

## Availability and adequacy of research

- 4.1 Australia has a world class system of agricultural research and development, with organisations such as CSIRO, the rural Research and Development Corporations (RDCs), Cooperative Research Centres (CRCs), State agriculture departments, universities and private entities all contributing. Addressing the issue of research, Dr Walter Cox, Chairman of the Board of Agricultural Research Western Australia (ARWA), acknowledged the positive contribution of both the CRCs and CSIRO, stating:

The cooperative research centres have been outstanding, in the main. The CSIRO National Research Flagship programs are supportive and emphasise the most relevant parts of research that is required.<sup>1</sup>

- 4.2 Highlighting the role of the RDCs, Dr Peter Carberry, Group Leader of the Agricultural Landscapes Program, Sustainable Ecosystems, CSIRO, stated:

Australia is the envy of most of the world in how we organise our R&D funding and delivery. They envy us because we have R&D corporations such as the Grains R&D Corporation and the Cotton R&D Corporation, which are industry based, as well as issue based R&D corporations like Land and Water Australia. GRDC in the northern region, for instance, have research advisory committees that collect issues from landholders that feed back into GRDC's priority-setting process.

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1 Dr Walter Cox, *Transcript of Evidence*, 20 July 2005, p. 14.

For instance, I am a member of the Darling Downs RAC and there is a CSIRO nominee on each of those RAC committees.<sup>2</sup>

- 4.3 In the same vein, Mr Andrew Campbell, the Executive Director of Land & Water Australia, told the committee:

...I believe we have a rural R&D model which is the world's best, consisting of the R&D corporations with their very close engagement with industry. That close engagement with industry has a big bearing on the extent to which the research is taken up within industry and it also ensures that generally you are trying to answer the right questions. You are actually answering questions that people are asking and not questions that no-one has asked, so the relevance of the research is good. It has a very strong track record in delivering a very good return on levy payers' and taxpayers' investments.<sup>3</sup>

- 4.4 CRCs also play an important role, bringing together expertise from industry, universities and the scientific community, including CSIRO, in collaborative research ventures. In its submission, CSIRO endorsed the continuation of the CRC program;<sup>4</sup> while in evidence before the committee, Dr John Taylor, the Director of Rangelands Australia, stated:

I have a lot of faith in the CRCs generally, particularly in the way in which they are linking research groups like CSIRO, industry groups and so on. There are lots of positives coming out of that.<sup>5</sup>

- 4.5 In its submission, the Australian Cotton CRC argued that the 'CRC framework is an excellent model for collaborative R&D, delivering proven excellence in research adoption, education, training, independence and integrity with industry partners'. It also stated that:

The CRC framework leads to collaboration and synergies among research providers and with industry partner. Hence, duplication is avoided, with the benefit of the CRC's access to specialized skills and resources across State and industry boundaries.

It is our contention that the CRC framework and investment by the Commonwealth (DEST) provides the glue, stimulates

2 Dr Peter Carberry, *Transcript of Evidence*, 10 April 2006, p. 46.

3 Mr Andrew Campbell, *Transcript of Evidence*, 17 August 2005, p. 1.

4 CSIRO, Submission no. 86, p. 8.

5 Dr John Taylor, *Transcript of Evidence*, 10 April 2006, p. 9.

the synergistic benefits and accelerates innovation and adoption by a number of years, because it sees environment and communities as directly related to the industry's bottom line.<sup>6</sup>

- 4.6 The level of research collaboration was a positive development highlighted in the submission of the Faculty of Natural Resources, Agriculture and Veterinary Science at the University of Queensland, which argued that 'recent moves towards greater collaboration among providers of research services need to be enhanced':

The capacity to undertake agricultural research has been made possible, in part, by strong support from the rural industries funding agencies. Other providers of agricultural research are CSIRO, State Departments of Agriculture, and more recently private sector research providers. There has been a trend for closer cooperation between Universities, relevant State Departments and CSIRO in the provision of research and research training in agriculture, including co-investment in research facilities in most States. Both Federal and State governments have supported this integration and co-location. The CRC Program and Australian Research Council Centres Program have also provided research services to agriculture.<sup>7</sup>

- 4.7 In its submission, the CSIRO noted the increasing level of collaboration with the university sector in various fields of rural research, including joint ventures and joint supervision of research students.<sup>8</sup>
- 4.8 Although this evidence shows that Australia has a potentially very strong agricultural research sector, the evidence presented to the committee also identified significant problems, including funding, problems accessing sufficient numbers of qualified staff, and the gap between research and extension (this issue will be addressed in Chapter 5, Provision of extension and advisory services).

