Stimulating private sector extension in Australian agriculture to increase returns from R&D








PROJECT KEY FINDINGS

JUNE 2018

The University of Melbourne Faculty of Veterinary & Agricultural Sciences
mla Meat & Livestock Australia
Dairy Australia Your Levy at Work
Australian Government Cotton Research and Development Corporation
Australian Pork
sra Sugar Research Australia
Hort Innovation
NSW Government Department of Industry
Victoria State Government Economic Development, Jobs, Transport and Resources

WHAT THE PROJECT INVOLVED

The project 'Stimulating private sector extension in Australian agriculture to increase returns from R&D' set out to identify practical proposals to stimulate private sector extension services, and to fill current gaps.
The project consisted of cross-sectoral R&D in four areas, involving quantitative, qualitative and participatory social research methods in data collection and analysis:

1. QUANTIFYING FARM DEMAND FOR SERVICES AND THE VALUE PLACED ON ADVICE BY FARMER

Regional and national forums to gain the perspective of farmers, private sector farm advisers, stakeholders and investors (500+ participants).
National farmer and adviser surveys (1,658 responses) examined:

- Farmer demand and the use of the private sector and value placed on advice in farm management.
- The systemic constraints to private sector engagement in RD&E;
- These activities identified key issues in agricultural extension, and how to address them.

2. TRIAL INTERVENTIONS TO STIMULATE THE PRIVATE SECTOR AND APPLY LEARNINGS ACROSS AGRICULTURAL SECTORS

Advisers and their organisations were involved with RDCs, industry and government in addressing 'hot topics' in agricultural extension:
1) The role of processors (the value chain) in extension roles;
2) Development of private sector advisory businesses in precision/ digital agriculture;
3) New entrant pathways into extension careers in the private sector;
4) Knowledge co-development processes with the private sector using contested knowledge areas.
Cost benefits of trials calculated.

3. EXPERT PANEL TO DIAGNOSE, RECOMMEND AND MENTOR NEW IDEAS AND APPROACHES TO RD&E INCLUDING:

- How to address systemic constraints in the Australian extension context
- Providing examples of models to build private sector engagement and capacity
- Undertaking a comparison with European farm advisory system developments

4. EXAMINE CURRENT PRIVATE-SECTOR CAPABILITY GAPS IN EXTENSION AND PILOT ON-LINE LEARNING MODULES IN AGRICULTURAL EXTENSION INCLUDING:

1. Social media in agricultural innovation;
2. Targeting farmers? Segmentation and adjusting advisory approaches;
3. Facilitating farm practice change (1) why do people change?
4. Working your network: brokering adviser networks in agricultural innovation;
5. Facilitating farm practice change (2) –delivery approaches to enhance adoption and change;
6. Making better use of knowledge assets;
7. Evaluating impact in agricultural innovation and adoption;
8. Analyzing the whole farm system;
9. Managing conflict

WHO IS THE 'PRIVATE SECTOR' IN AGRICULTURAL EXTENSION?

Agricultural extension is commonly associated with government/public sector services. In this project, a broader definition of agricultural extension was applied to include all providers of information, advice and support to farm management, consistent with an innovation systems perspective in the functioning of agricultural RD&E. The project developed a typology of different advisory organisations based on their predominant income source and categorized these as public, private (or private-commercial), industry or non-government/community
(Table 1). In Australia, the farm advisory and extension sector is diverse. The project engaged a range of advisers within these categories, and the national farm survey indicated all these sources were used by farmers.

Table 1. Typology of advisory and extension service organisations in Australia

Type of organisation	Example organisations	Definition
Government	Commonwealth (national), State agriculture and environment departments; Local government and 'catchment' (regional) organisations	Public
Research and Development Corporations (RDCs)	Sugar Research Australia, Dairy Australia, Meat and Livestock Australia, Horticulture Innovation, Australian Pork Limited, Grains Research and Development Corporation, Cotton Research and Development Corporation.	Industry (public-private co-investment)
Product re-sellers/farm input suppliers	Fertiliser, seed, feed merchants;	Private-commercial
Independent (fee-for-service) advisers	Farm management consultants, agronomists, specialist advisers (e.g. veterinary surgeons, crop specialists, breeding, etc.)	Private-commercial
Farmer-owned information, advice and support organisations	Local productivity services, farming systems groups, farmer business groups, Landcare groups	Private
Processing companies	Processing companies' farmers supply associated with dairy, meat, cotton, grains industries (co-operatives/commercial)	Private-commercial
Other	Community organisations/ philanthropic organisations	Third-sector, NGO (community)

