

# Australian Council of Deans of Agriculture

## Response to the Agricultural Competitiveness Green Paper

The Australian Council of Deans of Agriculture is Australia's peak body for tertiary education and research. The ACDA comprises those Universities in Australia that offer a degree course in agriculture or related agricultural areas (currently fifteen universities, spread across all States and located in both metropolitan and rural locations). Members of ACDA welcome the opportunity to contribute to this White Paper process.

### *Recommendations*

1. *That the White Paper increases scope to include and promote the entire value chain;*

#### *Education and Careers*

2. *That Government lead a study on how the needs of SMEs and employee needs for qualifications can be resolved;*
3. *That Government consider the introduction of a 'food year' in primary schools where 'food' becomes a theme throughout the curricula;*
4. *That there be ongoing support from government and industry to the Primary Industries Education Foundation (PIEF);*
5. *That Agrifood Skills work with universities to facilitate the pathway for students from VET to higher education;*
6. *That the White Paper consider education along the value chain and not just the production sector;*
7. *That Government actively promote professional careers in agriculture including support for the website 'Career Harvest';*

#### *RD&E conduct, funding and impact*

8. *That Government encourage and facilitate collaboration and PPPs between industry and universities;*
9. *That Government enhance the financial arrangements for research higher degree students particularly in agriculture, including maintaining the HECS exemptions for research MSc and PhD students, in order to stabilise the pipeline for early career researchers;*
10. *That Government use levy-matching funds to create a new entity for strategic, transformational, public good and multi-sectoral research;*

- 11. That Government provide incentives through specific coordinated value-adding investment pre- and post-farm gate similar to the Primary Growth Partnership in New Zealand**
- 12. That Government fund a coordinating study of extension services, including a comprehensive evaluation of all services currently provided by state agencies, the applicability of the US land-grant model in Australia, the extension services that could be offered by universities, the prospects for PPPs and the delivery of holistic extension outcomes.**
- 13. That the Minister, through his Department works to ensure that agriculture is closely aligned and, where appropriate, integrated with the national Innovation system including Awards (Eureka Prize, Prime Minister's Prizes for Science) and policies of other Departments (e.g. Education and ARC funding priorities, HECS exemptions);**
- 14. That Government recognise that its investment in agricultural research has declined in real terms over a long period and significantly in relation to the rest of the innovation system and should be adjusted annually in line with currency value;**
- 15. That peer reviewed publications are adopted by RDCs as a quality assurance mechanism for research investment and that ARC develop metrics for impact as an important component of research quality in agricultural research;**
- 16. That Government consider taxation incentives for business to invest in agricultural research and for increased top-up provisions for higher degree research students;**
- 17. That Government consider reallocating funds for R&D and education and training from the Landcare Program and the Emission Reduction Fund.**

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The ACDA welcomes the opportunity to respond to the Australian Competitiveness Green Paper. We have framed our response to be constructive and suitable for further policy development. The ACDA is available for an ongoing dialogue and can provide further details as needed.

#### **SCOPE AND IMPACT**

The ACDA notes the very strong emphasis of the Green Paper on 'on-farm' aspects. The White Paper should make clear that *agriculture* is not synonymous with *farming* but rather applies to the whole value chain. The future of agriculture, and hence the profitability of farming, depends on better practices and new technologies both on and off the farm. Moreover there continues to be a strong demand in the commercial agribusiness sector for agriculture graduates.

Confinement of focus to production also undersells the value and importance of agriculture to the national economy, national wellbeing and its environmental management. In particular:

- Both the National Food Plan and the Australian Farm Institute's study on "Australia's Farm Dependent Economy" shows that agriculture represents 11-12% of GDP and employs about one-sixth of the workforce (closer to one-third in regional areas);

- Agriculture contributes significantly to Australia's export earnings and this will increase as the 'dining boom' succeeds the 'mining boom';
- The quality and availability of food to Australians is amongst the world's best and contributes significantly to national health and life expectancy both of which lead the international charts;
- Australian farmers support the wider community's environmental expectations and responsibilities by providing numerous public good outcomes through the management of more than 60% of the Australian landscape at no direct cost to the community.

