



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.*

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

Research Report I: The Advisory Pathways Trial (Trial three)

University of Melbourne
Barbara King, June 2018
Rural Innovation Research Group

Contents

About the project.....	3
Background: Australia’s evolving agricultural extension system	4
Executive summary	5
Opportunities and objectives	7
Research methods	7
Key results.....	17
Conclusions, lessons, outcomes and impacts	24
Project publications.....	26
References.....	26

To cite this report: King, B, 2018., Research Report I (Trial 3 – the Advisory Pathways trial), 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.

About the project

Stimulating private sector extension in Australian agriculture to increase returns from R&D is a three-year project to research, develop and test models to build the capacity of the commercial and private sector in delivering R&D extension services to Australian producers.

Led by Dairy Australia, the project is a collaboration involving nine partner organisations including six Research and Development Corporations (RDCs) – Dairy Australia, Meat & Livestock Australia, Cotton Research & Development Corporation, Sugar Research Australia, Australian Pork Limited, Horticulture Innovation Australia – as well as the Victorian and NSW governments, and the University of Melbourne.

The project is funded by the partners and the Australian Government's Department of Agriculture and Water Resources as part of the Australian Government's Rural Research and Development for Profit program.

The project is in response to the trend towards increasing roles for industry and private services in delivering agricultural extension. This represents a shift away from traditional, government-funded extension services over the past 20 years. Currently the extent of private sector involvement in extension varies across industries, depending on product markets, policy settings, regional issues and industry demographics.

The private sector is now a well-used information source for producers, however there is scope to enhance the capability of the private sector in delivering extension. Improving the capacity of private extension service providers will contribute to on-farm productivity gains and profitability.

Companion reports

This report describes the actions and outcomes from Trial 3, The Adviser Pathways Trial. It is one in a series of research reports prepared for the project *Stimulating private sector extension in Australian agriculture to increase returns from R&D*.

- Report A: Farmer demand
- Report B: Advisory services
- Report C: The advisory and extension system
- Report D: Farmer and adviser networks.
- Report E: Research results: Focus groups and surveys of farmers and advisers.
- Report G: Trial 1: The Processor Trial
- Report H: Trial 2: The Precision Agriculture Trial
- Report I: Trial 3: The Advisory Pathways Trial (this report)
- Report J: Trial 4: The Knowledge system Trial
- Report K: The four private advisory sector engagement trials: the co-innovation framework and cross-trial results

Background: Australia's evolving agricultural extension system

Over time, the means and mechanisms by which Australian farmers access and receive their information, advice and support has changed markedly. This is largely because there has been:

- Changes to the role of government and their investment in and coordination of agricultural extension services in each state of Australia.
- Variation in the way Australia's rural Research and Development Corporations have invested in and positioned extension functions.
- Variation in the extent to which a range of private providers have engaged in extension functions and the business models of agricultural service firms.
- Technological change in society, particularly, information and communication technologies.

Collaborative approaches offer the promise of more effective RD&E when applied to such complexity. The increased focus on collaboration in agricultural innovation systems is also due to a greater understanding of the failure of technology transfer models (Ayre and Nettle 2015, Hermans et al. 2015) and has been driven by policy and RD&E funding directives and the increased role of private research and extension actors.

One collaborative approach is co-innovation: Co-innovation is an engagement model that involves all stakeholders, especially end users, early on in the innovation process (Botha et al. 2017, Coutts et al. 2017, Turner et al. 2016). It implies that all stakeholders acknowledge that they are unable to achieve certain objectives on their own and need to come together with other actors who offer complementary capabilities and resources required to fully develop and implement the new idea or technology.

The private sector engagement trials were action research interventions that each explored a model of co-innovation to address one agricultural innovation challenge (see companion reports G, H, J and K). The trials were one of five components of *Stimulating private sector extension in Australian agriculture* and were designed to:

- identify practical proposals to strengthen private advisory sector roles in driving innovation
- improve profit on farm by filling current service gaps
- generate learning about what drives and hinders co-innovation.

The synthesis of findings and implications from across the trials contributes recommendations for nuanced engagement with the private advisory sector, and guidance for practising co-innovation in the agricultural research, development and extension (RD&E) system (Report K). This report describes the actions and outcomes from Trial 3: The Advisory Pathways Agriculture Trial.

Executive summary

Due to the public sector relinquishing its provision of agriculture extension the private sector is taking increasing responsibility for agriculture extension in Australia (Nettle et al., 2018). This has created many different impacts on advisers and farmers including providing training of early career advisers. New advisers are now immediately embedded in commercial businesses incentivised by profit. For businesses taking on new advisers requires factoring in the resources for training and time required to get to know and become established in a relevant networks. However training is expensive and time consuming and most businesses need to weigh up the cost and benefit against their need for 'billable hours'. There are many ways that training can be provided for new advisers including formal training, although most new advisers are graduates with at least a three year university degree and are ready for on-job training. Mentoring is an opportunity to introduce early career advisers into their working environment and professional networks. This strategy was a fundamental tool used by the public sector when it was responsible for agriculture extension. It provided new advisers with direct support from senior advisers who could share technical knowledge and skills as well as more tacit knowledge about how to be an effective adviser. This was also opportunity to learn professional skills such as understanding a given network, developing relationships with farmers and other industry stakeholders, and facilitating knowledge sharing. Essentially mentors helped with the process of socialising new advisers to work effectively in agriculture value chains. With the privatisation of extension and the transformation of knowledge from the public to the private domain where is a tradable commodity to be protected, the need for effective mentoring in the agriculture has never been greater.

Trial 3 focused on understanding

- i. The strategies and pathways required to enable early career advisers and professionals to develop sustainable careers in the agricultural sector, and fostering agriculture leaders of the future by providing training and mentoring that encourages and enables leadership
- ii. Common and unique issues experienced within and between the private sector with respect to training, development and network building of early career advisers (considering effects of different structures within private extension entities);
- iii. How Rural R&D Corporations, farm consultancy businesses, universities and state governments can effectively support capacity building and career development of extension professionals in the private sector.

To address these objectives, an action research intervention was co-developed involving the Advisory Pathways Trial team. This was a collaboration between Meat and Livestock Australia, early career and senior advisers from advisory businesses and organisations across the meat and livestock, dairy and horticulture sectors, the Trial Project Officer (from Sally Martin Consulting) and the University of Melbourne researcher.

