



FACILITATING CHANGE IN COMPLEX CONTEXTS

A study of the extension
approach used in the Carbon
Farming Knowledge Project

Coutts J&R / 2016



Carbon Farming Knowledge



ACKNOWLEDGEMENTS

This report explores an innovative and contemporary extension approach used to develop awareness and understanding about carbon farming and its opportunities and implications for the farming community. The project management team were keen to go beyond a standard project evaluation and apply a rigorous assessment of the underpinning model used in the process so that lessons gained could inform and guide future projects. Project documentation was supplied for this purpose and Mark Stanley, Bill Long, Cam Nicholson and Harm van Rees provided comment on early drafts of this report. The advisers and researchers who participated in this project also responded to a detailed survey to provide feedback and insights based on their experience over its life.

The Carbon Farming Knowledge Project has been supported with funding from the Australian Government.

Jeff Coutts
Ben Coutts
Liesel Rennie

Coutts J&R
www.couttsjr.com.au

August 2016

SUMMARY

Purpose

The purpose of this report is to present the findings of a study of the underpinning extension model being used in the Carbon Farming Knowledge project in terms of its: elements, theory, practice, effectiveness, contribution and implications for future interventions.

Context

The model was developed in the context of declining public sector extension, increase in the number of farming enterprises engaging private advisers and around a topic that was poorly understood, was largely a public good and for which there was little producer demand. A key element was to develop capacity so that trusted advisers had the ability to work through a decision with their farmer clients.

Approach

This report is based on interviews with all of the consultants and project management committee and an analysis of secondary data, surveys and reports provided by the project.

Findings

The major implication from the analysis is that the *Carbon Farming Knowledge Extension Approach* firmly fits within the *Facilitated Learning* category of extension models and is well suited to developing capacity around complex and public good topics such as carbon farming. The model can be directly applied to other topics and rapidly develop targeted capacity gains in advisers with direct benefits to their clients.

The funding provided access to thirty very experienced and respected advisers in South East Australia and with them direct contact with a minimum of 600 farmer clients – ready at the commencement of the project. The legacy will continue with the capacity gains in both the advisers and the current and future clients. Material that has come out of the program provides a further legacy to build on the gains of the project.

The model has been shown to effectively build capacity within the engaged advisers and to develop understanding and materials directly relevant to growers. Having the ready capacity to respond to the longer-term opportunities for practice change as other drivers emerge (price of carbon, government policy, productivity benefits) practice change can be expected to occur in a more rapid and more efficient manner.

Specific components and implications include:

- Private advisers have been shown to be a significant professional resource to provide targeted extension services to farmer clients and farming groups.
- The study highlighted the importance of commercial arrangements with advisers. Extension programs involving private advisers targeting public good outcomes - where there is little demand from producers and little obvious economic benefits to individual enterprises - require private advisers to be engaged on a commercial 'partner' arrangement to ensure that time can be allocated and commitment obtained from them.
- A critical element of developing capacity was the opportunity for advisers to be both exposed to presentations from experts in the field *and* being able to discuss the implications of this information for their clients with the researcher and with other advisers. Adviser experience

with their client group and context allowed them to better consider together the relevance of the topic and how best to engage growers in considering options.