The Green Paper contains many non-specific references to the future while reiterating the *status quo*. While export of livestock and grain will remain important, the future should embrace value-adding and how that might be developed via equitable value chains that share the profits AND the risks. Further, the document is largely silent about sustainability which needs to be continually addressed. Further intensification will be the hallmark of future production. The sector must be mindful of both on-farm and off-farm impacts of production under increasingly variable weather patterns. Impacts such as salinity, acidity, erosion and water quality require specific attention. There needs to be recognition that expertise resides in Australia and is available to lead and teach sustainable management principles and practices across our sphere of influence.

## **WORKFORCE**

The ACDA notes the commentary regarding apprenticeships and the related issue of agricultural businesses preferring short course or modular training in preference to formal qualifications. ACDA agrees that such preferences are widely held, largely on the basis that people without qualifications can be paid less. It needs to be noted that apprenticeships are not favoured in the agricultural industries generally because they lead to recognised qualifications and financial commitment by producers. The tragedy of the commons applies to the management of all resources, including who pays for an educated workforce.

The issue of apprenticeships in agriculture needs to be reconsidered by industry, with support from government. The flexibility provided for in apprenticeships in their implementation has significantly improved in recent years, making them a much more suitable option in agriculture. Further the industry needs to recognise that while it may want to pay less for labour, the lack of focus on qualifications is (i) a disincentive for young people to enter the industry and (ii) inhibits innovation within businesses. Currently the emphasis is on a low-cost labour force rather than on a quality education that is needed to drive innovation (i.e. efficiency gains and improvements in quality). Investing in an appropriately qualified labour force will ultimately lead to more profitable farms and businesses. This is more difficult for SMEs; government needs to lead a study with the aim to reconcile the conflicting needs and ambitions of employers (particularly SMEs) and employees.

## **EDUCATION**

### **1. School education**

Food is one of our few irreplaceable resources. Hence, the ACDA strongly supports the principle of agricultural education in the school system from primary education through secondary school. All students, parents and teachers need to appreciate the importance of food, its generation and value. This can be achieved through mainstream curricula (e.g. science, mathematics, history, languages, geography, English) as well as in specialist subjects. We need a new respect for food in Australia and should give consideration for a ‘food year’ in primary schools. ACDA points out that the **Primary Industries Education Foundation** was established to facilitate that. PIEF has the necessary conduits into the education system, including a comprehensive network, strong industry relations and a solid track record. Support for PIEF should continue. The ACDA does not support the suggestion that Agrifood Skills Australia move into this space. Agrifood Skills should concentrate on the skills and training agenda which it does well and for which it has the mandate and capacity. The demise of the Primary Industry Centre for Science Education (PICSE) at the end of 2014 further exacerbates this situation as there will be diminished capacity to support agriculture and food-related activities within primary and secondary schools

## 2. VET

Agrifood Skills Australia can have an important role working with Universities and industries to identify better ways of fostering the *transition* of students from VET qualifications to higher education study. Thus, short courses may have a role in building core academic and scientific skills in a modular way, possibly in the form of ‘badged’ courses that could be delivered by a range of providers. There is a lack of funding available for VET students to undertake advanced qualifications such as Diploma/Adv Diploma although it is noted that proposed legislation enables access to fee-HELP for these students.

## 3. Higher education

The ACDA notes that there were only 18 lines devoted to higher education and, in a document addressing the future of one of the most important sectors of our economy, this appears inadequate. No distinction is made between undergraduate and postgraduate (research higher degrees and coursework Master programs) education, yet these are distinct issues relating to the present and future of agriculture and agribusiness. The focus on production education should not detract from the education needs along the value chain which has largely been ignored in the Green Paper.

The ACDA supports the principle of increasing promotion of higher agricultural courses, including increasing the awareness of career pathways. Ongoing support for the website “Career Harvest” is important in educating prospective students the range of employment opportunities along the agricultural value chain. However, increasingly for career development, coursework Master degrees will be needed so that graduates already employed in the agrifood sector are able to update and improve their skills and knowledge as happens in many other sectors.