Three workshops were held as part of the Advisory Pathways Trial intervention along with numerous other facilitated interactions amongst trial participants including teleconferences, face-to-face meetings and one-one telephone interviews. A summary of activities undertaken in the trial is provided in Table 1 below:

Table 1: Advisory Pathways activities.

Trial 3 Activities	Date and location	Who Attended	Purpose
Workshop 1	16 March 2017, Sydney	Trial 3 Project Officer, Trial 3 RDC Lead (MLA). R&D for Profit Lead Researcher (UoM). Trial 3 Research Lead. 12 advisory sector trial participants (6 mentors, 6 mentees).	Introductions. Needs analysis. One-to-one mentor and mentee meetings. Professional development plans.
Workshop 2	8 June 2017, Melbourne	Trial 3 Project Officer. Trial 3 Research Lead. Guest presenter. 6 trial participants (mentees only). Guest PhD student.	Leadership development. Peer sharing and review of trial experiences.
Workshop 3	16 November, 2017 Melbourne	Trial 3 Project Officer, Trial 3 RDC Lead (MLA). Steering committee member (DPI). Trial 3 Research Lead. Guest presenter. 9 advisory sector trial participants (4 mentors, 5 mentees).	Review and feedback by each participant; review of interview findings. Guest speaker: 'Working on the (advisory) business'. Recommendations for next steps.
One-to-one semi-structured interview	July – October 2017	Phone interviews with 7 trial participant mentees. 5 trial participant mentors.	Individual participants experience, learnings and suggestions for the future of advisory training pathways

Recommendations from the Advisory Pathways Trial are:

- Industry organisations (RDCs) responsible for funding agriculture research and development need to recognise the value of mentoring for enabling skill development and confidence building of early career advisers working in privatised agriculture extension. This could include support for graduate/intern programs, providing networking opportunities with future or potential employers post intern/graduate program, support the capacity to start up and run their own business, provide leadership training to serve future needs across the agriculture sector.

- Universities need to take greater responsibility for preparing agriculture graduates with respect to capturing the potential of mentoring opportunities, identifying their on-going professional development needs post-university and conducting farm based research.
- Small private advisory consultancies will continue to find on-job training of early career advisers financially challenging particularly in those sectors where farmers are still hesitant to pay for advice.
- There is a future role for both industry and government to enable mentoring for early career advisers and this will require resources and supportive institutional arrangements.

It will be critical to work with a number of service providers in the industry to determine the key skill set required of the interns – this also needs to feed back into universities to help balance the course material being delivered.

Opportunities and objectives

Based on the responses received from the regional forums and the subsequent workshop discussions with the Adviser Pathways Trial partners and private sector participants, the objectives of the Adviser Pathways were:

- To explore ways for Rural R&D Corporations, universities, and small and medium enterprise (SME) farm consultancy businesses to jointly develop new strategies to develop the capability and career opportunities of extension professionals.
- To focus on training, network development and mentoring for new entrants into the advisory sector as well as experienced advisers.
- To identify opportunities for generic and targeted advisory skill development, tailored to industry context and needs.

Attraction and retention of early career advisers in the private sector is a major issue recognised across all Australian primary industry sectors. The importance of addressing this issue was raised by stakeholders including farmers, advisers and agribusiness during forums in Victoria, New South Wales and Queensland during the scoping phase of the Rural R&D for Profit project 'Stimulating private sector extension in Australian agriculture to increase returns from R&D'. Demand for early career advisers differs between sectors however, for example there is a high demand for advisers in the agronomy sector but very limited roles available in livestock consultancy. There are a limited number of adviser vacancies and early career advisers are competing with experienced advisers for these positions. Early career advisers need opportunities to acquire skills and experience to ensure that the agriculture sector will have the advisory resources available when the current older generation of advisers retires. If not, a serious skills gap could develop.

Research methods

The trials in the *Stimulating private sector extension in Australian agriculture to increase returns from R&D* research project were action research interventions designed to co-develop responses to agricultural innovation challenges and a 'route to change' as part of the collaborative interactions. Following key principles of co-innovation, each of the four

trials was a partnership between a R&D corporation or state government, a private advisory organisation, a social researcher from the University of Melbourne, and participants representing the diversity of adviser typologies in Australia, including: small to medium businesses/ sole traders, retailers/input suppliers, larger consulting firms and agribusiness firms, and producers. The engagement of the private advisory sector as key contributors to the trials was a central design element to ensure a good fit with the diversity of needs and aspirations in this sector.

Taking a co-innovation design approach

The four private sector engagement trials contributed to the overall *Stimulating private sector extension in Australian agriculture to increase returns from R&D* project aims of: increasing private sector engagement in driving innovation; making research more accessible to farmers through a more integrated and co-operative extension system; identifying barriers to private sector involvement in delivering R&D; stimulating further growth of a capable private sector through training and retention of professionals; and building a stronger connection between end-users and researchers by trialling different approaches to increase engagement.

The four trials took a co-innovation design approach, involving diverse groups of actors from agricultural industry bodies, public and private advisory sectors, and primary producers (Botha et al. 2017, Turner et al. 2016, Vereijssen et al. 2017) in all stages of developing the intervention to:

- facilitate collaborative identification of shared interests and desired change
- identify opportunities for the advisory service sector to expand its role in the system by:
- identifying the need for and developing new capacities at different levels of the system
- creating networks and initiate partnering with other orgs/ levels and sectors
- developing roles/ functions capable of addressing specific technical issues
- sharing information and learning, in order to enable ongoing adaptation, and hence
- building capacity to collaborate.

Coutts et al. (2017) identified that academics are yet to agree on specific characteristics of co-innovation (as a form of collaboration) and use of innovation platforms. The design of the action research engagement trials in this project was informed by a set of core collaborative principles, adapted from the literature on co-innovation (Botha et al. 2014, Coutts et al. 2017, Nederlof et al. 2011), cooperative inquiry (Blackmore 2010, De Jaegher et al. 2016, Heron and Reason 2001, Ison 2008, Kemmis et al. 2013), and the research team's prior experience with designing co-productive research for policy and the agricultural RD&E system (Ayre et al. 2018, Klerkx and Nettle 2013, Nettle et al. 2013, Paine and Nettle 2008, Paschen and Ison 2014). These principles (Text Box) shaped the design each of the trials' action components, from the initial conception of the trial contexts through to the various phases of their operationalisation.

