honeybee Industry Council Submission no. 56, p. 28, to the House of Representatives Standing Committee Inquiry into the Future Development of the Australian Honeybee Industry.

<sup>3</sup> Ms Margie Thomson, RIRDC, Transcript of Evidence, 8 August 2007, p6. to the House of Representatives Standing Committee Inquiry into the Future Development of the Australian Honeybee Industry.

<sup>4</sup> Australian Honeybee Survey, RIRDC pub # 08/170 p12.

- Pollination research
- Income diversification including new product development
- Extension, communication and capacity building

2. The RIRDC-HAL 2009-2014 Pollination R&D Program also identifies six objectives, which have significant overlap with the honeybee plan.

3. In its 2008/9 Annual Report, AHBIC's contributors cite the importance of combating the Queensland Asian Hive Bee (*Apis cerana*) outbreak and other pests and diseases (Small Hive Beetle, AFB and *Nosema ceranae*) as being of major concern.

Consultation with interested parties in the CRC bid discussions have reinforced a number of these issues as major factors for the sector's future and have revealed a series of others, often related to issues specific to one sector of the honeybee/pollination business.

The recommendation of this report is that the best prospect for development of a successful CRC bid is to focus at the 'on-farm' level, ie, on honeybee husbandry and optimisation of pollination activity.

It is acknowledged that there are many good reasons to consider other 'upstream' issues, particularly border biosecurity, and 'downstream' issues, particularly relating to industry diversification and value-adding, but a CRC with too broad an agenda, and consequent lack of a focused mission, is unlikely to be competitive.

A research agenda can be innovative, but it must be practical and have deliverables during the life of a CRC. For a competitive CRC bid it must also be clearly industry driven and address end-user issues.

A research agenda must also be based on a foundation of skills, expertise and technology available in Australia at present. It is unrealistic for a CRC to develop, ab initio, an entirely novel capability. A CRC's grant cannot, in any case, be used for bricks and mortar, so it cannot build a new facility with the grant (though partners can, and contribute these as in-kind). So a research agenda must blend the 'desirable' with the 'do-able'.

A prospective research agenda is provided in Table 1 (overleaf). This is neither an exhaustive nor an exclusive list, so feedback continues to be sought on both the principles and the detail.

### **International Expertise**

The CRC Program encourages international linkages. A number of research links will, potentially, be available through members' existing relationships. Also, NZ agencies and businesses have expressed interest in the CRC; NZ has valuable experience both with Varroa and AFB control.

Table 1. Prospective R&D agenda for the Honeybee & Pollination Security CRC

Field	Target	Output
<b>Bee breeding – a platform technology</b>	Hygienic behaviour trait development	Improved disease tolerance at hive level
	Foraging behaviour trait development	Enhanced pollination of targeted crops
	Male sterility	Enhance hive structure and performance
<b>Biosecurity - Pests and Pathogen damage mitigation</b>	Varroa resistance / tolerance	Disease control reduces risk of loss to pollination dependent crops
	Small Hive beetle	Disease control reduces risk of loss to pollination dependent crops
	American foulbrood control	Eradication of AFB to benefit apiarists and pollination dependent industries
	Diagnostics for parasites, viruses	Early detection / confirmation of presence of pest/pathogen <b>and</b> confirmation of disease-free status for export products
	Nosema and other colony health issues	Risk minimisation
<b>Biosecurity - New pest/pathogen control measures</b>	Combating Varroa infestations with chemicals to exterminate feral hives or cleanse managed hives	Testing and registration of control chemicals
<b>Enhanced Pollination</b>	Grain, Seed, Soft fruit and Almond production	Research to optimise practicality of increased yield through targeted pollination by elite bee lines
	Ecological services	Maintaining biodiversity despite intensification of agricultural productivity
<b>Bees and biodiversity/ Resource security</b>	Ecological and economic impacts of feral colonies and managed hives	Increased access to natural resources (National Parks etc)
	Environmental / pesticide load studies	Sustainable bee populations
<b>A sustainable industry through enhanced professionalism</b>	Codes of Practice and SOPs	Agreed performance measures and standards adopted across all jurisdictions

## Target Budget

The average size of CRC grants from the Commonwealth is around \$18m (over 7 years). We believe a figure in this vicinity is necessary for the proposed Honeybee and Pollination Security CRC. Partners must at least match this figure and, to be competitive, it is sensible to aim to raise \$1.25m p.y. cash. The lowest cash input likely to support a competitive bid is \$1m; below this threshold it is unlikely that a bid would be credible.

## Interested and supportive groups

Consultations to date have been broad. A list of those engaged is attached and consultation continues daily. A Discussion Paper on a bid has been widely circulated. Articles on the bid have appeared in the Australia Beekeeper Magazine and Horticulture Australia's bulletin.

The following tally of support to date.

Agency	Support?
AHBIC	Yes
RIRDC	Yes
Gretchen Wheen Foundation (and Max Whitten)	Yes
U. Sydney	Yes
UWS	Yes
UWA	Yes
NSW I&I	Yes
CSIRO	In principle
Horticulture Australia Ltd	In principle
GRDC	Under discussion
WA Ag	In principle
Qld Ag / Biosecurity	In principle
Australian Bee Breeders Assoc	In principle
Individual businesses and local assocs	Under way

## **Business Plan**

Developing a business plan for the CRC is an important step to identifying the proposed tasks of a CRC and their outputs. In continued consultation with prospective members of the CRC we will refine the likely R&D, education and training plans. This draft plan will allow interested parties to decide on their level of commitment.

## **Summary**

The consultations and activities undertaken to date indicate that

- There is considerable interest in involvement in a prospective H&PS CRC by relevant industry bodies, and R&D and education providers.
- No negative feedback or commentary has been received.
- There is strong potential for development of highly credible R&D and education components of an H&PS CRC.
- The key remaining element to continuation of bid development is consolidation of financial engagement by investment partners.
- Phase 1 of this project, advice to RIRDC on whether a credible bid can be mounted, is scheduled for completion in September.

*Feedback to this summary, in any form, will be welcome!*

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