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6 Australian Cotton Cooperative Research Centre, Submission no. 56, p. 4.

7 Faculty of Natural Resources, Agriculture and Veterinary Science, University of Queensland, Submission no. 77, p. 7.

8 CSIRO, Submission no. 86, pp. 5-6.

## Funding

- 4.9 The evidence presented to the committee indicated that there were significant problems in the level and method of funding for agricultural research. In its submission, the Faculty of Land and Food Resources at the University of Melbourne noted the impact of funding on research:

The agriculture-related research undertaken is generally of high quality, but limited funding has restricted the quantity of research undertaken to underpin Australian industry which is faced with strong international competition.<sup>9</sup>

- 4.10 The submission from the Department of Agricultural Sciences at La Trobe University, while acknowledging the success of initiatives such as CRCs, also highlighted the impact of increasing competition for research funds and declining overall investment:

However, this optimistic note is tempered by the general decline in applied agricultural research at all levels in Australia over the last 20 years. This is most noticeable in the reduction in this type of research effort by the CSIRO and the loss of regional research centres operated by both the CSIRO and State Departments of Agriculture. As a result there is a strong concentration of research in a few areas that are of obvious and critical importance (salinity) or have a very large potential to change agricultural practices (biotechnology). Although these judgements are not wrong and certainly these areas must be a priority, there has been a tendency to forget basic questions such as improving farm operations through extension services and continuing to improve management of diseases and pests...

This type of on-farm and applied research used to be a major part of the ambit of State Departments of Agriculture and CSIRO but in the current competitive environment the research effort has moved to more strategic and 'technology driven' areas of research which are attracting the bulk of research funding.<sup>10</sup>

- 4.11 A similar tale can be told in the forestry industry. In its submission, the Forest and Wood Products RDC noted that:

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9 Faculty of Land and Food Resources, University of Melbourne, Submission no. 68, p. 2.

10 Department of Agricultural Sciences, La Trobe University, Submission no. 60, pp. 5-6.

The Corporation commissioned a report on investment in forest industries R and D that was published in 2004... This report showed that over the last 20 years overall investment in forest industries R and D had declined by around 27% in real terms with a decline in forest research of around 20% and forest products research of 40%. Commonwealth investment declined by 9%, State agencies 22%, companies 30% and Universities increased by 27%...

The response to declining investment has in the main been downsizing and loss of capability in the sector although it must be said that change has also led to improvements in research efficiency through better focused R and D and substitution of labour with capital. There is also a greater reliance on external and competitive funding that, while not necessarily negative, increases the challenge for maintaining a viable research capacity in a long run business such as forestry. Whilst [it] cannot be readily quantified there is a long term decline in our R and D capacity and ability to innovate in the sector through R and D. Whilst the report... covers the period to 2001/2002 the trends identified have continued over the last 3 years (e.g. CSIRO Forestry and Forest Products staff numbers appear to have reduced by 20% over that period).<sup>11</sup>

- 4.12 One problem was the short duration of research funding, three years in many cases, or seven for CRCs. Mr Graeme Harris, Vocational Education Teacher at Farrer Memorial Agricultural High School and Secretary of the National Association of Agricultural Educators, told the committee:

One of the problems that people who go into research have is that, because their research is funded usually on a triennium, if they introduce a project and start to run it, they do it for the first two years and then during the last year of their project they are developing the submission so that they can get follow-on funding for the next three years. That makes it very difficult for people such as workers in the CSIRO to maintain their professional life. Perhaps a model that operated on a longer time scale might be more appropriate in agriculture. It is quite different to other industries such as manufacturing,