Text Box 1 - Core principles of the collaborative action research trial intervention

1. **Inclusivity** – emphasises experiential learning from social interaction and supports multiple sources and ‘forms’ of knowledge.
2. **Diversity** – diversity and inclusion are important values in co-production.
all stakeholders are involved in and able to contribute to the definition of the problem
differences between stakeholders are accepted
all are involved in joint processes of defining the problem and a solution.
3. **Equality** – co-production starts from a partnership approach in which everyone is equal and everyone has assets to bring to the process
recognition of skills complementarity
mutual decision making
all participants are fully involved in research decisions as co-researchers.
4. **Accessibility** – access is a fundamental principle of co-production if everyone is going to take part on an equal basis.
5. **Reciprocity** – ‘reciprocity’ is a key concept in co-production. It ensures that people receive something back for putting something in; it builds on people’s desire to feel needed and valued; and it means sharing responsibility for shared outcomes.

Additionally, the collaborative action pursued by this project drew on the complementary principles of co-innovation as described by Coutts et al. (2017) (Text Box 2).

Text Box 2 - Nine principles of co-innovation (Coutts et al. 2017)

1. **Take time to understand the problem from many different views:** By taking the time to understand the complex nature of a problem, and building a shared vision (or ambition for change), solutions will be more likely to succeed. Be prepared to consider a variety of solutions.
2. **Be inclusive** – ensure everybody is present who needs to be there in order to understand the problem, its causes and to develop workable solutions.
3. **Engage with and value all sources of knowledge** – seek new insights and take the time to listen to all the different perspectives – everyone brings something to the table.
4. **Strive to learn from each other by actively listening and understanding** – be open to new ideas by being willing to let your own understanding and perspectives evolve.
5. **Keep sight of the shared vision** or ‘ambition for change’: Agree on the nature of the problem, its causes and the desired outcome of the project.
6. **Be honest, open and constructive** in your interactions with other participants.
7. **Be aware of the wider context** of the problem and any changes that may occur.
8. **Be flexible and adaptable:** How we work together and the roles we have may change over time.
9. **Stick with the co-innovation process** despite its frustrations: Setbacks occur; working through historical or current tensions, and negotiating shared and workable solutions, are part of the process and will pay off.

It was critical to the development of the collaborative trial partnerships that partners and participants were involved early on in the process of developing the trials, from the trial concepts to the design of specific actions, analysis of findings and the presentation of recommendations for future actions at a final symposium. The trial governance structure and regular meetings, with updates and feedback, ensured all partners had access to ideas and material produced as part of the trial interactions (see the process of engagement of the private sector in action research trials Figure 3).

Collecting data from the trials

Trial data were collected using a mixed methods approach. Before the trials were established, the project team reviewed the international literature (and current engagement dynamics in the Australian RD&E system (Milestone 1, Reichelt et al. 2015), and ran four regional forums with advisers and farmers in South Australia, Victoria, Queensland and New South Wales (2016). Two national surveys of advisers and farmers were also conducted in 2016/ 2017 and informed aspects of the trials (Nettle et al 2017). The data collection from the operationalisation of the trials consisted of interviews, survey questionnaires and the researchers' participant observations.

Interviews: A first round of interviews with project partners from participating RDCs and state governments (n=12) was conducted by the research team in December 2016 to produce a snapshot of the partners' experiences and expectations of the trial process to date. This was followed up by a second round of interviews at different times of the individual trial processes as well as towards their completion.

Survey questionnaires: Over the course of two years, each trial conducted a number of workshops (4-8 per trial) to work through the stages of the trial process. The research team evaluated these workshops using a short questionnaire at the end of each session, asking participants about the perceived value of the particular workshop session and the collaborative approach more generally.

Participant observation: The researchers' participant observations of meetings and other trial-related interactions, in conjunction with the team's collective reflection on these observations and emerging insights and notes of these conversations, presented a third data source.

Research phases: Developing the four trial contexts

The four trial intervention contexts were developed according to a set of criteria that ensured that all:

- had cross-sectoral significance (i.e. make progress on areas that one industry could achieve or address on its own)
- sought to be of public, industry and private interest/good
- included a professional development/training component not used/available currently
- were able to demonstrate a link between RD&E investments reaching more farms/improving on-farm productivity.

The interventions shared a common structure for their establishment, implementation and analysis phases that ensured that all teams adhered to the core principles of collaborative

inquiry and action research. Each trial team adapted the methodological framework to its individual trial contexts and timelines as they emerged from each of the trials' actions (see individual trial reports G, H, I, J and K).

Phase A – Establishment – Co-defining the opportunity

- Identifying and refining the trial concept
- RDC leads, participating RDCs and RIRG researchers – nominate project officer
- Identifying and engaging with trial partners
- Defining the opportunities for collaboration through the trial
- Identify shared interests, problems and core participants.

Phase B – Intervention Action – co-innovation/ co-designing action

- Developing a co-design process for intervention in the identified area
- Identifying and implementing engagement, development and learning activities
- This is an action-oriented approach that follows a 'plan, do, review' cycle.

Phase C – Analysis

- Analyse the activities with regards to how they have addressed the gap/opportunity identified and what they contribute to answering the overall research questions.