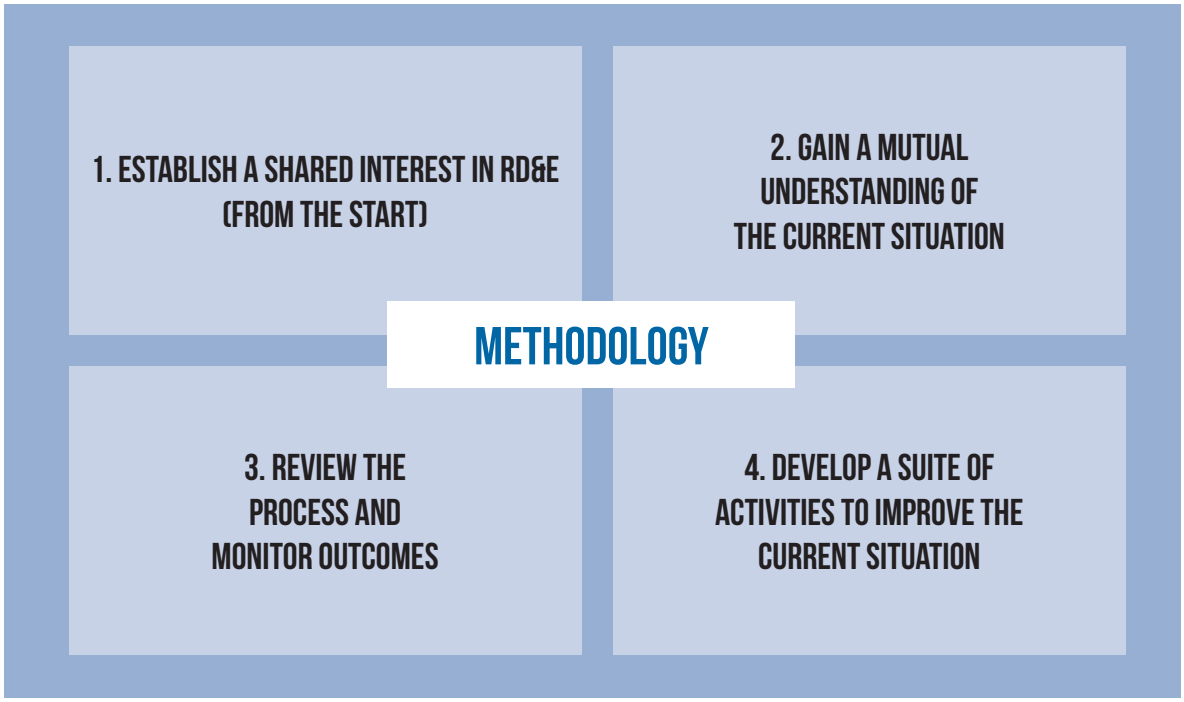
WHAT THE PROJECT FOUND:

1. Farmers rely on private sector advisers in their farm management: However, 70% of farmers don't always know where to source the information, advice and support they need. This is a result of the diversity of advisory services, fragmentation of services (i.e. some farmers rely on services that are currently not well connected to Australian R&D; some organisations target groups of farmers and not others; and, farmers find it difficult to judge the appropriateness and value of advisers and services). Further, 70% of the advisory and extension service providers are not sufficiently connected or involved in important areas of RD&E and seek more involvement (i.e. in priority setting; in the start of projects; in development; in research translation and delivery).

2. Private sector advisers feel their current engagement is ad hoc and would like more opportunity to be involved in RD&E: However, opportunities for better connecting advisers into the RD&E system depend on advisers' capacity to see competitive advantage. Their engagement is therefore contingent on the RD&E challenge to be addressed and their capacity and interest (i.e. advisers engage for the right thing at the right time for them). Advisers have diverse needs, expectations and business models so their willingness to be involved also depends on the level of sophistication of any engagement strategies taken by industry, government or others.

Through the action research trials, a co-innovation approach to engagement of the private sector was applied, and used the following process of engagement (Figure 1).

Figure 1: the process of engagement of the private sector in action research trials:



The project found it was possible to adapt and apply this approach to engage an appropriate diversity of providers in RD&E and maintain this engagement throughout.

