
# Modernising the Research and Development Corporation system

## University of Melbourne Submission

**November 2019**

## Overview

The University of Melbourne welcomes the opportunity to provide comment on the Australian Government's Discussion Paper, *Modernising the Research and Development Corporation system.*

Rural Development Corporations (RDCs) are an important part of the Agriculture Innovation System and make valuable contributions to industry research and knowledge of international markets. RDCs are also a valuable mechanism through which new developments can be communicated to producers. The University has had a number of successful partnerships with individual RDCs over the years and continues to work closely with them on a range of research projects.

The RDC system has a good track record and the University welcomes the opportunity to continue partnering with RDCs on research. However it is timely to review the RDC system and structure to ensure RDCs are equipped to address the challenges faced by the agricultural sector such as impacts from climate change, drought and changing consumer expectations for food and fibre products.

The Government's Discussion Paper outlines the attributes that a modern RDC system needs to have in order to respond to the challenges facing the sector[1] including: being responsive to change; turning research into tangible benefits for producers; and providing a strong voice for industry. An additional focus to include is research that focuses on cross-sectoral and long-term priorities that will help ensure the productivity and sustainability of Australia's food and agriculture sector.

Additionally, the RDC system needs to be able to better articulate the public value it is delivering and benefits it provides not only for the agriculture sector, but for innovation and the economy more broadly. Enhancing public perception and consumer awareness of the benefits delivered by RDCs will provide a stronger social licence[2] to operate and also increase its attractiveness as a partner for investment and collaboration.

In developing this submission, the University brought together views of researchers from the Faculty of Veterinary and Agricultural Science, Faculty of Science and Melbourne School of Engineering with experience of working with RDCs – including as research partners, collaborators and some with experience as board members or advisers.

Our response to the Discussion Paper focuses on two key areas:

- **A focus on research** including the need for long-term, cross-sectoral research, more local research and some suggestions for changes to the way that RDCs partner on research.
- **Uptake of Research and Development** including a discussion on the fragmented nature of Australia's current agricultural extension system and a potential role for RDCs in providing leadership and building capacity of extension practitioners.

We would welcome the opportunity to discuss these issues further with the advisory panel or otherwise assist in developing recommendations.

For more information or to discuss the submission, Professor John Fazakerley, Dean, Faculty of Veterinary and Agricultural Sciences can be contacted at john.fazakerley@unimelb.edu.au.

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[1] *Modernising Australia's Research and Development Corporations,* Discussion Paper, p5

[2] Council of Rural RDCs, *Vision 2050 - New thinking about rural innovation in Australia*, p10, available from: http://www.ruralrdc.com.au/wp-content/uploads/2018/12/Vision-2050-Paper-December-2018.pdf

## A focus on research

### *The need for long-term, cross-sectoral research*

A key focus for a modern RDC system should be to facilitate and invest in research that focuses on **cross-sectoral and long-term priorities that will help ensure the productivity and sustainability of Australia's food and agriculture sector**. The emergence of 'wicked' problems facing the sector, such as climate change, environmental degradation, species extinctions, soil management, sustainable intensification, and drought policy, signals a need for investment in collaborative and long-term research that may help guide possible solutions to some of these challenges.

A future RDC system should facilitate the development of larger collaborative consortia around key thematic areas, for example, water, climate change, soil carbon and nitrogen, animal welfare or more targeted interventions such as smart, more specific, fertilisers, herbicides, pesticides and disease prevention technologies; these consortia would be aimed at long-term productivity and sustainability and should not be awarded or appraised against short term gains. They could bring together multiple investors, including various RDCs in partnership, and multiple research providers, including universities, with a long-term funding commitment from all partners. Models such as Cooperative Research Centres, the Genetics Consortium and the Livestock Productivity Partnership could be looked to as potential future models for RDCs. Reinstating or drawing lessons from the Rural Research & Development for Profit program[3] would also be worthwhile. This program enabled cross-sectoral effort and identified areas that might work well for collaboration. The last stage of the program was oversubscribed, indicating an interest and demand from RDCs for this mechanism.

### *RDC approach to partnering on research*

The review of the RDC system needs to consider a fundamental change in how the system approaches research. RDCs are important players in the broader agricultural innovation system. There are multiple benefits from funding rural research, not only for improving productivity, but also the resulting broader public benefits such as healthier foods, increased biodiversity, reducing emissions and improved water management. Multiple benefits means that funding sources can and should be broad and cover philanthropic interests and ethical investment funds. A future RDC system needs to be well-positioned to take advantage of growing investment and interest in agricultural innovation from the private sector and other organisations.