Establishment – Co-defining the opportunity – step 1

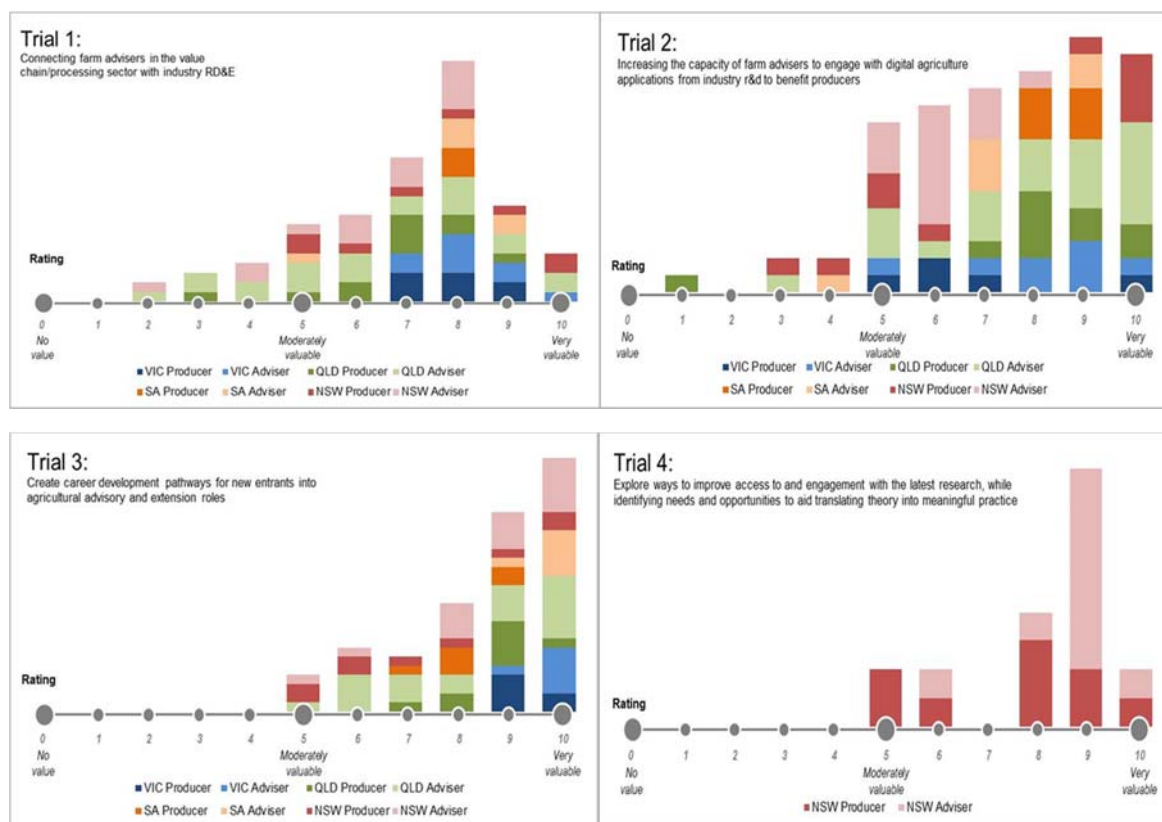
Identifying and refining the trial concept

Three draft trial concepts were developed based on project assumptions around gaps, needs, and opportunities for advisers derived from the international literature and in consultation with participating RDCs and representatives of the Victorian and New South Wales departments of primary industries. These concepts were based on broadly recognised gaps or opportunities within the current Australian RD&E system and a set of selection criteria designed to ascertain that the trials addressed:

- opportunities around engaging with the processing sector/ the supply chain
- gaps and opportunities in precision/ precision agriculture
- gaps in professional development and career pathways for new entrants into the advisory sector.

These three draft concepts were tested at four regional forums the project team conducted with advisers and producers in South Australia, Victoria, Queensland and New South Wales in early to mid-2016. The forum participants were invited to rank the suggested concepts by order of their perceived importance to the private sector and to provide detailed feedback on the drafts. A fourth trial concept, addressing the gaps in the agricultural knowledge system, was developed from additional forum responses and was test-run with participants at the last forum in New South Wales (Figure 2).

Figure 2: Regional practitioner ranking of three suggested trial concepts. A fourth was developed on the basis of additional feedback received and was ranked at a forum in NSW



Establishing the trial teams

The trials were purposefully designed according to the key principles of co-innovation (text box 1). To ensure that the values of diversity, inclusion and equality were met, each core team consisted of an RDC or government lead, participating RDC representatives, a researcher from the University of Melbourne, and a Project Officer from the private advisory sector. The selection of trial participants further aimed to ensure representation of the diversity of adviser typologies in Australia by including small to medium businesses/sole traders, retailers/input suppliers, larger consulting firms and agribusiness firms as well as, wherever possible, other types of advisers not captured by this typology.

Engaging the private advisory sector as key contributors to the trial development was a central purposeful design element as they were the project’s link to wider advisory networks and ensured that the trials were engaging an adequate range of individuals and types of advisers. The Project Officers were invited into a broker role that drew on their professional networks as well as their understanding and perspective of the problem the trial was addressing. They held a key role in ensuring that the private sector perspective guided the further definition of the trial concepts and trial actions.

Trial roles

Each core trial team consisted of one Industry Lead (RDC lead), one Project Officer (PO) and one Research lead from the UoM research team (RIRG lead).

The RDCs/ state governments:

Following the establishment of the trial concepts, the RDCs nominated the concepts of interest to them. A trial Industry Lead and participating roles were decided. Their role included:

- leading the establishment and progress of the trials
- identifying partners and actively support engagement
- engaging in the co-design process
- supporting responses to needs identified through the process.

The Project Officers:

Following an expression of interest process, four Project Officers and one trial consultant were appointed through a contractual agreement with the University of Melbourne. The Project Officers were professionals from the private advisory sector, with industry specific networks and experience in project design/development and workshop facilitation. Their role included:

- contributing a private advisory sector perspective to the definition of the trial opportunity
- identifying suitable trial partners and networks private advisory sector
- working with RDCs, trial partners and project researchers to enact the trial methodology
- facilitating all interactions between trial partners (broker role).

The project team researchers:

The role of the Research Lead included:

- development of the action research plan, structuring the trial communication documents, and overseeing the trial methodology
- working with the Project Officers to design facilitate trial engagement workshops
- gathering research data and providing feedback on insights gained to inform the co-design process.

Trial participants/partners:

Trial partners and participants were identified from the private advisory sector utilising both the RDCs' and Project Officers' networks. The RDC Leads, POs and Research Leads started engaging with prospective trial partners using a refined trial concept-briefing document.

Figure 1: Trial set up: participants and roles



Co-defining the trial opportunity – step 2

Following the initial engagement, the private sector trial partners were invited co-define the opportunities for collaboration through the trial and identify the shared interests or shared problems the trial was going to address, as well as who might be additional core participants that needed to be engaged. Inviting further diversity into the refined definition of the problem and opportunities was central to the collaborative process for a number of reasons:

1. It ensured inclusivity and diversity of adviser perspectives and resulted in a richer, more complex understanding of the problem/opportunity at hand.
2. The approach produced a break in habitual, linear approaches by recognising the diversity and complementarity of professional skills as a clear asset to the process.
3. The recognition of all trial participants as equal in the process contributed to improved mutual understanding of people's different professional contexts and needs.
4. Empowering participants as co-innovators and co-designers encouraged them to take ownership of the process and collective decision-making.
5. Mutual decision-making and commitment to collective action was intended to help create trust between different stakeholders.