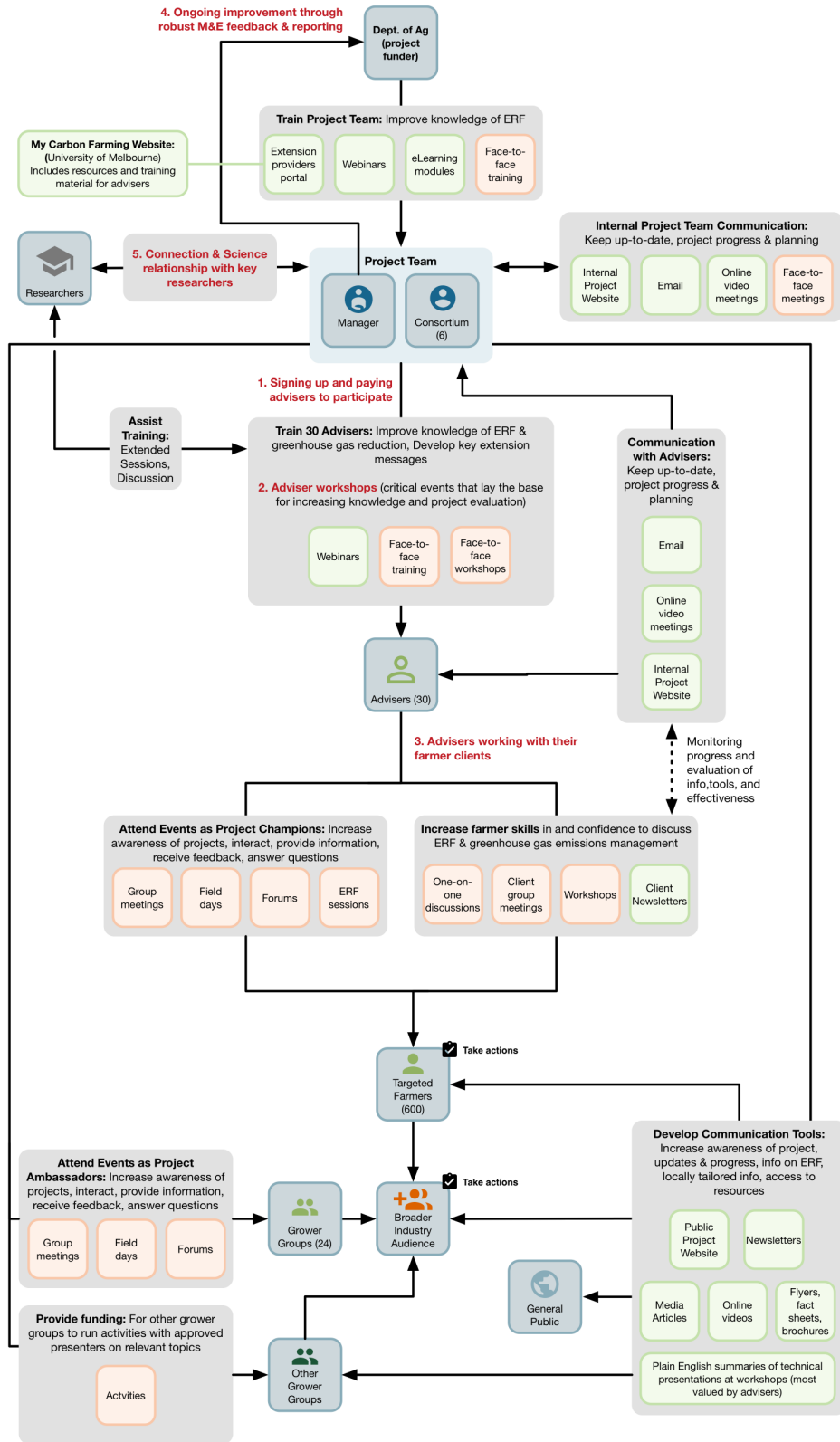
- A key element is capacity building of advisers to better enable them to have the skills and confidence to engage their grower clients in targeted topics and assist them with the decision making process. Overall, advisers indicated the project had a high level of impact on their confidence and motivation to engage clients and other producers on carbon farming.
- Increased confidence can lead to actions. A survey of grower clients showed a small increase in confidence in their ability to identify the most appropriate actions to take to reduce greenhouse gas emissions on their farm with 70% having had put in at least one action (e.g. increase soil carbon) into practice over the last three years.
- Understanding is not the only precursor to change – a ‘no’ decision can be influenced by such factors as cost and complexity. Although most (93%) of growers were not involved in any Government recognised Emission Reduction Fund projects, a number (35%) were interested in participating in these projects. Cost, time and legal requirements (59% of respondents) were the main barrier that might prevent respondents from pursuing a Government sponsored ERF project.
- Part of the legacy of such an approach is that that the conversation will continue between farmers and their advisers beyond the project completion as the difference between this and other approaches is the long standing and continuing relationship advisers have with their clients.
- *If* the end objective is for more immediate widespread practice change/adoption (not the aim of this project) of specific Natural Resource Management practices or program - and there is no immediate economic advantage to the producer - then further elements may need to be included to facilitate this change. These elements include such things as:
 - Cash/market incentives to producers to implement changes;
 - Localised demonstration trials, field days and workshops targeting the desired change;
 - A focus on short and long term economic implications of the changes; and
 - Case studies and farmer champions promoting the changes and their benefits.
- It is a sound premise that increased knowledge, understanding and confidence of key industry advisers to deal with the issues around carbon farming is an important component of change. As opportunities in this topic increase in the future and pressure comes on agricultural industries to change practices to reduce GHG emissions - and greater financial rewards or regulatory pressures come to bear - having a skilled advisory sector will assist in making these changes.