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11 Forest and Wood Products Research and Development Corporation, Submission no. 13, p. 2.

where you develop a new gadget, you introduce it, you turn it on and it runs. It does not work that way in agriculture; there is a much longer lead time.<sup>12</sup>

- 4.13 Mr Guy Roth, CEO of the Cotton Catchment Communities CRC (formerly Australian Cotton CRC), also highlighted the problems of short research funding timeframes, citing the case of CRCs:

They run for seven years, and that is one of the strengths. Within the CRC and the various places where we get funds, we are often caught in a three-year funding cycle. That has major implications for our staff and keeping them there. If you are a staff member in a small country town and you know that your grant is running out, and there is some review going on within your organisation as well, you feel a bit insecure. If a better opportunity comes up, you are mad if you do not take it. The seven-year time frame for the CRCs is better. The rebidding process at the end is very resource intensive. That was a huge cost to us in time and, in a way, distracted us from what we should have been doing in our CRC for the last two years. It was all about renewal and getting another one up.<sup>13</sup>

- 4.14 Another problem was the constant competition for funds. In its submission, the Faculty of Natural Resources, Agriculture and Veterinary Science at the University of Queensland stated:

Reduction in funding for educational institutions and the competitive grant system for research has fostered competition between research providers. Attempts by Universities to supplement funding with research grants can bring them into competition with other organisations seeking funds from the same source.<sup>14</sup>

- 4.15 Professor Peter Gregg, the Cotton Catchment Communities CRC's Chief Scientist, added:

...there is a general perception among people who make decisions on which CRCs get funded that the more times you have been funded the higher the bar is going to be next time. While I can understand that, it does mean that the

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12 Mr Graeme Harris, *Transcript of Evidence*, 9 March 2006, p. 9.

13 Mr Guy Roth, *Transcript of Evidence*, 9 March 2006, pp. 19–20.

14 Faculty of Natural Resources, Agriculture and Veterinary Science, University of Queensland, Submission no. 77, p. 11.

contribution, the special role that the CRC has played in cotton education, is in one sense a strength but in another sense a weakness, because we recognise that sooner or later they are going to put the bar too high. Nobody can jump over it. My comment would be: is that philosophy that you have to get bigger, better and more different every time you have a CRC the right way to go or not?<sup>15</sup>

- 4.16 Addressing the issue of funding timeframes in its submission, the Faculty of Natural Resources, Agriculture and Veterinary Science at the University of Queensland highlighted the fact that Australia's current pre-eminence in agriculture was the result of far-sighted research investment in decades past:

Australia's agricultural industries remain globally competitive, which could lead to the mistaken conclusion that research services are adequate. Australia's present position reflects the substantial investment in agricultural research from the 1950s to around the mid-1980s. Investment in agricultural research since the mid-1980s has declined in real terms, and needs to be increased across the University, CSIRO, State Department and the private sector, or the competitive position of agriculture will be eroded. Reasons for the recent decline in research investment in agriculture include exponential growth in the molecular sciences (molecular biology, molecular genetics) which have provided technology to revolutionise agricultural industries.<sup>16</sup>

- 4.17 In evidence before the committee the same point was made by Professor Francis Larkins, Deputy Vice-Chancellor (Research) and Dean of the Faculty of Land and Food Resources at the University of Melbourne:

I mentioned about the productivity of cows. For example, on average now cows produce twice as much milk as they used to some 30 or 40 years ago. That has not happened by accident, and it did not happen overnight. There has been progressive selective breeding. We have enough examples to recognise that the dividend may be 15 or 20 years away, but you have to make the investment now. That is always hard when there are short-term pressures. It is a very mature

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15 Prof. Peter Gregg, *Transcript of Evidence*, 9 March 2006, p. 20.