Intervention Action – co-designing action

While each of the four trials operated at its own pace and according to the specific trial's contextual design, their implementation phase generally focused on developing a co-design process for the intervention action in the identified area. Once all participants had arrived at a shared understanding of the problem and the opportunity they were going to address,

several rounds of workshops and meetings identified and designed engagement, development and learning activities to be implemented as part of the trial and beyond the project's duration. This action-oriented approach in the implementation phases followed a classic action research cycle of 'plan, do, observe, review'.

Figure 3: the process of engagement of the private sector in action research trials:



Participants in the Advisory Pathways Trial

Participants in the Advisor Pathways Trial included a Trial Team which was made up of an industry representative from Meat and Livestock Australia (MLA), a researcher (University of Melbourne) and a Project Officer who was engaged to facilitate activity in the trial and work with the Trial Team to engage with trial participants.

Trial 3 participants and their advisory employment status is summarised in Table 6. The mentees were employed within five different types of business structures including self-employed (2), single trader farm consultancy (1), large multi-member farm consultancy (1), not-for-profit agriculture industry organisations (2), and a small family-owned business (1). Three mentees were paired with mentors who were also their direct supervisors and four were paired with mentors who did not work in the same business. In one case, a mentoring relationship finished part way through the course of the trial because the mentor left to take up a position in another business.

Table 2: Participants in the Advisor Pathways Trial: Mentors and mentees and their employment status.

Mentee case ID	Mentee's employment status	Mentee's mentor	Mentors employment status
A	Self-employed consultant	Non-supervisory	Sole trader consultant
B	Self-employed consultant	Non-supervisory	No formal mentor – but informal mentors available through membership of professional organisation
C	Single trader farm consultancy	Supervisory	Sole trader consultant
D	Large multi member farm consultancy	Supervisory	Consultant in large consulting firm
E	Not-for-profit agriculture industry organisation	Non-supervisory	Sole trader consultant
F	Not-for-profit agriculture industry organisation	Supervisory	Senior industry adviser
G	Small family agribusiness	Non-supervisory	Academic/ lecturer

Travel costs to attend activities were covered by the project and participants were also offered a flat rate for attendance at meetings/workshops consistent with the Dairy Australia policy (as the Rural Development Corporation project lead). This was a nominal fee and does not necessarily align with the individual advisers' fee-for-service rates.

Key results

This section presents key results from the Advisory Pathways Trial that demonstrate how the process and outputs of the Trial enhanced the capacity of early career advisers to develop professional skills and confidence throughout their engagement with the Trial 3 process.

Experience of early career advisers

Drawing on data collected throughout all Trial 3 activities the following discussion and analysis provides insight into the experience of seven early career advisers. The discussion of key results focuses on what enables and constraints opportunities for early career advisers to develop sustainable careers in the private extension sector.

'Enabling' opportunities for early career advisers

A common enabler for mentees, as widely acknowledged in mentoring literature, was having a safe and effective working relationship with their mentor. This does not depend on whether the mentor is their supervisor or not. However, when a mentor is also a direct supervisor, the former relationship cannot be taken for granted and dedicated mentoring meetings need to be prioritised by both partners.

Mentees very much appreciated the technical, psychosocial support and socialisation opportunities available through their mentoring relationships. Some mentors enabled mentees to step out of 'maintenance mode, just working from project to project' and take a more strategic focus on their business and advisory practice:

I definitely feel very comfortable sharing everything with Mentor A...I think it's just made me step back from my day-to-day project work and think about the strategic direction of my business, my goal. Where I want to be in the future and stopping and directing what the challenges are at the moment, what the opportunities are and what strategies I can put in place now to address those.
(Mentee A)

Mentee F mentioned how his mentoring relationship with his supervisor has helped his professional development and this has been recognised in his latest performance review:

It's all about developing me...becoming a bit more of a professional in my role.
(Mentee F).

Each mentoring relationship works differently and for some mentees it was an informal process:

We have a really great relationship in the sense that I'm always free to ask her questions and I do go to her for a lot of advice fairly regularly... but we don't really have a formal meeting time. (Mentee C).

For some mentees, working with a mentor was a learning experience particularly those who took an unstructured approach and did not necessarily prepare or record interactions with their mentor. In hindsight, mentees recognised this step as important for maintaining focus and also recalling advice for later application. For other mentees, their mentor ensured that they scheduled time to connect:

Mentor A's always been the one (to say)...let's make a time in a month's time, set the time and the date and just dedicate a time. (Mentee A).

The success of a mentoring relationship can sometimes rely on geographic proximity that provides opportunities to meet face-to-face:

I think that's partly because Mentor E and I get along really well together and we also live in the same town, so I think it's been quite easy to catch up with him when I've needed to. (Mentee E).

A mentoring relationship also needs to work both ways:

Once it becomes recognised as a two-way relationship, it's a lot more beneficial for everyone. (Mentee D).

Mentors can be role models who provide support for early career advisers when they are working with farmers who are experiencing financial hardship and uncertainty about the future of their industries. This was the experience of Mentee E, who had only just been employed by an industry organisation when there was a severe drop in milk price which put dairy farmers under considerable stress. Mentor E was not her supervisor or colleague but someone she regarded as a 'neutral' person who was able to share previous experience of similar issues and potential coping strategies:

I think it's been really good to have someone there that's not actually in the company, but to be able to talk about situations and ask do you think that would have been right, or do you think I should have gone a different way about it?...discussing and working out if my approach is right, or getting a feedback on what other people do as well. (Mentee E).

An emergent opportunity from mentoring relationships that develop into trusting collegial relationships is the potential to work in partnership on projects. This has particular value for advisers operating solo consultancies who lack resources or specific skills for a given project and cannot afford to employ another adviser but can work with a temporary partner for specific projects.

Constraints experienced by early career advisers

Small consulting businesses are under considerable pressure to generate billable hours, which affects the time and resources available for professional development of mentees. Businesses that are strongly driven by profit goals are also less likely to provide training opportunities.

For somebody to work for Mentor C they need to generate their own income and for Mentor C to justify their wage she has to justify her own time in training that person and then they can do a job for her. It's a vicious little cycle and I don't know how you break it without some funding...there might be opportunities for collaboration between service providers. (Mentee C).