The Model

Facilitated Learning: This involves working with individuals or groups to explore potential technologies and management approaches that may be of benefit to them by using adult and experiential learning approaches, group facilitation and a range of interactive information and media. It is considered suitable when there is no specific proven technology being championed – rather it is about exploring potentially beneficial technologies and/or facilitating on-going improvement over time. Extension has a role in helping with networking and connecting producers to sources of information and technology and sharing between each other. The objective is to build capacity (awareness, understanding, skills and decision-making) which is expected to lead to information seeking behaviour and an improved ability and willingness to make positive change.

Model attributes	Carbon Farming Futures Model
Underlying rationale and philosophy	<ul style="list-style-type: none"> • Partnering (including payment) with private advisers to reach and influence producers is an effective and efficient use of resources. • Trusted advisers engaging with researchers in an adult learning approach can generate a greater understanding of complex issues and technologies relevant to their producer clients. • Producers are more likely to engage and learn about new issues, approaches and technologies through on-going interaction with trusted advisers. • Increased understanding will lead to informed decision making to benefit farm enterprises.
Structures	<ul style="list-style-type: none"> • Project Management Committee with strong research networks and understanding of the adviser role - and good understanding of extension, facilitation and communication principles and processes. • Contracted advisers with nominated clients with whom to engage. • Dedicated communication expertise.
Process	<ul style="list-style-type: none"> ➤ 6-monthly workshops between advisers and researchers/experts using an interactive process, discussion on main points and developing plain English Summaries and 'hooks'. ➤ Advisers supported through internal communication measures including updates, website, fact sheets etc. ➤ Advisers work with clients - one-on-one and groups and raise the topic as appropriate. ➤ Advisers participate in other forums to raise awareness of the issue and implications for farming enterprises. ➤ External communication channels used to raise broader awareness – including provision of funds to groups to run related activities. ➤ Evaluation processes in place to gain feedback and continually make improvements on process.
Key elements	<ul style="list-style-type: none"> • Training workshop with advisers • Communication with advisers • Adviser engagement with clients • Attend events as project champions • Communication tools • Supporting the cost of holding carbon farming events for other grower groups
Performance Measures	<ul style="list-style-type: none"> • Gains in understanding and confidence by advisers • Extent of engagement with clients and reactions • Extent of awareness raising in other forums • Change in adviser farmer clients attitudes to issues and topics around emissions reduction

Carbon Farming Futures Model - Diagram



CONTENTS

Acknowledgements	1
Summary	2
Introduction	7
Purpose	7
The extension environment	7
Extension Models	7
Carbon farming.....	8
Carbon Farming Knowledge Project.....	9
Approach	10
Results	12
Underlying Rationale and Philosophy.....	12
Structures	13
Process.....	14
<i>Project Logic</i>	14
<i>Adviser involvement</i>	15
<i>Researcher involvement</i>	16
<i>Overall Process</i>	16
Key elements.....	16
<i>Training Workshops for advisers</i>	17
<i>Communication with Advisers</i>	20
<i>Adviser engagement with farmer clients</i>	20
<i>Attend Events as Project Champions</i>	23
<i>Communication Tools</i>	24
<i>Funding for other grower groups</i>	25
Performance Measures and M&E employed	25
Efficiency and Effectiveness.....	26
Discussion	29
Implications	31
References	33

INTRODUCTION

Purpose

The purpose of this report is to present the findings of a study of the underpinning extension model being used in the Carbon Farming Futures project in terms of its: elements, theory, practice, effectiveness, contribution and implications for future interventions.