The ACDA supports a focus on enabling and improving the relationships and collaborations between all stakeholders to ensure training and education meets current and future skilled workforce needs and priorities. Currently these interactions are *ad hoc* at best and there would be benefits in formalising these. Greater involvement by private industry (e.g. endowed Chairs, undergraduate

scholarships, research scholar stipend top-ups, work experience, research investment, public/private partnerships) in universities could be facilitated by government.

In its original submission to the Green Paper, the ACDA highlighted the appalling conditions for research higher degree students as a disincentive in attracting people into research. A considerable proportion of agricultural research is undertaken by these students. The ACDA reiterates the following key blockages that deter young people from considering a research career in agriculture:

- stipends on or below the poverty line;
- tax limitations on stipend top-ups;
- lack of increments and superannuation entitlements;
- poor career prospects and security of tenure for early career researchers; and
- HECS debt accumulation during study.

These are clear disincentives, particularly when immediate job opportunities in the commercial sector are highly attractive for recent graduates. Unless action is taken, the pipeline of early career researchers is likely to dry up soon and this will have direct impacts on Australia's rural research effort.

## **RESEARCH AND DEVELOPMENT**

The ACDA notes the strong support for continued agricultural R, D & E and for the RDC system of research funding including the levy scheme. The ACDA commends this and supports the proposed regular five-yearly review of the RDCs as a good quality assurance measure. However the ACDA considers that there is potential to increase the effectiveness and quality of research carried out by RDCs which can be facilitated by requiring competitive project tenders and ongoing programs to be submitted to national/international peer review, and by ensuring that greater representation of independent academic expertise (determined by recognised measures of research excellence and impact) is included within RDC governance. These principles already apply to funds occasionally provided by the Australian Government under special programs via the Australian Research Council (e.g. Linkage and Discovery programs). Unfortunately funds provided for agricultural research under these programs are disproportionately small relative to other sectors. It is disappointing that agricultural research is not seen as a priority by the ARC.

National and regional priorities need to be balanced against and aligned with the interests of agricultural producers. The ACDA recognises that the focus of RDCs is on short to medium term outcomes for their main constituency i.e. farmers. This approach however is less likely to deliver the transformational outcomes and does not address the cross-sectoral issues needed to satisfy the complexities in 21st century market structures and operating environment. The ACDA also notes that there is little mention of product quality and safety as it relates to competitiveness. There should therefore be a reasonable allocation of funds towards strategic projects which would allow entry of new players and ideas from within and outside the sector. To this end there is an increasing case for the establishment of a funding body to address systems and value chain related

aspects. A proportion of the matching funds from government should support such a new entity with clear guidelines that are complementary to the activities of the existing RDCs. The focus of this new RDC should be on the longer term, more complex agricultural systems-related problems that are currently stifling innovation, holding back transformational change and are inhibiting efficiency gains across the agricultural sector.

The ACDA supports the notion that research funding arrangements provide for “*greater incentives for collaboration between research and industry and the need to develop world-class research infrastructure to attract international researchers*”. Outside the RDCs, there is a need to facilitate access to university R&D capability by SMEs through provision of seed funds from government. Some small state-based schemes exist (e.g. NSW and Victorian Tech Vouchers) but these are one-off small co-investments and fail to secure ongoing retention of research skills. Schemes such as Researchers in Business (Enterprise Connect) have value but are not targeted to the agricultural sector and are for short bursts of activity with no follow through. There is considerable scope for SMEs to tap into the talent in the university sector, particularly in order to add value to agricultural products and develop new (export) markets. To that end, ACDA recommends provision of government incentives through specific coordinated value-adding investment pre- and post-farm gate. The Primary Growth Partnership (<http://www.mpi.govt.nz/forestry/funding-programmes/primary-growth-partnership>) in New Zealand is an effective model, whereby public funds can be leveraged by non-Government entities.