The requirement on early career advisers to achieve billable hours means they have limited opportunities to develop professional networks on which their future career will depend. Mentee C was prepared to invest her own personal time to develop professional relationships:

I am very conscious to make sure that my time is billable... I try and make sure at least 60-65% of my client contact is actually billable hours, rather than them seeing me for a chat and then wasting an hour and not having actually done anything productive. I think I put in about, on average 48-49 hour week. I go to a

lot of field days and present at a lot of field days and I use ... the lunch hour to try and make my time as productive as possible... a lot of that is not billable. (Mentee C).

With advisory knowledge and information becoming a 'private good' and source of competitive advantage an ongoing challenge for some mentees is to understand the balance between what information they share freely to build a relationship compared to information that is billable:

I still don't understand the balance between billable hours and relationship building. How much information is too much free information? You can't just bill everybody for every conversation that you have. (Mentee C).

To mature as professional advisers, mentees are highly conscious of their need to develop credibility, respect and trust with their clients and colleagues but realise this takes time:

Building your reputation I think is probably one of the biggest challenges that you can have as an extension adviser because ... you want to be respected and you want to be able to say all the right things. You don't want to say anything wrong because it can undo a lot of work in a short time period, and your reputation. (Mentee F).

Mentees need to realise that if they are not feeling enabled within a mentoring relationship they need to develop the confidence to challenge their mentor:

Something that I've learnt out of that previous mentoring relationship is that you actually need to feel confident enough to say, well no that's actually just wrong for me... and holding them accountable as well. It's not always a fluid relationship between the two parties...there's a risk that it becomes a dictatorship and that the mentor expects that the mentee will listen to everything that they say. (Mentee D).

Additional insights

Adaptability of early career advisers

Throughout the trial it was clear that the early career advisers were willing and able to adapt to create training opportunities. The original mentor of one mentee became unavailable early in the trial however she pursued alternative ways to access support. These included 'self' mentoring and becoming involved in a professional association where there were opportunities to meet more senior professional colleagues:

I kind of haven't really got a mentor but I also kind of have because I've been working with a professional livestock association. (Mentee B)

This mentee was actively taking up training opportunities that would improve their skill base, build their client networks and strengthen opportunities to attract project management opportunities.

Awareness of changing needs

Early career advisers were also sensitive to how their training needs changes as they gained more experience. An example is Mentee E's awareness of the need to widen her network

because she recognised her training needs were changing as she became more experienced in her advisory role:

Another thing that I've been doing is actually watching other people facilitating, and really taking note on the way they facilitate...because I find that I learn very well from following what others do and observing other people...just picking up little bits and pieces along the way from other people. (Mentee E)

Mentors enable change

Mentee G and Mentor G had a good mentoring relationship, however Mentee G became highly frustrated in her employment as an agronomist in a sales-focused privately owned agribusiness. Her employers turned down her requests for training and also discouraged her seeking technical advice from outside the business. She took leave to attend Trial 3 workshops and actively sought another job. Referring to herself and a colleague, Mentee G said:

We're very much on our own in terms of all the spray recommendations we make we've just learnt and researched ourselves, so we're not learning from anyone directly, either, it's all self-learning. (Mentee G)

Mentor G supported her throughout a difficult period of employment particularly with respect to helping with her career goals. Before Trial 3 ended Mentee G had found a new role, an in-house mentor and highly supportive employers who were committed to her training and professional development. Mentee G's confidence improved significantly and she looked forward to her future professional opportunities.

Shared experiences of early career advisers: need to be responsible for their own learning

Early career advisers shared a range of enabling and constraining issues in relation to their mentoring experience of which the majority were positive. Each mentee had a unique mentoring experience, however, common themes emerged including agreement of the benefits of learning from a trusted, more senior adviser as well as peers. Taking responsibility for planning and preparing for scheduled meeting with their mentors was likely to improve the experience for several mentees. Two mentees who shared their specific challenges highlighted that when things don't go to plan it is time to explore options, whether this be to find other mentors or other jobs.

Private sector advisory business structures risk isolating early career advisers

The structure of private sector extension risks isolating advisers within their own businesses. Over time, this can undermine confidence, however, with a mentor's support, mentees' confidence and passion for agriculture can be sustained, which is important for the retention and capability of advisers now and into the future:

One reason for the trial was to look at how the training and support experience of new career advisers maintains their passion and energy for working in agriculture. And what is likely to burn them out and remove them from the industry and have them transfer somewhere else with all of that skill. (Researcher)

Pressure to sell and business culture

Participants in this study varied in regards to their satisfaction with their role and learning opportunities. A lack of training opportunities and the pressure to sell products are the main reasons why some seek employment outside the agriculture sector. The findings highlight the practical value of informal peer networks to help retain young advisers by reducing their sense of isolation and maintaining their confidence.

Mentees need to establish opportunities for training and mentoring in their contractual terms. However in the private sector this is likely to depend on the business culture and the mentee's role:

It's just totally dependent on the culture within the company that you're working for, probably especially if you're in a sales sort of position, the amount of time and/or money that they're willing to spend on sending you to professional development days or courses or things is probably far less than in a company where you're just working as a consultant. (Mentee B)

Mentoring experience inspires early career advisers to become mentors

Mentees can themselves become mentors when they are asked for career advice by younger colleagues and students completing university courses about how to get into advisory work. Based on their experience in the private sector, however, they could not provide easy answers. Mentees suggested to those considering advisory careers that they will need to draw on their own determination and actively find opportunities to build their experience, to reach such a goal:

There's no clear pathway I suppose. I think you've got to have the drive and determination and also the desire I guess to get to where you want to be at the end. And then to be able to do whatever you need to do in the meantime to get to that end point. (Mentee B)

So I normally say, "Right, you need to get some experience under your belt with somebody that – and you really need to go and chew some fat with the people that do that." Unfortunately because of the limited number of positions there are within a job like mine, you really need to show your enthusiasm and your passion for what you're trying to achieve. Really go above and beyond. (Mentee C)

Peer mentoring provides powerful support for early career advisers but needs leadership and coordination

Mentees strongly recognised the value of peer support provided by the group within Trial 3. One voluntarily set up a Facebook page to allow the group to stay in touch between workshops, an initiative outside any formal trial activities. All mentees appreciated the cross-sector diversity of the group and felt this helped them realise that all sectors face similar issues. A specific benefit of the cross-industry peer group was that discussion was more strategic and practice-based rather than dominated by technical issues. Peer group members acknowledged each other's skills and strengths and felt they were trusted colleagues, whom they could draw on in the future, thus bypassing sometimes cumbersome and time-consuming searches. The group also provided 'mental space' for one mentee who had been working with stressed farmers.