The extension environment

In reviewing the trends in extension in Australia over recent decades, Hunt et al (2014) refer to the continuing *divestment out of agricultural RD&E* by state government departments and increasing opportunities for the private sector to address the extension needs of producers. This includes opportunity for *enhanced partnering between public, industry and private institutions involved in agricultural extension, with public sector investment focusing on activities that the commercial stakeholders are unable or unwilling to deliver because of market realities*. This trend is documented by a number of authors (Coutts 2015; Hunt & Coutts 2009).

The situation in Australia has prompted the funding of two significant research projects through the Australian Government's Rural R&D for Profit program: *Extension and Adoption for Australian Farmers and Fishers* (RIRDC as lead agency); and *Stimulating private sector extension in Australian agriculture to increase returns from R&D* (Dairy Australia as lead agency). Rationale for the projects has included the need to address *the national issue of fragmentation of Australian agriculture extension activities which has been identified as reducing productivity and profitability for all stakeholders* (RIRDC 2016). A briefing note on the second project notes that *Australian agricultural extension services are becoming increasingly privatised* and that, although the *private sector is a well-used information source for farmers, however, opportunities remain to improve delivery of extension services*. Critical to this was to find new models to integrate private advisers into the broader extension needs.

Extension Models

Extension models are theoretical and practical approaches to implementing extension to bring about desired change. These can be philosophically and/or contextually based and are underpinned by assumptions about the change process and those who are engaged in it.

These models can fit on a continuum ranging from very supply driven, top-down models to very demand-driven and participative models (Coutts et al 2005; SELN, 2006; Coutts & Roberts 2003; Hall 2006). They can generally fit into the following categories:

1. **Technology Transfer:** This generally involves extension taking specific new or proven technology, tools or management approaches to the farming community to build awareness, interest, skills and encourage and assist the adoption of that technology. Various communication channels are complemented by face-to-face approaches such as field days, workshops and demonstrations to achieve this. It is considered suitable where the technology is relatively 'simple' and easy to apply, its benefits are not contested and there is an element of marketing or 'persuading'.

2. **Facilitated Learning:** This involves working with individuals or groups to explore potential technologies and management approaches that may be of benefit to them by using adult and experiential learning approaches, group facilitation and a range of interactive information and media. It is considered suitable when there is no specific proven technology being championed – rather it is about exploring potentially beneficial technologies and/or facilitating on-going improvement over time. Extension has a role of helping with networking and connecting producers to sources of information and technology and sharing between each other. The objective is to build capacity (awareness, understanding, skills and decision-making) which is expected to lead to information seeking behaviour and an improved ability and willingness to make positive change.
3. **Participative Development:** This involves engaging ‘end-users’ with researchers to explore needs and options and to trial and test technologies and practices that emerge from the process. It is considered needed where there is no ready technology or obvious research solution. This includes ‘farming systems’ and ‘action learning’ approaches.
4. **Innovation Systems:** This involves extension going beyond working with researchers and producers to facilitate engagement across a range of stakeholders – often across the value chain. It is considered necessary where there is no ready solution to issues facing an industry nor clarity in taking up opportunities presented – and there is a need to go beyond ‘incremental gains’.

In all of these models, extension can be funded and/or delivered by one or more agencies with a mandate or (commercial) interest in the delivery function.

Analytical framework for extension models

Key elements of an extension model are:

- **Underlying rationale and philosophy:** the rationale and assumptions underpinning the chosen approach.
- **Structures:** The management and funding structures in place to allow actions and activities to occur.
- **Process:** The project logic and sequence of activities to achieve the outcomes.
- **Key elements:** The critical components that help the philosophy to be implemented and outcomes achieved and the methods and techniques within them.
- **Performance Measures and M&E employed:** What is considered success and what is monitored for continuous improvement and reporting.

The model can then be assessed in terms of its efficiency and effectiveness in implementing its design and delivering on the intended outcomes.