#### **EXTENSION**

ACDA notes the concern about the future role and capacity of agricultural extension and that lack of effective extension will limit the take-up of R&D and limit productivity gains. ACDA is also concerned that private extension services will ‘cherry-pick’ those services for which there is a financial benefit and that public good and market failure issues will not be addressed.

ACDA supports incentives for Universities to participate (in partnership with industry/other RDE organisations) in the extension function. The University sector has at least three roles in agricultural extension:-

1. Educate and train future agricultural extension workers and people in the RD&E system (e.g. researchers) in extension theory, professional practice and skills (including private sector, not for profit sector, public). This should be further supported by undergraduate scholarships to specialise in extension education
2. Active participation in extension – in partnership with other organisations (public and private)
3. Undertaking R&D in novel and redefined extension methodology in collaboration with public and private entities.

Extension and extension research is still not recognised as a legitimate activity at Australian universities. This needs to change. The Government could facilitate change quickly by making some resources for agricultural extension available under Category 1 education funding. Strong policy

statements about the importance of, and support for, public-private partnerships (PPPs) that include the university sector would help considerably. An example was the Pilot of Drought Reform Measures in Western Australia which was guided by innovative adaptive extension, governance and research methodology through direct engagement with the university sector driving a PPP. The pilot delivered major and unprecedented producer response and outcomes, including significantly improved understanding and actions relating to the impacts of increasing volatility in: business and financial environments; markets; natural resources; personal wellbeing; and weather events.

While the US has invested considerable resources into their universities via the much talked about Land-Grant University System, Australian universities cannot draw on such a resource. However the model deserves closer scrutiny as aspects of the Land Grant system might still be applicable to the way university farms are or could be governed. Adequately resourced with modern technology and well-trained staff, these facilities could effectively link extension with research and education and provide further opportunity for PPPs.

The notion of regional centres of excellence that serve broad agricultural regions based around regional universities deserves additional attention. These institutions often have the breadth to address scientific and technical challenges as well as socioeconomic issues. However their resources are spread thinly across the landscape and this limits the effectiveness of the services and outcomes and often makes it difficult to attract staff. Collocation is likely to provide synergistic opportunities and a critical mass of professionals in regions where the issues occur.

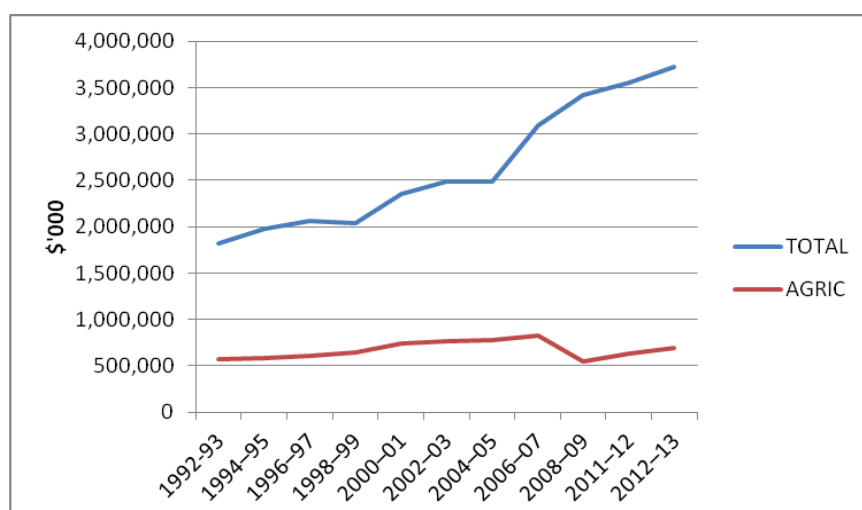
ACDA considers that expectations on new graduates to have the wisdom, breadth of knowledge, experience and network to be a proficient extension operator are unrealistic. The professional development and mentoring of extension officers previously provided in state departments no longer exist as extension services have declined. These roles are increasingly provided by private operators. Professional development opportunities such as short courses or a professional Masters should be developed to encourage and enable mid-career professionals to move into an extension role. This would include the role of the internet as it is increasingly important to monitor and advise on rural production. Further, as they give advice on matters that could have significant economic implications (just like other professionals e.g. accountants, financial advisers, engineers, teachers) extension providers should be accredited or registered.