I think the network within the group is really strong and I think there's real opportunity, especially moving forward through this extension type role... having that really close group of people to draw on information. We've got some economists within the group. We've got some project managers. Yeah, everybody has a slightly different role, different sort of strengths that they bring to the table...if you're not sure, you've got somebody you are confident in their abilities to ring them and ask them. You know, you're not sort of just googling away and go, "Actually I need to find somebody that knows about that." You have that person and you already have a pre-set relationship with them and I think that's really important. (Mentee C)

Being part of this group, other young advisors, so being able to share challenges and anything that they're facing, it sort of lets you know that you're not alone. (Mentee F)

I think it's been really good to go and talk to people from a range of different industries and talk about things that are actually a common issue across the whole agricultural industry... rather than the dairy industry. It has been good to get away from that and actually look at the bigger picture and say, well, overall what are the real issues that we're looking at? And it's been a real mental break for me. (Mentee E)

Nevertheless, such informal networks depend on having someone who is prepared to lead and coordinate the process:

In regards to the informal network, I know Mentee C has been very proactive in setting up a Facebook group and keeping sort of a chat going. And I think having an informal network like that it does work if there is someone who's got the enthusiasm to drive it. (Mentee A)

Through participation in the peer network, participants also had indirect connections with other mentors, expanding their potential network of widely trusted sources of information.

Say, I went to (another mentee) with a question, a dairy question, and she didn't quite know about it, she has access to all the right people through the mentoring program. So you sort of, you know, you're only two degrees away from people that are very, very experienced in their field and have a lot of knowledge. (Mentee C)

At the end of the final workshop in 2017 mentees were asked to reflect on their overall experience as participants. There was unanimous interest in having the group continue to be connected on Facebook but also meet at least once a year to compare experiences. Lack of resources, however, means that this is unlikely unless mentees take responsibility for making it happen. The problem, as one mentee suggested, is that at the end of projects like Trial 3 the momentum stops:

I would just like to see some sort of continuation... a lot of these projects come to an end and that's it. You don't really go any further. (Mentee B)

Each of the seven early career advisers experienced their own unique challenges relating to the specific role and organisation they were associated with, particularly in regards to accessing training opportunities. Each adviser shared the need to develop relationship skills and networks. However, in contrast to those working in industry organisations, advisers in

fully private businesses needed to invest their own time into the building of networks. Being part of the trial group offered opportunities to be involved in a cross sector peer network that provided invaluable informal support for the participating early career advisers and a space where they could safely share their concerns and frustrations. The hope of maintaining the peer group network suggests that early career advisers intuitively want to be part of a leaning community (Fisk et al., 2000) in which people share and expand their capacity to create the future. This is also where future leaders can be nurtured and prepared for increasingly complex agricultural issues now and anticipated.

Summary – enabling and constraining factors of the mentoring experience

The mentees who participated in this study shared a range of enabling and constraining factors in relation to their mentoring experience as summarised in Table 7. Common themes emerged from the case studies of seven early career advisers who participated in this study. Based on their experiences, it was clear that successful mentoring relationships with trusted more senior mentors as well as peers provide opportunities for developing both skills and confidence. Mentees, however, need to take responsibility for planning and preparing for scheduled meetings with their mentors. Mentees also need to be prepared to explore other options if the mentoring relationship is not constructive.

Table 3: Summary of mentoring enablers and constraints for early career advisers.

Enablers of mentoring	Constraints to mentoring
Regular meeting times, and appropriate preparation, a mentoring plan	Lack of preparation for meetings and excessively informal process
A safe, open and effective working relationship with their mentor based on mutual respect	Pressure to generate billable hours that limit opportunities for professional development and reflexivity
Opportunities for technical, and psychosocial support as well as socialisation to advisory networks	Lack of recognition by employers of the value of mentoring or other training opportunities
Focus on advisory practice as a business (working on as well as in the business)	Lack of recognition of how mentoring can support early career advisers build professional networks and leadership capability
Focus on professional development aspirations	A sense of competition between providers of professional or commercial services
Geographic proximity that facilitates face-to-face meetings	A lack of respect between mentor and mentee that undermines mentee's confidence

Conclusions, lessons, outcomes and impacts

Trial 3 was based on the premise that enabling early career advisers to develop long term, sustainable careers requires relational as well as technical expertise and effective professional networks. Lessons learnt through Trial 3 include

- Mentoring options include the traditional pairing of senior-junior advisers as well as peer mentoring, and collegial group mentoring. Each form of mentoring can be complementary to more formal mentoring processes.
- Mentoring processes enable development of technical and advisory skills, professional networks, self-directed learning and leadership.
- Competitiveness within the private sector may require that mentees work with mentors outside their own industry to avoid conflicts of interest or access skills from outside the agriculture sector. Mentors may also be drawn from outside the advisory profession and include researchers, business professionals and marketing experts that support development of specialist skills and comparative advantage.
- The experience of being a mentee heightens awareness of the need for continuous professional learning.
- The experience of being a mentor develops sensitivity to the learning needs of others and an inclination to become a mentor. Findings from Trial 3 demonstrate that early career advisers benefit significantly from opportunities to participate in mentoring relationships to support the complex on the job learning process they experience early in their careers.
- Larger business structures including agriculture industry organisations and large consultancies have with greater opportunity, capacity and resources, compared to sole trader consultancies to provide training and professional development that enables early career advisers regard their employment prospects positively.
- Employers, including some product resellers, who do not support training of early career advisers, create negative experiences and potential issues with retention. Small agribusinesses and consultancies can partner together to overcome the structural limitations for training early career advisers
- Early career advisers are under significant pressure to deliver 'chargeable/billable hours'. However, providing advice to farmers requires a trust-based relationship and professional confidence – all of which take time to build.
- Private sector agribusinesses and consultancies that include research projects in their advisory repertoire have used these successfully to help cover salary costs of early career advisers, allowing them time to build expertise and experience that lessens pressure to earn consulting income.
- Mentors need training to be appropriately prepared and organised to carry out their mentor role. They need to be prepared to build a mentoring relationship based on mutual respect and shared sense of purpose.
- Mentoring relationships are more difficult to create and maintain when mentor and mentee are geographically distant.