Carbon farming

The original purpose of the Carbon Farming Futures Fund¹ was *ensuring that advances in land management technologies and techniques for emissions reduction and adaptation will lead to enhanced productivity and sustainable land use under a changing climate. These advances will allow*

¹ <http://www.agriculture.gov.au/ag-farm-food/climatechange/carbonfarmingfutures>

farmers and land managers to benefit from the economic opportunities of the [Carbon Farming Initiative](#) (CFI) while assisting Australia in achieving its long-term emission reduction targets. The program is creating new opportunities for land managers to enhance productivity, gain economic benefits and help the environment by reducing greenhouse gas emissions. Actions to reduce greenhouse gas emissions or increase carbon storage can also increase the land sector's resilience to climate change, protect Australia's natural environment and improve long-term farm productivity. (Australian Government 2016).

However, it was noted on the website that changes in policy and legislation in 2014 had resulted in no further funding for the program. At a project workshop in March 2015, Richard Eckard² from the University of Melbourne summarised the new situation in relation to Carbon farming as follows: *The carbon trading landscape changed at the end of 2014 with the introduction of the Emissions Reduction Fund (ERF), replacing the Carbon Farming Initiative (CFI). Landholders can still receive carbon credits for reducing emissions from agriculture and land use and increasing the carbon stored in soils and vegetation. Individuals and businesses can buy CFI credits to offset their emissions. Participation is voluntary. Under the ERF, the Commonwealth Government has become the buyer of Australian Carbon Credit Units (ACCUs). Under the old CFI system, companies had to either pay the carbon tax or buy carbon credits to offset emissions. The ERF will conduct 'blind' reverse auctions through AusTender a number of times a year. There is \$2.55 billion in the fund to buy ACCUs over five years.*

It was noted by the one of the management group that *the topic is complex because there is no one right answer - there are many paths to mitigate or sequester and change has to recognise the emotional and intuitive elements preventing change.* For example, there are a range of conflicting views and experiences such as: *"the climate has always been variable"; "The science has been doctored"; "I need to burn my stubble to control slugs"; "I don't want trees because once you plant them the Government won't let you cut them down". To confront complex problems there needs to be a level of trust between proponent and the advice/support they are receiving. That's why the model was proposed. It recognises this complexity and therefore uses an extension approach that can cope with this complexity – other extension models simply can't.*

Carbon Farming Knowledge Project

The *Carbon Farming Knowledge Project* was funded by the Australian Government under the Extension and Outreach component of the Carbon Farming Futures Program. The project described its approach as:

Engaging with at least 600 broadacre farmers through 30 key trusted advisers across SA, Victoria and Tasmania to build their capacity in the development and delivery of an effective carbon farming extension program. The project will support advisers in delivering key messages relating to carbon farming to their farmer client base and through grower groups. The project will use proven extension and adoption methodologies to ensure there is effective change in attitudes and practices of farmers being influenced in this project. It will engage with researchers delivering projects under Filling the Research Gap and Action on the Ground projects and other carbon related research to develop key messages to be delivered to farmers.

² http://carbonfarmingknowledge.com.au/resources/#Emissions_Reduction_Fund_ERF_and_the_future_for_carbon_trading

Central to this approach has been to *support the Independent Agricultural Advisers network to build their capacity to deliver effective messages on the CFI, factors affecting agricultural emissions, greenhouse gas management, opportunities for sequestering carbon, and the risks and opportunities associated with farm businesses participating in the CFI through a professionally delivered training, mentoring and evaluation program.* The project promised to go beyond awareness to developing the appropriate technical understanding and skill levels of advisers to effectively facilitate change in farming businesses to incorporate carbon farming technologies into everyday operations. This was further expanded by one of the management group in the following way: *the most valuable feature was not just effective messages (that we might have shaped to be of value to a client), but the **ability to work through a decision with them**, so even if they said 'no' they knew why they were saying no. It was an informed decision i.e. helping the decision making process with more than clever messages.*

The approach also involved working with *credible researchers to ensure their messages are well understood and have practical messages that can be delivered by the trusted adviser network to the farming community.* It was proposed that advisers quickly identify concepts and ideas that offer a strong relative advantage, are simple, trialable, have a fast “payback” time and are compatible with current thinking, with a risk identified that *many of the aspects of the CFI do not rate highly or are not clear and as such, will not be included in farm management discussions that are required for change to be implemented.* Possible ‘projects’ that farmers could be a part of (financially) were identified along with the work required and the potential financial rewards (or otherwise).

