



Submission to the Agricultural Competitiveness  
Issues Paper

April 2014

The Cooperative Research Centres Association represents all Australian Cooperative Research Centres (CRCs). In addition, the Association has universities, companies and research groups as Affiliate and Associate Members.

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Cooperative Research Centres Association Submission to the Agricultural Competitiveness Issues Paper.

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For further inquires contact:

Dr. Tony Peacock

Chief Executive Officer

CRC Association

1/10 Bourke Street BARTON ACT 2600

02 6273 0624

[www.crca.asn.au](http://www.crca.asn.au)



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Several figures in this submission are taken from a talk by Professor Jim Pratley, Charles Stuart University; with thanks.

## Executive Summary:

The Cooperative Research Centres Association submits that:

1. Research, development and engagement<sup>1</sup> (RD&E) are absolutely vital to the competitiveness of Australia's agricultural industries and should be priorities accordingly ;
2. There is a worrying downwards trend in Australian agricultural RD&E;
3. Cooperative Research Centres (CRCs) have made and continue to make an important contribution to Australian agriculture RD&E;
4. The agricultural industries should continue to support and participate in CRCs.

Consolidation and scale of Australia's agriculture research resources are need. Fragmentation of effort is common. The CRCA suggest the Commonwealth could take leadership in this area by establishment of a \$100 million research consolidation fund.

The CRC Association believes the environmental sustainability of agriculture, in particular climate change, will add ongoing pressures to the competitiveness of agriculture and warrant more attention in the Green Paper than given in the Issues Paper.

We note that Australia's freedom from many pests and diseases confers a major competitive advantage and the Commonwealth's investment in quarantine and biosecurity yields significant returns for the nation. Regulatory reform is needed in Australia to ensure innovative products make it to our small market.

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<sup>1</sup> The CRC Association prefers the terms "engagement" over the more traditional "extension" because of our commitment to two-way communications and end-user engagement in the total research enterprise.

## Introduction:

The Cooperative Research Centres Association (CRCA) represents all of Australia's Cooperative Research Centres (CRCs) and a range of Affiliate and Associate Members. In the 24 years since the establishment of the CRC Program, there have been 48 agricultural CRCs established (including extensions) and currently there are eight in existence, being:

CRC name	Year centre established	Selection round number	Grant (yrs)	CRC program funding
Australian Seafood CRC	2007-08	10	8	\$35.5 million
CRC for High Integrity Australian Pork	2011-12	13	8	\$19.9 million
CRC for Sheep Industry Innovation	2007-08	10	7	\$35.5 million
Dairy Futures CRC	2009-10	11	6.5	\$27.7 million
Future Farm Industries CRC	2007-08	10	7	\$34.1 million
Invasive Animals CRC	2012-13	14	5	\$19.7 million
Plant Biosecurity CRC	2012-13	14	6	\$29.7 million
Poultry CRC	2009-10	11	7.5	\$27.0 million

A number of other CRCs, most notably those concerned with the environment, relate to varying degrees to the issues raised in the Agricultural Competitiveness Issues Paper. Other CRCs classified as in the Agriculture, Forestry and Fisheries sector of the CRC program fall outside the scope of the paper. The numbers quoted above refer to the CRC Program's classifications.

The purpose of this submission is to highlight the importance of Research and Development in maintaining and enhancing agricultural competitiveness and in particular the role that CRCs play in doing so. Further, we submit that a key role for Government is to continue to enhance the R&D and regulatory environment to allow industries and businesses to improve their own competitiveness.

### 1. Research, development and engagement (RD&E) are vital to the competitiveness of Australia's agricultural industries:

Innovation is vital to maintaining the competitiveness of any industry. Nowhere is the importance of innovation more starkly illustrated than in Figure 1 showing the massive yield increases in developing countries during the Green Revolution. Innovation remains vital to agricultural competitive now and into the future.

Australia's agricultural leaders are fully aware of the importance of innovation. The recently released Blueprint for Australian Agriculture from the National Farmer's Federation acknowledges that role.

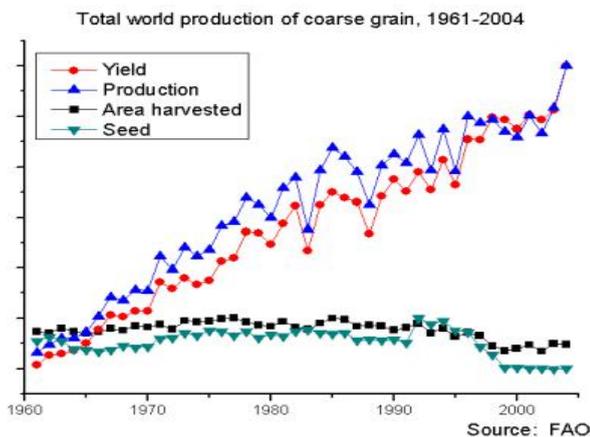


Figure 1: Agricultural research enabled the Green Revolution

Given the widespread acknowledgement and support of innovation, this Submission will not labour the point but will concentrate on the type of support for innovation that is effective in boosting agricultural competitiveness.