- Innovation brokering in the trial context required and depended on the leadership, networks and initiative of the Project Officer (private consultant), RDC representative (MLA) and Research Lead (University of Melbourne). Emergent brokers included some mentees who created opportunities for the mentee group to remain connected informally (through Facebook) as well as those who were/are dedicated to supporting and encouraging peer networks.
- The experience of being recognised for inclusion in Trial 3 was empowering for most mentees and has motivated them to 'play forward' this opportunity by supporting others seeking to be advisers in the future.

The outcomes and impacts of the Advisory Pathways Trial identified through cost benefit analysis of the Trial include immediate outcomes, producer outcomes and producer impacts as summarised in Table 4 below.

Table 4: Summary of outcomes and impacts of the Advisory Pathways Trial

Intermediate Outcomes	<p>Potential for improved and more relevant training of consultants in university and refresher courses.</p> <p>Increased likelihood of attraction of more highly qualified personnel into private sector advising due to the mentoring activity and a more transparent and prestigious/transparent career pathway.</p> <p>Efficiency gains in delivery of advisory services from more continuous engagement of staff, together with increased knowledge capacity and positive career outlook.</p> <p>Improved technical and management capabilities of private advisers that are then translated into increased advisory business income.</p> <p>Longevity of advisers in the industry due to better understanding of career pathways and improved mentoring, professional development and network building.</p> <p>Potential expansion of advisory services due to increased demand from producers due to improved advisory service reputation.</p> <p>Creating potential industry leaders of the future.</p>
Producer outcomes	<p>Improved confidence and acceptance of advice from private sector advisers from their increased professionalism and value-added contributions.</p> <p>Increased number of producers potentially engaging with private sector advisers.</p>
Producer impacts	<p>Increase in gross benefits for producers with existing advisers from improved advice and associated confidence in such advice.</p> <p>Increase in net farm income for existing producers using advisers.</p> <p>Increase in net farm income for new producers attracted to the use of private advisers.</p>

Project publications

- Nettle, R. 2017, Workshop paper: farmers adoption and farmers benefitting from R&D – where are we now? University of Melbourne, Parkville.
- Nettle, R., Klerkx, L., Faure, G., Koustouris, A., 2017, Governance dynamics and the quest for coordination in pluralistic agricultural advisory systems, *Journal of Agricultural education and extension*,
- Paschen, J. A., Reichelt, N. King, B. Nettle, R., 2017, Enrolling advisers in governing privatised agricultural extension in Australia: challenges and opportunities for the research, development and extension system, *Journal of agricultural education and extension* <http://dx.doi.org/10.1080/1389224X.2017.1320642>

References

- Ayre, M. L., P. J. Wallis and K. A. Daniell (2018). "Learning from collaborative research on sustainably managing fresh water: implications for ethical research-practice engagement." *Ecology and Society* 23(1).
- Blackmore, C., Ed. (2010). *Social learning systems and communities of practice*. Springer, London.
- Botha, N., L. Klerkx, B. Small and J. A. Turner (2014). "Lessons on Transdisciplinary Research in a Co-Innovation Programme in the New Zealand Agricultural Sector." *Outlook on Agriculture* 43(3): 219-223.
- Botha, N., J. A. Turner, S. Fielke and L. Klerkx (2017). *Using a co-innovation approach to support innovation and learning: Cross-cutting observations from different settings and emergent issues*. SAGE Publications Sage UK: London, England.
- Coutts, J., T. White, P. Blackett, K. Rijswijk, D. Bewsell, N. Park, J. A. Turner and N. Botha (2017). "Evaluating a space for co-innovation: Practical application of nine principles for co-innovation in five innovation projects." *Outlook on Agriculture* 46(2): 99-107.
- De Jaegher, H., A. Peräkylä and M. Stevanovic (2016). "The co-creation of meaningful action: bridging enaction and interactional sociology." *Philosophical Transactions of the Royal Society B: Biological Sciences* 371(1693).
- Heron, J. and P. Reason (2001). *The Practice of Co-operative Inquiry: Research 'with' rather than 'on' people*. Handbook of Action Research. P. Reason and H. Bradbury. Sage, Thousand Oaks, CA: 179-188.
- Ison, R. L. (2008). *Systems thinking and practice for action research*. The Sage Handbook of Action Research, Participative Inquiry and Practice. P. Reason and H. Bradbury. Sage Publications, London:: 139–158.
- Kemmis, S., R. McTaggart and R. Nixon (2013). *The action research planner: Doing critical participatory action research*. Springer Science & Business Media.
- Klerkx, L. and R. Nettle (2013). "Achievements and challenges of innovation co-production support initiatives in the Australian and Dutch dairy sectors: a comparative study." *Food Policy* 40: 74-89.

Nederlof, S., M. Wongtschowski, F. van der Lee, V. Mugittu and J. Jube (2011). *Putting heads together: Agricultural innovation platforms in practice*.

Nettle, R., P. Brightling and A. Hope (2013). "How Programme Teams Progress Agricultural Innovation in the Australian Dairy Industry." *The Journal of Agricultural Education and Extension* 19(3): 271-290.

Paine, M. S. and R. A. Nettle (2008). "Collaboration in action: the Dairy Moving Forward response to drought. Empowerment of rural actors". Proceedings of the Eight IFSA European Symposium, Clermonet-Ferrand, France, July 6-11, 2008.

Paschen, J.-A. and R. L. Ison (2014). "Narrative Research in Climate Change Adaptation - Exploring a Complementary Paradigm for Research and Governance." *Research Policy* 43: 1083-1092.

Turner, J. A., L. Klerkx, K. Rijswijk, T. Williams and T. Barnard (2016). " Systemic problems affecting co-innovation in the New Zealand Agricultural Innovation System: Identification of blocking mechanisms and underlying institutional logics." *Wageningen Journal of Life Sciences* 76: 99-112.

Vereijssen, J., M. Srinivasan, S. Dirks, S. Fielke, C. Jongmans, N. Agnew, L. Klerkx, I. Pinxterhuis, J. Moore and P. Edwards (2017). "Addressing complex challenges using a co-innovation approach: Lessons from five case studies in the New Zealand primary sector." *Outlook on Agriculture* 46(2): 108-116.