In partnering with RDCs on research projects over many years, some of the University's researchers have observed that the RDCs tend to approach research as though it is a purchase and provider model, taking a 'one size fits all' approach to universities and research projects. This type of 'procurement' approach is not necessarily appropriate or fit for purpose. Changes are needed to ensure that RDCs engage with and resource strategic research and collaborations. Some suggested mechanisms that might help achieve this change follow.

- **A cross-sectoral approach to call for research.** Individual RDCs use different processes for contracting organisations for research projects. For example, some adopt an annual cycle of

[3] See: Department of Agriculture, Rural Research and Development for Profit, https://www.agriculture.gov.au/ag-farm-food/innovation/rural-research-development-for-profit Accessed 19 November 2019.

funding, some have tendering and others have open-ended cycles. These inconsistences in timing and processes can limit or hamper efforts to develop strategic or cross-sectoral research. For cross-sectoral projects it is often left to the researcher to bring together interest from multiple RDCs. Working with different timing and processes between RDCs can result in additional and unnecessary transaction costs. RDCs should be taking the lead on facilitating these connections and bringing together collaborations on identified issues. An example of this working well internationally is the European Union's Horizon 2020, which has a set agenda and identified long-term work programs for research and innovation.[4] RDCs should consider cross-sectoral strategic calls for research as a way to address a range of issues.

- **Co-innovation models are needed, which must be fit for business and based on an understanding of the contexts in which collaborators are operating.** A linear model of research investment is no longer fit for purpose for the scale of challenges that need to be addressed. Trials of co-innovation approaches in Australia, NZ and Europe have found that organisations such as RDCs and governments have "a potentially pivotal role in supporting co-innovation with private extension providers and supply-chain companies." RDCs and government have a broader role to play as innovation brokers.

- **Upskilling RDC staff to better enable investment decision making is needed.** A focus on culture in investment decision making, and on upskilling staff making those decisions will also be important in enabling future collaboration and attracting new participants. Staff need to act as investment managers or brokers, on par with private investors and philanthropic organisations, so that they are better able to bring together partners, network across sectors, find common goals and leverage opportunities. Much of this currently falls to researchers and research organisations, which may not be as well-placed as RDCs to fulfill this function.

- **A trend in researchers being able to participate more broadly in RDC activities such as workshops and reference groups should be welcomed.** This enables researchers to get to know relevant program managers and facilitates a better understanding of RDC priorities. This in turn can open opportunities to negotiate research concepts at an earlier stage, before proceeding to full proposals for funding. The review of RDCs should recognise this trend and consider if this is a more efficient approach for all parties.

- **Increasing the length of research contracts.** There needs to be a better balance between funding for shorter and longer term work. RDC contracts have been dominated by a three-year funding model, however, challenging issues such as climate change, environmental degradation and sustainable intensification cannot be adequately addressed in three-year funding cycles. This highlights the need for patient, longer-term investment in inter-disciplinary research aimed at tackling such issues. These shorter funding cycles are not only eroding existing research capacity, but also limit the ability of institutions to secure future

[4] See: Horizon 202, European Union. Available at: https://ec.europa.eu/programmes/horizon2020/en/what-horizon-2020. Accessed 19 November 2019.

research talent through lack of security of tenure. Lack of certainty regarding funding also impacts investment in research infrastructure.

- **A more robust process is needed for terminating longer term projects.** Much effort now goes into the identification, planning and negotiations of a major project. However, the eventual decision-making around ceasing a long-term investment does not have the same level of scrutiny, rigour and throughtfulness. In addition, some researchers also emphasise the need to move away from milestone driven progress reports, given that these do not always reflect the uncertainty and unpredictability often inherent in research. More flexibility around milestones and outputs would be beneficial.

***Locally focused research***

There is also a need for regionally-based research that can address local issues and provide opportunities for innovation. Some regions might have particular challenges, for example, onset of diseases or water table changes, others might present particular opportunities either because of changed agricultural practices or because of prior investment in research facilities. Our impression from local stakeholders, in rural communities in which the University is engaged, is that industry and the RDCs are not investing in the regionally relevant research needed. This in part may be due to previous decisions by government to create national frameworks for Research, Development and Extension which centralised research functions in states and sectors.[5]

Currently other organisations are endeavouring to fill this gap. For example, the University of Melbourne has partnered with Latrobe University to establish the Mallee Regional Innovation Centre in Mildura. The Centre provides a network through which the Mallee region can draw on the expertise and resources available at the two universities and is working to identify, develop and progress research priorities to address key challenges in the Victorian Mallee region relating to agriculture. There may be opportunities for RDCs to partner with universities and research organisations to invest in locally relevant research.