16 Faculty of Natural Resources, Agriculture and Veterinary Science, University of Queensland, Submission no. 77, p. 8.

industry on one level that I believe we are dealing with here, so there are examples of outstanding research 20 years ago that are now paying a dividend for the industry. We need to take that into consideration. You really cannot have all your research with a very short-term industry mission focus. You have to have some which is much broader. It is a matter of striking a balance between those two. I guess it has been pressure, but in the Rural Industry Research and Development Corporation, there has been a trend to fund less of what some people call the discovery, blue-sky research. All we are saying is, it is in the national interest to keep a balance.<sup>17</sup>

- 4.18 In its submission, the Faculty of Land and Food Resources at the University of Melbourne argued that:

The Australian Government should be encouraged to increase funding support for both rural skills programs and quality research initiatives that are held to be in the national interest. There is a particular role to play in the support of basic longer-term research not directly aligned to short-term industry needs.<sup>18</sup>

- 4.19 The submission from the Department of Agricultural Sciences at La Trobe University emphasised the loss of resources in applied research:

The major area of agricultural research that has suffered losses over many years is applied on-farm studies that assist in the management of farm operations. This extension research has been partly taken over by private consultancy but only in areas where farm profits can pay for the advice. Competitive grants in on-farm extension studies could be managed through the current rural industry research corporations and/or through a new organization that might target farm sustainability as its primary focus. The current drought and the continuing problems of water use and allocation, salinity and the long term impact of farm practices would all justify a more integrated approach to research funding.<sup>19</sup>

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17 Prof. Francis Larkins, *Transcript of Evidence*, 14 November 2005, p. 66.

18 Faculty of Land and Food Resources, University of Melbourne, Submission no. 68, p. 1.

19 Department of Agricultural Sciences, La Trobe University, Submission no. 60, p. 8.



- 4.20 In evidence before the committee, Dr Richard Sandeman and Dr Peter Sale, of the Department of Agricultural Sciences at La Trobe University, highlighted the impact of funding changes on the operations of the CSIRO:

**Dr Sandeman** – ...[The CSIRO] got rid of various divisions and pushed them together, and that meant losses of people, and they moved people out of the Sydney labs for various sorts of agricultural research and put them up at Armidale, and that lost more people. It has been on the books for a long time; it is just a matter of making more fuss about it at the moment.

**Dr Sale** – It seems too that CSIRO does research on where the funding is from. If the funding ceases in that area and it starts over there, everybody swings across. It is sort of stop-start, depending on the funding. Everybody is short of cash, so that is the way it unfolds. There is not a lot of long-term strategic funding support to pursue goals like blowflies and what have you.<sup>20</sup>

## Staffing

- 4.21 Another theme running through the evidence was the difficulty in obtaining suitably qualified research staff. In evidence before the committee, Dr Cox (ARWA), stated:

To emphasise the point again, there is a massive shift in skills away from agriculture at the professional level into the mining sector and the industries that support the mining sector. The National Water Initiative, another federal government initiative, is under way. There is an absolute shortage of people who have skills in things like hydrology and the water sciences. There is such a demand for those people that we need to get extra people into university programs or at-work type programs to ensure we have a skill base. In my day-to-day role as Chairman of the Environmental Protection Authority, I see an absolute shortage of environmental scientists at present. We can get good young graduates, but it is very hard to get anybody with any experience. As a consequence, we have problems

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20 Dr Richard Sandeman & Dr Peter Sale, *Transcript of Evidence*, 14 November 2005, p. 52.

servicing the industries that are currently booming, particularly the mining industry.<sup>21</sup>

- 4.22 He argued strongly for government leadership in arresting the decline in interest in agricultural science and science generally in schools and universities:

We have a series of recommendations; perhaps your committee can make recommendations to the federal parliament or federal government. One of those is about strengthening interest in the sciences. The problem I have expounded is not unique to agriculture; it is very much in the other sciences as well. Enrolments are declining and, without that scientific base, our innovation and productivity are going to suffer. There is also a leadership role – I emphasise that it is a leadership role – for the federal government to talk up agriculture as being very important to our economy, with new agriculture being the leading edge of our economy, and careers in agriculture being satisfying to individuals as well as adding to the capacity of the community.<sup>22</sup>

- 4.23 The CSIRO also noted the significant decline in the number of qualified researchers coming through the universities, arguing in its submission that this is a critical issue that must be addressed:

The decline in the number and academic standard of students attending Australian universities to study agricultural subjects has created a flow-on effect for CSIRO Divisions with rural research activity; in short, there is a very limited supply of suitably skilled research scientists emerging from higher degree programs run by the Australian tertiary sector.