FOUR TRIALS ADDRESSED DIFFERENT HIGH-PRIORITY INNOVATION CONTEXTS. EACH TRIAL EXPLORED A MODEL OF CROSS-SECTORAL CO-INNOVATION TO ADDRESS AGRICULTURAL INNOVATION CHALLENGES.

TRIAL ONE

The Processor Trial: Extending R&D with meat and dairy processors to improve supply chain performance

Outcomes:

- Targeted delivery of professional development activities to processor front-line staff to support their extension practice.
- Increased industry understanding of the role dairy and meat processors can have in the delivery of extension services and their capacity to be involved in Australia's RD&E system. Strengthened processor-RDC connections and built social capital to facilitate ongoing engagement in a supply chain setting.

Tentative Provisional Present Values of Benefits over 30 years: $5.52 million

TRIAL TWO

The Precision Ag Trial: Increasing the capacity of farm advisers to engage with digital technologies to benefit producers

Outcomes:

- Facilitated a 'space' for interaction and networking with private advisory businesses with interests in digital agriculture.
- Developed a decision support tool for private advisers to assess the value proposition of a new digital technology for advisory businesses and supporting productivity increases on-farm.

Tentative Provisional Present Values of Benefits over 30 years: $4.89 million

TRIAL THREE

The Advisory Pathways Trial: Creating career development pathways for new entrants and professionals in the agricultural advisory and extension sector.

Outcomes:

- Established mentor-mentee partnerships with future benefit to both. Explored peer mentoring and mentoring within professional groups as additional mentoring model.
- Explored usefulness of model with state government agriculture agencies and large and small/medium enterprises.
- Identified structural and financial implications of professional development pathways for early career advisers working in private sector extension.

Tentative Provisional Present Values of Benefits over 30 years: $0.61 million

TRIAL FOUR

The Knowledge Trial: Developing collaborative processes for improving knowledge flows between researchers, advisers and producers to ensure relevance of R&D to end-user needs

Outcomes:

- Generated shared understanding of gaps and issues in the agricultural knowledge system (RDCs and advisers).
- Established the need for an intermediary role to support of communication, networks and collaborations
- Developed an interactive process for improved, two-directional knowledge flow (research ↔ practice) and collaboration as basis for recommendation for future actions.
- Improved engagement between RD&E stakeholders (researchers, industry, advisers, producers).

Tentative Provisional Present Values of Benefits over 30 years: $3.46 million

TRIAL IMPACT AND VALUE

- Increased connections between RD&E stakeholders (government, industry, private advisers)
- Increased understanding of complexity via multi-stakeholder perspectives
- A better understanding of the demands and constraints faced by stakeholders
- A better understanding of the requirements, challenges and opportunities of collaborations
- Increased opportunity to co-design responses to issues and shared interests with private advisory sector
- The development of shared strategies to ensure a legacy of the collaboration beyond the project

Tentative Provisional Present value of Trial Impacts Valued to Total Benefits $14.48 million

3. Private sector advisers see value in cross-industry (sector) engagement: This value included the exchange of ideas and experiences in a less competitive environment; collaboration to deal with complex mixed farming systems; and professional development and mentoring, for helping new entrants 'find their feet'. However, this will require continued cross-industry support, including at the regional level. For agricultural industries, the benefits are reduced transaction costs from a consistent engagement approach given many advisers work with two or more industries; wider input to new and/or common research areas; and, identification of new business opportunities that would not have occurred through the current organisational routines.