ACDA thus supports a national strategy for extension education across Australia (focusing on the private and not-for-profit sectors) to boost the currently *ad hoc* and under-resourced efforts. In higher education, a University network coordinates offerings in undergraduate and postgraduate extension education, in partnership with organisations such as the Australasia-Pacific Extension Network (APEN) and their education sub-committee. Of concern is that some private providers now offer short-courses in extension with no background theory or professional practice credentials. ACDA recommends that funds be provided to undertake a coordinating study of extension services. This would include a definitive evaluation of those services now provided by state agencies, the applicability of the US Land-Grant model in Australia, the extension services that could be offered by universities, the prospects for PPPs and the delivery of holistic extension outcomes.

## **CONVERGENCE**

ACDA notes that the Green/White Papers are delivered out of the Office of Prime Minister and Cabinet, indicative of a whole-of-government approach to the agenda. ACDA has identified several areas of possible contradiction or where benefits might accrue by convergence of departmental activities.

**The innovation system and agricultural research:** Currently the national innovation system and the agricultural R&D system are mutually exclusive. Despite agricultural research effort being around 10% of the national research activity it is rarely included as a component. This is reflected in the Cutler Review, in the Prime Minister's Prizes for Science and until recently in the Eureka Prizes. Agriculture also struggles to gain traction in Australian Research Council grants and awards. There are several consequences of this separatist approach. For agriculture, there are missed opportunities in profile and image but there are also national impacts in that agriculture is rarely included in health, energy, technology, communications and other research agendas. This issue was identified by the Rural R&D Council in its "National Strategic Rural Research and Development Investment Plan".

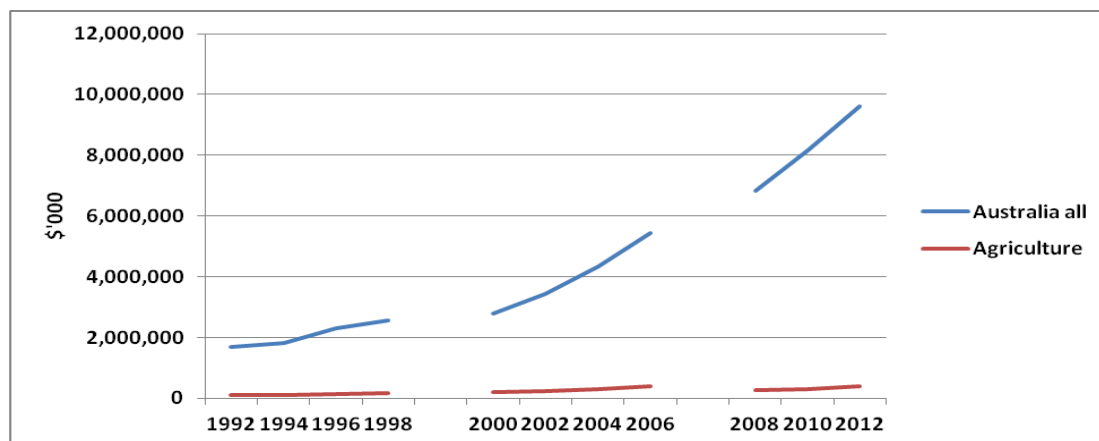


**Figure 1** Government investment in agricultural research relative to overall research investment 1992-3 to 2012-3 (ABS, 2014)

Even more concerning is the increasing discrepancy in government investment in agricultural research. Figure 1 shows the almost static investment for agricultural research compared with a doubling of investment for research overall over two decades. During that period agriculture has declined from over 3% of the investment to about 1.9%. These trends are of even greater concern in the university sector (Figure 2) where there has been next to no increase over the same period for agricultural research while the overall investment has increased five-fold. Clearly the lack of engagement with the innovation system is counterproductive to the future prospects of agriculture R&D and needs to be addressed. It also raises the question as to why the food system and an industry sector so important to export earnings, health and standard of living continues to lose ground relative to the rest of the economy. These data suggest that the focus on matching of levies is itself a limitation, as the contribution from government declines in poor seasons and are capped in times of good returns. ACDA suggests that there be a study on government investment in research



to ensure that agriculture is adequately supported. This would ultimately strengthen a sector so critically important for the overall performance of Australia's economy.