While the supply of Australian-trained rural researchers in agriculture or natural resource management has become increasingly restricted, the demand for skilled professionals has continued to grow. In particular, CSIRO has struggled to recruit staff with well-developed skills in research innovation and a capacity to operate in cross-disciplinary teams.

Biological or physical scientists with a depth in one or more disciplines, a capacity to work in partnerships with social and economic researchers, and an ability to deploy their skills and knowledge in real-world situations continue to be in short

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21 Dr Walter Cox, *Transcript of Evidence*, 20 July 2005, p. 14.

22 Dr Walter Cox, *Transcript of Evidence*, 20 July 2005, p. 14.

supply. CSIRO has attempted to fill positions via increased emphasis on international recruitment. International recruitment brings with it many positives and is a necessary feature of globally competitive research institutions; however, CSIRO believes it needs to be balanced with a healthy flow of Australian-trained higher degree graduates to ensure maximum effectiveness of our research and educational institutions.<sup>23</sup>

- 4.24 In its submission, the Faculty of Natural Resources, Agriculture and Veterinary Science at the University of Queensland argued strongly for greater institutional and financial support for postgraduate research:

Development of research skills in biophysical and socio-economic disciplines must remain an integral part of postgraduate training in agriculture. Australian Universities have a strong reputation in Research Higher Degree training, and increasingly staff of relevant State Departments and CSIRO participate in advisory teams. The Faculty emphasises the need for enhanced support of these programs through existing mechanisms. For example, prospective Research Higher Degree (Masters, PhD) candidates often cite the low value of stipends and scholarships compared to salaries and benefits available in employment, even as new graduates, as a disincentive to undertaking postgraduate study. Increases in stipend and scholarship value are needed to attract the next generation of agricultural researchers and educators.<sup>24</sup>

- 4.25 The submission of the School of Rural Science and Agriculture at the University of New England argued for the need to maintain a critical mass of scientific expertise amongst agricultural scientists:

Research training is best done in an environment where there are interactions with practising agricultural scientists (eg CSIRO and NSW DPI) and across disciplinary opportunities created by a Faculty with industry involvement. The most effective education and training at all levels is done in a context of “research led” education. It is also clear that **there is a need for a critical mass of individuals in any one discipline to facilitate an effective and efficient team of**

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23 CSIRO, Submission no. 86, pp. 4-5.

24 Faculty of Natural Resources, Agriculture and Veterinary Science, University of Queensland, Submission no. 77, p. 6.

**postgraduate students and researchers.** Such teams develop agricultural specialists with the capacity for independent, skills-based problem solving rather than individuals whose decisions are 'recipe' based. It is our belief that current changes in tertiary education are facilitating the loss of critical mass in many agricultural disciplines and that there is a real risk that assessment of institution-wide research performance may well threaten universities whose research focus is primarily agricultural and natural resource focused. Soil science was specifically mentioned in the terms of reference and is a good case in point with the critical mass of soil scientists being eroded at all tertiary institutions teaching agriculture.<sup>25</sup>

- 4.26 At present that 'critical mass' was under threat through generational change:

Researcher training is probably one area where industry will not necessarily identify future needs. The reality is that a high proportion of the agricultural research population are from the "baby boomer" generation and that in most areas of agricultural research **there has been little succession planning to provide either full time researchers or tertiary teachers for the future.**<sup>26</sup>

## Committee Conclusions

- 4.27 The committee notes that while there have been a number of positive developments in the field of rural research, these changes have not been unproblematic. There has also been a steady decline in funding for rural research over the past decade and, in some cases, competition for research funds has created situations which are not beneficial for rural research. The committee believes that the Australian Government and State Governments need to provide leadership in funding research and that the Australian Government should increase its funding support for long term research activities.
- 4.28 The committee acknowledges the importance of the Rural Research and Development Corporations, Cooperative Research Centres and the CSIRO to rural research and recommends to the government that

25 School of Rural Science and Agriculture, University of New England, Submission no. 47, p. 2.

26 School of Rural Science and Agriculture, University of New England, Submission no. 47, p. 3.

it consider increasing funding to these entities. There is also a strong case for increasing the research funding and profile of rural science faculties at Australia's universities.