CONCLUSION: STIMULATING FACTORS FOR CROSS-INDUSTRY, PRIVATE SECTOR ENGAGEMENT

What needs to be considered in co-innovation practice	Explanation
Co-innovation needs to be made 'fit for business'	Co-innovation requires grounded understanding of the collaborators' commercial context and may require a change to 'business as usual' approaches by reconfiguring institutional relationships and arrangements. RDCs and governments have a potentially pivotal role in supporting co-innovation with private extension providers and supply-chain companies.
Transactional relationships are part of collaboration	There is a need to acknowledge the commercial context collaborators operate in. Collaborators need to be enabled/ supported through adequate resourcing of roles and relationships, i.e. by combining both contractual (transactional) and co-innovation elements.
Accept that competition is part of the commercial environment of working with the private sector	Competition may, but does not need to, conflict with collaboration. However, explicit recognition of the competitive private sector environment is required. Finding a common value proposition and building ownership of this value proposition and a shared process.
Consider timeframe for the collaboration	Finding shared interests and trust building are time-intensive. Uptake of 'new ways of doing things' into everyday business takes time.
Acknowledge importance of and invest in innovation broker roles	Contracting innovation brokers to facilitate the engagement process capitalises on existing social and professional networks. Brokers are pivotal to connecting, networking across agricultural sectors to foster common interests and industry good.
Acknowledge that building social capital is part of the value proposition	Strengthening and making connections is part of building social capital, which enables the sharing of resources (i.e. time and knowledge) and the building of a common understanding of the aims and purposes of the collaboration. Invest in building social capital.
Engender shared commitment to change	Change requires all the collaborators' willingness to accommodate the risk of conflicting perspectives emerging. Collaborators need to be willing to accommodate potential loss of competitive advantage through sharing knowledge and resources. Protecting organisational interests can constrain collaboration efforts.
Consider market signals for co-innovation	Establish incentives for collaboration by responding to end-user needs, business goals and strategies. Weigh up short term risks with long-term gains.
Acknowledge and be transparent about power imbalances	Collaboration/ shared ownership can be empowering and contribute to redressing issues of power, however, transparency about and acknowledgement of existing power relationships – for example, who provides the resources, what level of governance are people operating at? – are required.
Legacy and leadership	Acknowledge the legacy and establish leadership/ responsibility to coordinate and embed co-innovation practices in everyday routine.

THE BENEFITS FROM STIMULATING PRIVATE SECTOR EXTENSION IN RD&E

- ✓ Improved engagement and collaboration between different actors in the agricultural RD&E system assists in managing the diversity, complexity and uncertainty of innovation challenges faced by the private advisory sector and impacting on-farm.
- ✓ Fine-tuning of R&D agenda and knowledge of the conditions supporting adoption
- ✓ Enhanced opportunities for local adaptation of R&D outcomes
- ✓ Adviser capacity building and service innovation

OPTIONS FOR PHASE TWO

To address the project findings and establish even greater private sector engagement, it will be necessary to develop incentive and funding arrangements to support coordination amongst advisory networks, public-private collaboration and diversity of delivery. This can be progressed through support to new governance arrangements and a suite of projects that scale-up and support new routines in private sector engagement. Options include:

Focus area	Description
1. Establish a National Working Group on private sector extension and the RD&E system	A cross RDC/Government community of interest (could involve peak private sector organisations: product resellers; consulting firms; farming systems groups; processors, etc.). - Maintain international/expert panel/research function.
2. Develop and pilot more co-innovation models for engaging private sector in key extension functions (i.e. in technical contexts, public-private collaboration, advisory networks and diversity of delivery)	1. Great Barrier Reef Health, 2. Precision/Digital Ag , 3. Supply chain, processor roles 4. Professional development pathways (new entrants/experienced) *(Progress lessons and principles from Phase 1 trials to develop process; investigate cross-sector applications and how to scale up the models)*
3. Invest in broker roles to harness private sector capacity in the system	Innovation system roles (RDCs etc.) how can RDCs function optimally in extension?
4. Agribusiness/reseller supply chain sector focus	*Relates to 1.* Stronger engagement of specific private sector groups using a co-innovation approach. Drawing on processor and knowledge trial results
5. Scale up of precision agriculture trial activity and tool development	*Relates to 2.* Develop existing assessment model; cross-sector application; Establish typology of PA issues: technical – drones; data curation; software
6. Continued building of advisory skills and capacity in the innovation system, informed by global benchmarking. Coordinated approach to new entrant pathways and career development	*Relates to 2.* Follow on from pathways trial Graduate development Early career advisers
7. Business model for professional development training modules for agriculture industry use	Future of the training modules and their commercialisation potential.
8. Further investigate market failure and the impact this has had on innovation.	Economic and policy research and evidence based measurement. We need to know how players in our system, many of whom are currently invisible to key players in traditional systems of organisation, can be recognised, engaged, supported and become collaborative participators (public and private) in innovation

Stimulating private sector extension in Australian agriculture to increase returns from R&D: Project key findings, June 2018

Australian Government
Department of Agriculture and Water Resources

This project is supported by funding from the Australian Government Department of Agriculture and Water Resources as part of its Rural R&D for Profit program.