**Figure 2** Research funding for agriculture relative to overall research funding in Australian universities 1992-3 to 2012-3. Gaps relate to changes in agricultural categorisation (ABS, 2014)

### Industry and education

The RDC system of research funding focuses on 'paddock level outcomes' with comparatively less value placed on the peer reviewed publication of research outcomes. This situation is at odds with the innovation system driven by the ERA process and the ARC. Publications are a fundamental component of the research process. They are an essential pillar that underpins accountability, transparency and quality control of science. University funding as well as academic promotion are in part based on publications. Focusing on on-the ground impacts at the exclusion of scientific publication is counter-productive. Not only does it undermine the principles of good science, it also increases the risk of duplication of effort as publications are the only public record remaining after the successful completion of a research project. Some synchrony between the different Category research providers (ARC and RDCs) would be desirable. In summary, there are several reasons why RDCs should consider formal publications as proper outputs of research:

- There are frequent complaints about the same research being repeated unnecessarily because no public records exist of the previous research;
- Some researchers continue to receive funding even though there is little evidence of what has been achieved. This is not necessarily a criticism of the research *per se* but rather that the results of the research are not available to others outside the small geographical sphere of influence;
- Peer review provides a quality assurance mechanism that ensures that research methodology is sound, hypotheses are appropriate and interpretations of research outcomes are valid.

ACDA considers there is much to be gained by RDCs adopting the quality metrics used by the remainder of the innovation system for its quality assurance and the government can play a key role in enabling this. At the same time the ARC should be encouraged to consider the impact of the research as a measure of agricultural research quality.

### **Taxation incentives for R&D**

The contribution of the private sector to R&D is slowly growing. There appear to be few incentives for investment and much confusion in relation to the levy system and its effect on taxation benefits. It is in everyone's interest to build the private investment in R&D. ACDA considers that there should be innovative ways to do this and encourages the government to enhance the option.

Further, the taxation limitation on research higher degree student stipends would remove an impediment to the attraction of good students into the R&D system.

### **Overlap with major Government-funded programs**

The Australian Government has two large programs that represent significant investment in rural areas and both will contribute to growth and innovation of agricultural industries. These programs are the National Landcare Program and the Emissions Reduction Fund (ERF). Enabling legislation for the latter was only passed in October 2014 and consequently is not considered in the Green Paper. Nonetheless the Carbon Farming Initiative of the ERF represents a substantial investment by government (\$2.5 billion over 4 years) with a major component related to paying for carbon mitigation through a range of rural-based activities (e.g. sequestration of carbon in soils and plants, management of methane from piggeries, nitrous oxide from fertilisers and urine). This investment may also be leveraged with private investment. Projects likely to go forward are likely to have positive impacts on farm profitability and sustainability.

Although both programs are mentioned in the Green Paper, there is little detail on how these significant investments can be leveraged to help the overall productivity agenda. The ACDA suggests that the efficiency of these programs would be considerably improved if there was a dedicated program of applied research and development. Currently these activities are not considered by any RDC. Similarly these programs will represent a large source of rural employment for graduates. Hence, investment from the existing program budgets into education and training would be valuable.

### **CONCLUSION**

ACDA considers that the Green Paper is a useful document in preparing the Australian agrifood sector for an increasingly dynamic production and trading environment. However, it stops short of addressing important aspects that currently inhibit the sector from progressing. ACDA has framed this response to facilitate a wider consideration of the challenges that the sector and the RD&E elements underpinning the sector's success. ACDA is available for an ongoing dialogue and can provide further details as needed.

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