- 4.29 In particular, the committee is of the view that CRCs should be given more certainty in their funding. The committee agrees that it is necessary to regularly review the CRC program to ensure that high quality and relevant research is given priority. However, the current approach to funding constrains the potential of CRCs to deliver support to primary industries. The need to enter into lengthy, resource intensive, competitive bidding processes should be reviewed. CRCs with a proven track record of delivering research and practical outcomes should be able to roll-over from one funding round to the next.
- 4.30 Increased funding and greater certainty of funding will have a positive effect on the job security and career prospects of rural science researchers. It will also provide a positive incentive for prospective researchers wishing to enter the fields of agriculture and forestry. It is important, however, to provide institutional and financial support for postgraduate and postdoctoral research students in keeping with the significance of their work. Positive incentives must be provided for the next generation of researchers to come through.

## **Recommendation 24**

- 4.31 **The committee recommends that the Australian Government substantially increase funding for research in Australia's agriculture and forestry industries, with a view to:**
- **Addressing long term research needs in the fields of basic and applied research;**
  - **Providing stability and security for individuals and institutions involved in scientific research; and**
  - **Providing incentives and career paths for those entering the research field.**

## Recommendation 25

- 4.32 **The committee recommends that the Australian Government review its funding of the Cooperative Research Centre Program to provide greater funding certainty and support for those Centres with a proven track record of delivering research and practical outcomes.**

## Research Needs of the Honey Bee Industry

- 4.33 The honey bee makes a significant contribution to Australian agriculture. In his submission to the committee, Dr Max Whitten noted that the apiary industry contributes an estimated \$60 million annually to GDP; however, this figure is small compared to the importance of the 'free' pollination services provided by honey bees to Australian agriculture. Around 60 per cent of Australian crops are estimated to be dependent to some extent on honey bees for pollination. If pollination services were suddenly withdrawn, the immediate impact would be a loss to agriculture of some \$2 billion annually, and a loss of 11,000 jobs.<sup>27</sup> In his evidence to the committee, Mr Anthony Eden, President of the Tamworth branch of the NSW Apiarists Association, noted:

Bees are the prime pollinator for our agricultural system...Without those bees, you do not have food. It is as basic as that ...

...If we do not have a healthy apiary industry this country is going to be in dire straits.<sup>28</sup>

- 4.34 While paid pollination services are in their infancy in Australia, the potential exists for the further development of paid pollination services provided by beekeepers to crop growers in Australia. In evidence before the committee, Mr John Rhodes, of the NSW Department of Primary Industries, explained:

The potential for a large increase in the development of a paid pollination service provided by beekeepers to crop growers in Australia is high. Recent studies in New South Wales have shown a 16 per cent increase in lint yield for honey bee pollinated cotton. This represents an increase in value of

27 Dr Max Whitten, Submission no. 11, p. 1.

28 Mr Anthony Eden, *Transcript of Evidence*, 9 March 2006, p. 25.

about \$550 per hectare for the cotton grower. If the beekeeper were to put hives on a property he would receive payment of about \$150 per hectare for the use of his beehives. So the cotton grower benefits and the beekeeper benefits. Almond trees are 100 per cent dependent on insect pollination and the projected requirements for the expanding almond crop in Australia is 150,000 hives by the year 2010. The beekeeping industry is likely to have difficulties in meeting this requirement without some sort of support, probably from the government, in research and education.<sup>29</sup>

- 4.35 Mr Rhodes observed that the benefits to both beekeepers and crop growers if paid pollination is incorporated into crop management are considerable. For example, honey bee pollination results in a crop being pollinated in a shorter period of time, allowing the crop to be harvested earlier:

Whereas a crop might take, say, six weeks to produce a certain volume of crop, if you were to put bees in you could get that same volume in maybe three weeks. You would have shortened the overall life of that crop by three weeks. The benefits to the crop grower can then be measured in terms of reduced water and pesticide use – using less irrigated water and applying less pesticide. The crop volume produced is still the same but the benefits are measured in another form.<sup>30</sup>

- 4.36 The committee also heard from Mr Donald Keith, former chairman of Capilano Honey, that if research funding were available significant benefits could be achieved by the honey bee industry in the area of alternative health products:

The development of the medical industry side of honey has the potential to provide ongoing and enormous financial benefits to the industry. The problem we are facing is that the company developing these products is focusing on medical products rather than alternative health products, and the cost of getting medical products into the medical system is enormous, largely because of the cost of clinical studies. That is another area where the research funding could be utilised.<sup>31</sup>

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29 Mr John Rhodes, *Transcript of Evidence*, 9 March 2006, p. 24.

30 Mr John Rhodes, *Transcript of Evidence*, 9 March 2006, p. 24.

31 Mr Donald Keith, *Transcript of Evidence*, 10 April 2006, p. 29.

- 4.37 In addition to its potential, the apiary industry faces several threats. The major threat currently faced by beekeepers is the increasing risk to the industry of incursions from overseas of pests such as the small hive beetle and the varroa mite.<sup>32</sup> Introduced pests have the ability to decimate the industry, so research is urgently needed to develop lines of bees that show a tolerance or resistance to these mites. The varroa mite has recently been responsible for the decimation of the honey bee industry in parts of the United States.
- 4.38 In its submission, the Australian Honey Bee Industry Council noted that increased research is also necessary to meet the demand by consumers and food regulators for traceability and improved food security. A range of improved management strategies need to be researched and developed to meet this demand.<sup>33</sup>
- 4.39 An ageing beekeeper population combined with low levels of education and training facilities for the beekeeping industry were also threatening the viability of the industry. As Mr Rhodes explained:
- ... there is an ageing population of beekeepers and low incomes being received for honey compared to the high cost of production. Beekeepers involved in pollination and other parts of the industry all have to depend on honey production as their staple income. The number of education services available is quite low. There has been a reduction in the availability of government finances for advisory and support services.<sup>34</sup>
- 4.40 In his submission, Dr Whitten noted that research has played an important role over the past five decades in supporting the beekeeping industry and assisting it to remain competitive:
- Significant contributions have come in the areas of disease diagnosis and management, genetic improvement of commercial strains of honeybee, efficient pollination practices, and general hive management. Studies on the impact of feral bees in natural ecosystems have also been important.<sup>35</sup>

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32 Centre for International Economics, *Future directions for the Australian honeybee industry*, September 2005, p. xii.

