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The University of Sydney is pleased to make a submission in response to the Department of Agriculture's discussion paper on *Modernising the Research and Development Corporation (RDC) system*.

The University has had extensive and productive engagement and partnerships with RDCs since the system was established in the early 1990s. We view the RDC model as a vital and world-leading approach to agricultural research broadly defined. It is a model that has served Australia well for decades and we cannot overstate the importance of agribusiness to the social cohesion of rural Australia and the overall economy.

With more than \$600 million in research funding available each year, the RDC system has been crucial in terms of enabling Australian universities to build and sustain cutting-edge research and educational capability in collaboration with primary industry. The sector-directed commodity-based RDCs have enabled strategic planning for research priority areas and academic appointments in various fields based on track records of funding success, relationships and stability.

The rural RDC system has been enormously successful in achieving efficiency and productivity in Australian agriculture. However, the current RDC system has been less successful with generic (e.g. digital disruption) and cross-sectoral (soil, water including irrigation, landscape) issues; the former being researched competitively between the RDCs and the latter being under-researched across the board in Australia. There is also a need for stimulating cross-sectoral collaboration on larger projects, such as drought-proofing and water use. We suggest that the RDC system should now take on board **profitability of the agriculture sector** and **ecosystem sustainability in agricultural lands** as additional goals.

A future better-integrated RDC system, potentially with its administration amalgamated, presents an opportunity to link RDC-funded research with the Australian Research Council (ARC) and National Health and Medical Research Council (NHMRC) programs to build a coherent research framework and add considerable value from the research dollars. RDCs currently focus on applied research and there is a need to fund more foundational fundamental research to better understand the mechanisms that control issues such as drought tolerance, soil sodicity and heat tolerance. Without strengthening the national capacity for agriculture-related fundamental scientific research, there will be less opportunity to drive real change and innovation in the sector. **We suggest that 20 per cent of the total RDC fund is put aside for such focus and interactions.** Linking in with ARC and NHMRC funds would be a logical and efficient mechanism for future funding from Federal research budgets.

RDCs can address profitability and ecosystem sustainability by promoting stronger R&D linkages between the agriculture sector and food value chain. They can also work to reduce duplication of research in generic issues by targeting long-term cross-sectoral and transformative R&D in **decommodification**.



Through digital disruption, we should be able to decommoditise Australia's agricultural production system, to produce high-value-add, highly-segregated products, which:

- (i) are differentiated for niche markets;
- (ii) have provenance; and
- (iii) have associated positive environmental and ecosystem credentials.

This requires a whole-of-supply-chain approach to digital agriculture, from the producer to the consumer, with the latter being in Australia or overseas. Australia has made good progress on the farm-based parts of this system – particularly with smart precision agriculture, with sensors, data-analytics and robotics starting to make an appearance now. We do not, however, have good on-farm technologies for segregating product based on quality, provenance characterisation, or for packaging into smaller portions, so that the new products can be put through the emerging digital supply chains.

The use of distributed ledger technology will be important, so creating new, smart, sensorised food-supply chains must be a priority. Moving from 10 bulk commodities to many thousands of differentiated products is more likely to deliver greater economic benefit for our limited resources. Developing smart precision measurement and separation processes at all points along the production supply chain will allow the tracking and quality measurement of products from specified locations within a paddock, or from a specific animal to the plate. We are currently developing sensing and information technologies for plant and animal products that can achieve this.

We also support the current structure of RDCs receiving input and delivering to their agribusiness base/s. This is particularly relevant due to the contraction of research by state/territory departments of primary industries and the provision of extension services for research outcomes delegated back to the RDCs. Adequate and sustainable funding is crucial for attracting career-seeking postgraduate research students and early career researchers. It encourages and helps universities to justify investing in field research facilities and supporting infrastructure to enable “road testing” and evaluation of “tech-driven farming”. Stability of funding enables career development and employment of graduates and postgraduate students. It also provides industry internships and university postgraduate scholarships.

We would support the creation of a national administrative body or single service company, which renders collective financial, IT, HR and legal (including IP) services to all RDCs. This will reduce overhead costs, whilst ensuring much needed consistency and uniformity on several fronts. This would also serve as a conduit from any national body attempting to integrate any strategic directions from state/territory and federal governments.

As a research institution committed to translating research outcomes for economic and social benefit we would appreciate inclusion of IP clauses in RDC contracts that make it easier to commercialise outcomes from the funded research. Currently, RDCs have standardised agreements that manage IP ownership and commercialisation. However, when we engage with RDCs to commercialise research, the discussions are too often protracted. We would be happy to provide case studies for consideration if that would be of assistance. The establishment of a single national RDC administrative body could help create standard contracting positions to help foster research commercialisation.

If a national administrative body cannot be formed, then amalgamation of several RDCs (similar to AgriFutures Australia) should be attempted to reduce overhead costs and achieve consistency. For example, the three RDCs that serve the red meat industry – Meat & Livestock Australia, Australian Meat Processing Corporation and LiveCorp could be merged to help expedite research contracting and project delivery.



We would also nominate a grouping to deal specifically with Irrigation Agriculture (across all commodities) with a view to maximising economic and environmental return per unit volume of water.

In conclusion, we see a need for federal policy to formally encourage RDCs to pursue longer term collaborative public good research projects through the establishment of a jointly-managed strategic research fund focused on cross-cutting fundamental research, designed to leverage and align with other key research funding schemes. Critically, we see a need for the overall framework to support the nation's underpinning agricultural research capacity, both in terms of people and infrastructure. Here we note that the recently established Future Drought Fund could provide a complementary and enduring source of funding to support the critical work of the RDCs. Secure long-term growth funding will be essential if we are to tackle the future challenges that we look certain to face as a result of domestic and global population growth, climate change and resource depletion.

Thank you again for the opportunity to contribute to the Department's discussion paper. Should you require further information from the University of Sydney, in the first instance please do not hesitate to contact Mr Tim Payne, Director, Higher Education Policy and Projects on tim.payne@sydney.edu.au or 02 9351 4750.

Yours sincerely,

(signature removed)

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