**Recommendations**

The University of Melbourne recommends:

- The RDC system should have a central focus on facilitating and investing in cross-sectoral strategic research.
- RDCs need to be well-positioned to take advantage of opportunities to partner with other investors in funding research, adopting an innovation broker role.
- Consideration be given to changing the way RDCs partner on research such as offering cross-sectoral open calls, implementing long-term contracts and facilitating opportunities for researchers and RDCs to work closely together before developing funding proposals.
- For some strategic programs, rewarding and appraising of RDC investments should not focus on short term gains but long-term gains and sustainability.

[5] See: National Primary Industries Research, Development and Extension Framework 2009. Available from: www.agriculture.gov.au/ag-farm-food/innovation/national-primary-industries/statement_of_intent#part-ii-national-primary-industries-rde-framework . Accessed 19 November 2019.

- Consideration be given to reinstating the Rural Research and Development for Profit program or similar system to fund cross-sectoral research.
- Consideration be given to opportunities to partner with universities to deliver locally relevant research.

## Uptake of agricultural R&D

The discussion paper references 'extension' and 'adoption' as discrete activities that RDCs can facilitate. An alternative approach is to consider how RDCs can help bring together producers, researchers and intermediaries, such as farm advisers and farmer groups, to engage in the innovation system more directly.

The premise of the questions in the discussion paper section 4.3 concerning 'uptake of R&D' are contrary to the desired strong system of innovation in agriculture reflected in the earlier sections of the discussion paper. The idea of 'an extension service' [6] is outdated to the extent that farmers use a range of sources of information, advice and support and there is no longer one organisation responsible for extension (see figure 1, page 8 of this document). Rather, uptake of R&D relies on engagement with this knowledge ecosystem.

Research into the status of Australia's agricultural advisory and extension system conducted for the government and RDCs[7] showed that there is no one extension provider nor a coordinated extension system operating in Australia. Each sector and each state has their own approach and resources to draw on to coordinate and conduct extension - by international standards, the extension system is fragmented. Strong coordination and incentives for advisers and extension providers from the public and private sector are required to ensure they are connected to research, involved in development efforts and involved in the design and delivery of support to enhance the application and use of research. In this context, there are a number of ways in which the RDC system has the potential to better support and facilitate agricultural extension. Some key areas follow:

- **RDCs and government have an important role in governing innovation and research and development pathways.** Research results on their own are not adoptable but instead need to be considered in light of the change or benefit sought in a farming population or in farm management. Research results may have a commercial product or service pathway, or need to be trialed in different contexts and with different farming populations to be considered worthwhile for promotion or extension. They may also have a use in policy or in investment decisions. The use of the research in supporting the change desired can be considered by development and extension and adoption teams coordinated by RDCs. Given there is no one organisation or funding mechanism with responsibility for translation of research, strong leadership and governance around the extension and advisory system is required, rather than a laissez-faire or market led approach. In most other countries, governments play a key role in the setting of agricultural advisory and extension system policies and take a leadership role in the coordination and governance of the advisory and