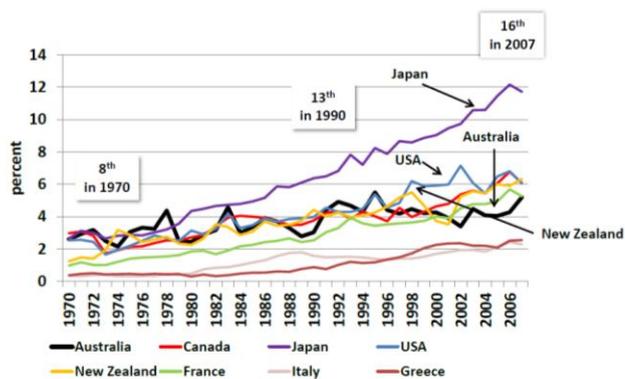
It is worth noting the relative importance of innovation in the Australian context. We must compete through productivity gains, product and market innovation. Otherwise the country becomes reliant on lower wages and working conditions, a very low Australian dollar or by introducing trade barriers. None of which are attractive or sustainable to the majority of Australians.

The CRC Association believes that for Australia to remain competitive in agriculture, the country must commit to having the best agricultural innovation system in the world. Innovation should not be viewed as a “nice to have” or an optional extra but at the heart of agricultural competitiveness for Australia.

## 2. There is a worrying downwards trend in Australian agricultural RD&E:

Agricultural RD&E has trended downwards for a number of years. So too has support for the CRC Program, which has further contributed to the decline in Australian agricultural RD&E. Relative to our competitors, Australia’s food and agricultural research intensity has dropped over the past four decades. From holding 8<sup>th</sup> place in the OECD in 1970, Australia’s position has steadily declined to 16<sup>th</sup> in 2007.

### Food & Agricultural Research Intensities, 1970-2007



Includes public and private R&D spending for 26 OECD countries.

Figure 2: Food and Agricultural Research Intensities, 1970-2007

Commonwealth matching levies have proved an effective mechanism for agricultural research in Australia, with most industries increasing their levies to take advantage of the Commonwealth’s matching arrangements. However, these increases have not been enough to stave off the drop in research intensity. Other countries have either increased their support for agricultural research or at least not gone backwards to Australia’s degree.

In Australia, State Governments have cut agricultural research services quite dramatically over the years. Australia’s research effort is also more highly reliant on university-based researchers than most other countries. Universities, however, do not allocate academic staff according to the national research need. They allocate academic staff in relation to demand for undergraduate courses. The Chief Scientist of Australia, Professor Ian Chubb AC, has been making this important point for a number of years – too much of Australia’s research effort is determined through “the choice of courses by 16- and 17-year olds”.

Yearning for past times is not going to bring Australia's advantage in agricultural research back. We need to accept that State Governments are simply not going to return to the levels of funding of agricultural research enjoyed in the past. If we accept the premise stated in the first section of this paper that innovation is absolutely vital to Australia's agricultural competitiveness, then it follows that we have to restore our agricultural research intensity in other ways.

To follow, we provide a number of suggestions that the CRC Association believes would increase the amount as well as improve the effectiveness and efficiency of agricultural RD&E in Australia.

### ***1. Take a strategic approach to agricultural research in Australia's universities and State Governments.***

The Chief Scientist has made the case for more and better prioritisation of research. Important agricultural research should be prioritised accordingly and centres of excellence should be supported to ensure adequate critical mass within States to conduct high quality research. Moves such as those seen in South Australia of co-location of State government expertise with that of the universities and CSIRO should be encouraged.

The CRC Association believes much more action is possible and indeed necessary in this area. Some examples are provided below:

- Many reports over decades have recommended consolidation of Australia's agriculture faculties. This is a critical issue given the link between agricultural research and education. But the country still has too many agricultural faculties that fail to provide the necessary critical mass to be world competitive.
- Similarly to the above, CSIRO's expertise in agriculture is far too widely spread over too many sites. No similar organisation with a staff of 6,000 operates over so many sites (58). However, local political pressure is applied whenever CSIRO seeks to consolidate sites.
- The NSW Wran Government unsuccessfully offered the University of Sydney funding to relocate its laboratories and staff at Camden to the Elizabeth Macarthur Agricultural Institute at Menangle. Decades later both sites have had many more millions of taxpayer funding, with similar sets of expertise operating 15 minutes away from each other, neither quite big enough.