33 Australian Honey Bee Industry Council, Submission No. 79, p. 4.

34 Mr John Rhodes, *Transcript of Evidence*, 9 March 2006, p. 24.

35 Dr Max Whitten, Submission no. 11, pp. 2-3.



- 4.41 Despite the potential benefits from and threats to the apiary industry, however, the training and research needs of the honeybee industry in Australia were identified in the evidence received by the committee as a serious problem.
- 4.42 Honey bee research and development is funded primarily by a statutory levy on honey sales at 0.8 cents per kilogram (the industry levy currently amounts to around \$200,000 annually<sup>36</sup>). The levy is matched by Commonwealth funding on a dollar-for-dollar basis up to 0.5% of industry GVP.<sup>37</sup> If honey sales drop due to externalities such as bush fires or drought, then the amount of available funds for research decreases. In its submission, the Australian Honey Bee Industry Council suggested to the committee that the issue of averaging or maintaining government funding in adverse seasonal conditions is one that should be addressed by the government.<sup>38</sup>
- 4.43 Within the industry there is a strong belief that research funding is disproportionate to the contribution of the beekeeping industry to the sustainability and viability of Australian agriculture and horticulture. In its submission, Australian Queen Bee Exporters Pty Ltd suggested to the committee that because of the beekeeping industry's unique contribution to agriculture, a 3:1 (government: industry) contribution would allow for more meaningful research to be carried out by this small but vital industry.<sup>39</sup>
- 4.44 In evidence before the committee, Dr Whitten argued that the government should explore as a matter of urgency the possibility of establishing a pollination and apicultural CRC to assist beekeeping and pollination research.<sup>40</sup> In its submission, Australian Queen Bee Exporters Pty Ltd indicated that a single well funded research centre could also provide learning opportunities for future researchers, extension officers and entrepreneurial beekeepers and it could fulfil the educational needs of the industry.<sup>41</sup>
- 4.45 Dr Whitten estimated that to get a research centre as described above underway the government would need to contribute between two and three million dollars.<sup>42</sup> The Australian Weeds Management CRC

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36 Dr Max Whitten, *Transcript of Evidence*, 10 April 2006, p. 33.

37 Australian Honey Bee Industry Council, Submission no. 79, p. 3.

38 Australian Honey Bee Industry Council, Submission no. 79, p. 4.

39 Australian Queen Bee Exporters Pty Ltd, Submission no. 81, pp. 1, 3.

40 Dr Max Whitten, *Transcript of Evidence*, 10 April 2006, p. 31.

41 Australian Queen Bee Exporters Pty Ltd, Submission no. 81, p. 3.

42 Dr Max Whitten, *Transcript of Evidence*, 10 April 2006, p. 33.

was put forward as a suitable model for a rural based apiculture CRC. It was suggested that the research centre could generate a 'critical mass of interactions' if it were to be:

... a cooperative and sort of virtual centre based around one institution like, say, the University of Western Sydney but with links with Sydney University and the Waite with Queensland, much like the CRC model.<sup>43</sup>

4.46 The committee heard that the University of Western Sydney (Hawkesbury) would be an appropriate location for a pollination and apiculture research centre due to its proximity to the AQIS bee quarantine facility at Eastern Creek.<sup>44</sup>

4.47 However, the committee has heard that the existence of the AQIS bee quarantine facility at Eastern Creek may be under threat of closure, as the lease expires in 2010 and the facilities have been on-sold. The committee has been advised that this facility has played a key role over the past 25 years in reducing the risk of bee diseases entering Australia while giving access to valuable breeding stock from overseas. Its loss would be a serious blow to the long term viability of the beekeeping industry, with significant flow-on impacts to other primary producers through the collapse of pollination services. If no guarantee for continuation of the lease at the Eastern Creek quarantine facilities exists beyond 2010, then there is an urgent need to consider the biosecurity arrangements for the beekeeping industry.<sup>45</sup>

## Committee Conclusions

4.48 The committee was convinced by the evidence it received from various stakeholders in the honey bee industry, both in written submissions and during hearings, that the honey bee industry plays an important role in the continuation of a healthy agriculture industry.

4.49 The committee agrees that there is an urgent need for adequate funding to be made available so that a research CRC can be created to address the serious threats facing the industry today.

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43 Dr Max Whitten, *Transcript of Evidence*, 10 April 2006, p. 33.

44 Australian Queen Bee Exporters Pty Ltd, Submission no. 81, p. 1.

45 Dr Max Whitten, Correspondence, 28 July 2006.

- 4.50 The committee would also like to see a government-sponsored committee representing all stakeholders convened to address the issue of access for bee keepers to national parks.

#### **Recommendation 26**

- 4.51 **The committee recommends that the Australian Government formally recognises the contribution of the beekeeping industry to Australian agriculture and horticulture by providing funding for the establishment of a CRC-style entity for beekeeping and pollination, including development costs in the areas of research, education and bee breeding.**

#### **Recommendation 27**

- 4.52 **The committee recommends that the Australian Government guarantees the long-term future of the honey bee quarantine facility currently housed in the Eastern Creek Quarantine Facility or makes alternative arrangements for a permanent site, as a matter of urgency.**