[6] Discussion Paper, p10

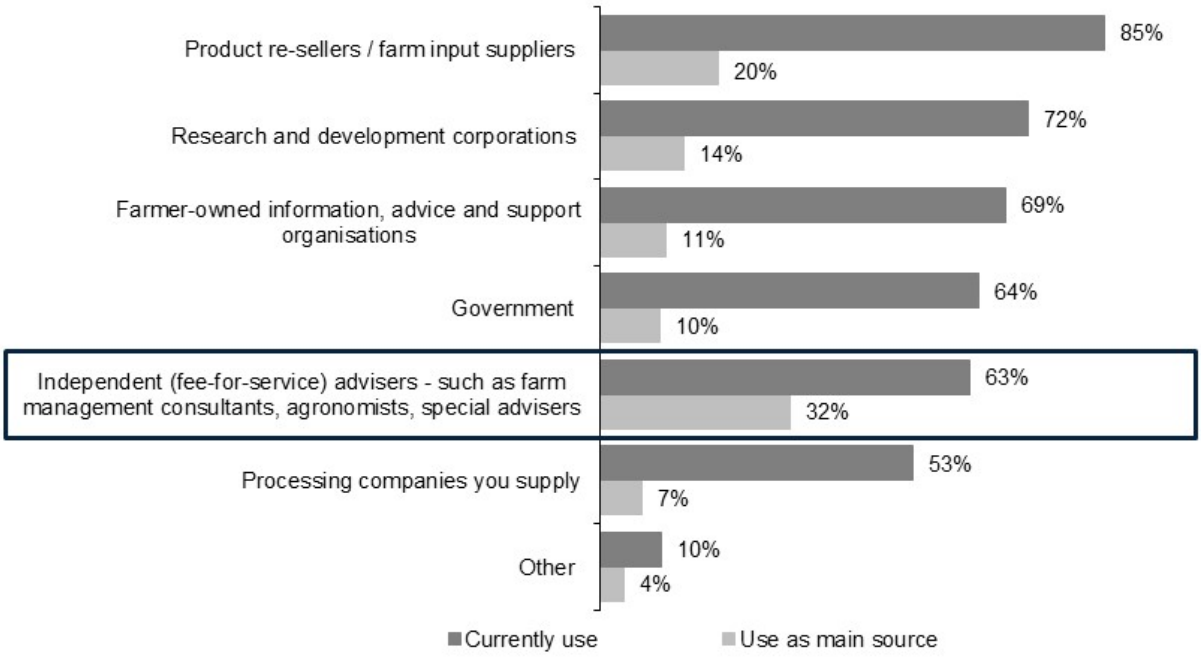
[7] *Stimulating private sector extension in Australian agriculture to increase returns from R&D,* collaborative project funded by partners and the Rural Research and Development for Profit Program. See: ***http://rirg.fvas.unimelb.edu.au/ag-extension***

extension system. Consideration should be given to whether the RDC system can support this function.

- **Building capacity of extension practitioners across the innovation system.** The fragmentation of Australia's agricultural extension system has also limited the development of the capacity of practitioners conducting extension across all sectors. Improved capability of extension service providers, both private and public, will contribute to on-farm productivity gains and profitability. There is a role for government, via the RDCs, to focus on capacity building for practitioners from across the innovation system, not just in RDC staff. The University of Melbourne has sought to address this issue for the Australian context by offering a specialisation in agricultural extension and innovation within the Masters of Agricultural Sciences.[8] The RDC system may consider how it could partner with universities to help build practitioner and RDC staff capacity in agricultural extension.

[8] See Masters Specialisation 'Agricultural Extension and Innovation': https://handbook.unimelb.edu.au/components/mc-agsc-spec-5

**Figure 1: Australian farmers' sources of information, advice and support**




**Source Nettle et al., 2018:** Australian farmers sources of information, advice and support (all used and main source) n=1003

*In a national survey, farmers were asked to identify the organisation types to which they drew from for information, advice and support in their farm management. They were then asked to identify a 'main source.' On average, farmers used four sources of information, advice and support with 85 per cent of farmers identifying their farm input suppliers as a source. Independent fee-for-service advisers such as farm management consultants were noted as a main source by 32 per cent of farmers. Different agricultural industry sectors had different profiles for their main sources. Further, farmers credited their engagement with their 'main source' as influencing changes in their farm operations. Private, industry, not for profit and public sector organisations were all used by farmers in practice change.*

*An overall increase in demand for information, advice and support from farmers' main source over the next five years was reported by 32 per cent of farmers, signalling the need for greater focus on extension coordination, graduate pathways into advisory and extension roles and professional development.*

**Recommendations**

The University of Melbourne recommends:

- Consideration be given to the role of RDCs in supporting a cohesive advisory and extension system and involving and engaging providers with direct influence at farm level in research and translation efforts.

- Consideration be given to an effective advisory and extension system as needing cross sectoral effort.
- Consideration be given to supporting research related to the advisory and extension system to track issues, challenges and improvements .
- Consideration be given to recommendations from the *Stimulating private sector extension in Australian agriculture to increase returns from R&D*[9] report in future investment.

[9] See: *Stimulating private sector extension in Australian agriculture to increase returns from R&D,* Final Report https://rirg.fvas.unimelb.edu.au/__data/assets/pdf_file/0009/2860848/Project-Key-Findings.pdf

## Summary of recommendations

**A focus on research**

A focus on research ought to be central to a modern RDC system, and should include support for long-term cross-sectoral research and flexibility in models for RDC research partnerships.