This is truly an area where "all politics are local" and the Commonwealth Government must exercise leadership if Australia has any hope of achieving the world's best agricultural innovation system. Universities act in their own interest, so consolidation of agriculture faculties has tended to consist of mergers on the same campus, rather than with the national picture in mind. We suggest the Commonwealth take significant action such as establish a \$100 million agriculture R&D "consolidation fund" whereby the Commonwealth matches State, Industry and Research Provider funds to invest in major projects that bring together the intellectual and physical agricultural research resources.

The National Collaborative Research Infrastructure Scheme (NCRIS) provides an excellent model of how the Commonwealth can stimulate rationalisation and enhancement of research effort simultaneously.

## **2. Increase efficiency of public R&D by removing funding disparities:**

The Higher Education Block Grant system is the Commonwealth government's biggest cash investment in innovation. Over \$1.7 billion is provided annually in cash grants to the universities according to a number of formulas that follow other funding schemes. The scheme is intended to provide incentives to universities to conduct certain types of research and to make up some of the shortfalls in funding from other schemes. However, there are a number of problems that evolved with the scheme which leads the CRC Association to believe it warrants a major overhaul.

These problems include:

- Industry research through the CRC Program is disadvantaged. "Category 4" (CRCs) returns to universities are significantly lower than "Category 1" returns (ARC, NR&MRC, RDCs and others). This causes research managers to direct researchers away from CRC collaborative research toward higher returning categories; behaviour that is exactly opposite of the Australia national need for greater industry collaboration. The CRC Association has asked the Minister for Education to address this disparity.
- CSIRO and the universities are not on a level playing field. CSIRO has to charge industries the full cost of conducting research upfront. Universities do not. This is because they get some funding from the Higher Education Block Grants later. Having Australia's two major public research providers on significantly different methods of funding causes a range of problems.

The CRC Association submits that, in general, the biggest tool in the Commonwealth's innovation toolbox, the Higher Education Block Grant Scheme, could be better utilised to achieve government policy and priorities.

## **3. Cooperative Research Centres (CRCs) have made and continue to make an important contribution to Australian agriculture RD&E;**

Australia's economy, society and environment enjoy excellent value for money from the Commonwealth's investment in the CRC Program because, amongst other factors:

- Every Commonwealth dollar is at least matched by investment from the participants in each CRC;
- The Governance arrangements ensure productive lines of research are followed through to produce true innovation; and
- The timeframe and scale of investment is matched to the requirements for productive R&D.

CRCs set up effective sector-wide collaborative arrangements governed by a Board of Directors focused on research outcomes. Commonwealth investment is assured for each CRC over a timeframe matched to producing outcomes in the sector (usually seven years) and at a scale where meaningful results can be achieved (an average annual Commonwealth investment of close to \$4 million per CRC). Intellectual property arrangements and the nature of investments allow CRCs to follow the best "pathway to impact",

which may mean directing funding at human capacity in some industries, commercialisation work in others or improving fundamental understanding. CRCs have the flexibility to invest (and disinvest) in a range of projects each contributing to an outcome. These are fundamentally important features which ensure effective use of Commonwealth funds.

It is not coincidence that when research impact is recognised publically, CRCs are often involved. Although the CRCs represent less than 2% of the Commonwealth's spending on innovation, when it comes to producing impact they almost always perform at a much higher level.<sup>2</sup>

By way of example, eight of the 14 winners of the Prime Minister's Prize for Science have had a strong CRC involvement; seven of the 20 case studies in the 2012 "Excellence in Innovation"<sup>3</sup> Report featured CRC work, and three of the 15 most recent Eureka Prizes for Science were from CRCs. In each case, CRCs surpass any reasonable expectation of their performance based on the Government's level of investment. We argue that this is because of the CRC Program design that provides the time, scale and culture to encourage and allow for outstanding performance.