The University of Melbourne recommends:

- The RDC system should have a central focus on facilitating and investing in cross-sectoral strategic research.
- RDCs need to be well-positioned to take advantage of opportunities to partner with other investors in funding research, adopting an innovation broker role.
- Consideration be given changing the way RDCs partner on research such as offering cross-sectoral open calls, implementing long term contracts and facilitating opportunities for researchers and RDCs to work closely before developing funding proposals.
- For some strategic programs, rewarding and appraising of RDC investments should not focus on short term gains but long-term gains and sustainability.
- Consideration be given to reinstating the Rural Research and Development for Profit program or similar system to fund cross-sectoral research.
- Consideration be given to opportunities to partner with universities to deliver locally relevant research.

**Uptake of R&D**

RDCs can help bring together producers, researchers and intermediaries, such as farm advisers and farmer groups, to engage in the innovation system more directly, which may better support and facilitate agricultural extension.

The University of Melbourne recommends:

- Consideration be given to the role of RDCs in supporting a cohesive advisory and extension system and involving and engaging providers with direct influence at farm level in research and translation efforts.
- Consideration be given to an effective advisory and extension system as needing cross sectoral effort.
- Consideration be given to supporting research related to the advisory and extension system to track issues, challenges and improvements .
- Consideration be given to recommendations from the *Stimulating private sector extension in Australian agriculture to increase returns from R&D* report in future investment.

## Contributors to this submission

Professor Robin Batterham, Melbourne School of Engineering

Professor Iain Clarke, Faculty of Veterinary and Agricultural Sciences

Professor Richard Eckard, Faculty of Veterinary and Agricultural Sciences

Professor John Fazakerley, Dean, Faculty of Veterinary and Agricultural Sciences

Associate Professor Gregory Harper, Faculty of Veterinary and Agricultural Sciences

Professor Ary Hoffman, Faculty of Science

Professor Ruth Nettle, Faculty of Veterinary and Agricultural Sciences

Professor Timothy Reeves, Faculty of Veterinary and Agricultural Sciences

## References


Ayre, M., Mc Collum, V., Waters, W., Samson, P., Curro, A., Nettle, R., Paschen, J.A., King, B. and Reichelt, N., 2019. Supporting and practising digital innovation with advisers in smart farming. NJAS-Wageningen Journal of Life Sciences. https://doi.org/10.1016/j.njas.2019.05.001

Council of Rural RDCs, *Vision 2050 - New thinking about rural innovation in Australia*, available from: http://www.ruralrdc.com.au/wp-content/uploads/2018/12/Vision-2050-Paper-December-2018.pdf

Nettle R., Ayre M., King B., La N., Paschen J-A., Reichelt N., Smith E., The advisory and extension system in Australia: Opportunities for strength in pluralism. 13th European International Farming Systems Association Symposium 2018, Mediterranean Agronomic Institute of Chania, Greece, 1-5 July

Nettle, R., La, N., Smith, E., 2018., Research Report A: Farmer demand for agricultural extension services. Prepared for: 'Stimulating private sector extension in Australian agriculture to increase returns from R&D'. (May, 2018). A project of the Department of Agriculture and Water Resources (DAWR) Rural R&D for profit program, University of Melbourne, Melbourne, Australia

Nettle, R., La, N., Smith, E., 2018., Research Report B: Supply of farm advisory and extension services. Prepared for: Stimulating private sector extension in Australian agriculture to increase returns from R&D. (May, 2018). A project of the Department of Agriculture and Water Resources (DAWR) Rural R&D for profit program, University of Melbourne, Melbourne, Australia

Nettle, R., La, N., Smith, E., 2018., Research Report C: the advisory and extension system. Prepared for: 'Stimulating private sector extension in Australian agriculture to increase returns from R&D'. (June, 2018). A project of the Department of Agriculture and Water Resources (DAWR) Rural R&D for profit program, University of Melbourne, Melbourne, Australia

Paschen, J-A, Reichelt, N, King, B, Ayre, M & Nettle, R (2017), 'Enrolling Advisors in Governing Privatised Agricultural Extension in Australia: Challenges and Opportunities for the Research, Development and Extension System', *Journal of Agricultural Education and Extension*23(3):265-82