A few outcomes from recent agricultural CRCs include:

- **The Wool Comfort Meter:** The Sheep CRC has developed a practical fabric measurement technology and related know-how to enable the production and marketing of wool garments meeting critical next to skin performance criteria for consumers.
- **Remote Microscope Network:** A web-based remote microscope system is helping to protect Australia from potential pest incursions due to the work of the Plant Biosecurity CRC.
- **Australian Genomic Breeding Values:** [ABV(g)s] were launched in 2011 by the Dairy Futures CRC, allowing more accurate and reliable selection of animals on their genetic potential. The industry has rapidly embraced the technology.
- **PIGOUT® Feral Pig Bait:** Is a factory-prepared, shelf-stable bait for the control of feral pigs. The bait was developed and registered by participants in the Invasive Animals CRC in response to industry demand for a bait to minimise uptake by birds and other non-target species.
- **AusScan:** Due to a Pork CRC project, feed suppliers can now use near infra-red technology to rapidly measure the digestible energy content of grains, the basis of pig diets – by far the biggest cost of production. The technology is equally applicable to grain growers and the poultry and ruminant industries.

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<sup>2</sup> [https://www.crc.gov.au/About-the-program/Documents/CRC%20Program%20impact%20study\\_FINAL.pdf](https://www.crc.gov.au/About-the-program/Documents/CRC%20Program%20impact%20study_FINAL.pdf)

<sup>3</sup> <http://www.go8.edu.au/documents/go8-policy-analysis/2012/atn-go8-report-web-pdf.pdf>

#### 4. The agricultural industries should continue to support the CRC Program:

The agricultural industries have not been as successful in recent CRC funding rounds as in the past. This is partially due to the fact that funding has generally become more competitive as discussed above. However, CRC members of the Association also report that it has become more difficult to attract Rural R&D Corporation support for new CRCs. We sense that this trend is probably due both to other demands on Rural R&D resources and a reluctance to give up control over scarce funds.

The governing Act and various funding agreements with the RDCs do make it clear that the RDCs must act in the best interests of their specific industries. Depending on the interpretation and priorities of each RDC, this arrangement can make cross-sector RD&E difficult to arrange and implement. The Productivity Commission recommended a large cross-sectorial RDC to address the many issues that affect the span of agriculture.

The CRC Association disagreed with this suggestion on the basis that a large cross-sectorial RDC would have a remit that was too broad to be achieved while also maintaining the strong feeling of “ownership” by industry which is a key strength of the RDCs.

We believe CRCs offer a superior model for cross-sectorial issues. As previously mentioned, they have the time, scale and culture to be effective. In addition, they come together when industries seek to put emphasis on a particular issue and they are not indefinite (.i.e. they only continue when industry sees the need).

A good example is the finalization of the Future Farm Industries CRC. The CRC has largely achieved its aims of providing solutions to dry land salinity. It was championed and funded by those most affected by salinity issues and its legacies will continue to be available through those permanent bodies.

The more difficult issue to address are those ongoing cross-sectorial issues. In this case, we would cite the example of the failure of the Weed CRC to gain support under the CRC Program for a further term. In this case, the previous government provided \$15 million in funding directly through the Department of Agriculture and eventually through the RIRDC. We argue that the concentrated focus of a CRC can achieve more than a series of projects, with governance arrangements that provide for strong championing of an issue.

## **Further Observations: Climate; Biosecurity and Regulation**

The CRC Association wishes to point to several issues we regard as critical to the competitiveness of agriculture in Australia. Climate change is not dealt with to any significant degree in the issues paper. We believe adaption to climate change is a major issue for agriculture in the country and warrants further alteration in planning for the industry's competitiveness.

Biosecurity and quarantine provide a major competitive advantage on Australian agriculture. We counsel that Australia maintains and continuously improves its quarantine advantages. Improving detection awareness and managements of pests and disease should remain a priority and is a good example of how CRCs have made significant contributions in the past and will no doubt continue to do so in the future.

We also wish to note to the Taskforce that regulation arrangements in Australia can cause a major drag on innovation. It is the observation of many CRCs working in agricultural innovation that the arrangements for the Australian Pesticide and Veterinary Medicines Authority, the Therapeutic Goods Administration and the Office of the Gene Technology Regulator are far from optimal. The root cause of many of the problems are the combination of (1) Australia being a small market for many products regulated by these authorities and (2) cost recovery arrangements. This combination means that there is a fundamental problem in advancing innovation – innovative products start out small or in a niche crop or market. It is simply not worth the time, money and energy to register some new products, denying Australian agriculture access to a source of innovation.

In terms of regulation, the CRC Association believes there is a strong case for major change. Harmonisation of arrangements should mean that a product already registered for use in another country and examined by an equivalent authority should be available quickly and easily to Australian agriculture. Duplication of registration procedures is a serious issue and exacerbated by cost recovery mechanisms for our agencies (if they are paid to regulate; you get more regulation). Audit costs and the like are extremely high in Australia and warrant examination and rationalization between agencies. The roles of the Office of the Gene Technology Regulator could be rolled into those of other regulators.