The diagram at the beginning of this report depicts the structure and process of how the project was implemented in practice. Note that ‘taking action by the growers’ is as much about ‘*making an informed decision*’. In this case, a decision not to embrace a specific change or program may have been a good decision because they appreciate the consequences of that decision.

Approach

The approach to this study has been to understand and describe the philosophy, context, approach and application of the extension model used in the Carbon Farming Knowledge Project and test this against how the participants found the process and the indicative impacts of its implementation.

Depicting the model: Initial discussions were undertaken with the Management Committee in conjunction with analysing the project documentation to develop a flow diagram of the model (included at the front of this report) and refine it through an iterative process.

Interviewing the participants: A questionnaire was designed to gain information on the experience and insights about how the model worked in practice based on the key elements identified in the model depiction. This included interviewing the management team, all of the participating advisers and three of the researchers who were engaged to develop the understanding and skills of the advisers.

Secondary analysis: Project reports and evaluations undertaken during the life of the project were reviewed to assess against intended outcomes.

Two key sources for assessing impact on the nominated 600 farmer clients of the consultants were ‘before and after’ surveys of the nominated 600 growers that were undertaken. In the initial survey, 512 completed responses were received (95% confidence interval between +/- 1.75) and in the second survey there were 453 completed responses (95% confidence interval +/- 2.4) at the time of writing this report (as of 24th of August 2016 – 100 more expected). There were four questions that were consistent between the two surveys. There were no questions included in the second survey that asked about influence or triggers for change in beliefs, understanding or actions nor were there any controls to see if similar changes occurred outside of this nominated group. Although changes

can be expected to have been influenced by the consultants in the program, other factors could also have influenced changes.

Data from these approaches are analysed and presented under the extension model framework proposed above:

- **Underlying rationale and philosophy:** the rationale and assumptions underpinning the chosen approach.
- **Structures:** The management and funding structures in place to allow actions and activities to occur.
- **Process:** The sequence of activities to achieve the outcomes.
- **Key elements:** The critical components that help the philosophy to be implemented and outcomes achieved and the methods used.
- **Performance Measures and M&E employed:** What is considered success and what is monitored for continuous improvement and reporting

The model is then assessed in terms in its efficiency and effectiveness in implementing its design and delivering on the intended outcomes.

RESULTS

Underlying Rationale and Philosophy

Based on the project proposal and interviews with the project management team, the essential rationale and philosophy of the project is that:

- *by actively engaging and building the interest and capacity of experienced advisers with a strong grower client base, they will proactively and effectively engage with their clients about the topic; and*
- *the growers, because of their trusted relationship with their adviser, will become more aware, informed and more likely to incorporate this knowledge into their decision-making and management practices more quickly. Importantly, the growers will be more likely to discuss the deeper implications of these decisions to their business in terms of such things as cash flow, profit, restrictions on farming, implications with selling /succession, fears of legal documents etc.*

The project proposal argues for the appropriateness of the project based on the following points:

- There was a lack of understanding and awareness about Carbon farming issues and opportunities in the grains sector which is limiting the options of grain growers to participate in CFI projects and adviser understanding of the CFI is low;
- Carbon farming issues do not rate highly or are not clear and as such, will not be included in farm management discussions that are required for change to be implemented
- There is a gap in information delivery and extension in this area that requires filling;
- Given the reduced numbers and mandate of state government extension services and the increasing role of private advisers (advisers) providing advice to grain growers, they are the obvious and best means of building awareness and understanding about this management area in the industry;
- The time provided by advisers should be paid for as this activity is not based on the demand from their grower base and is not necessarily a priority knowledge for them to obtain in this time-frame - forgoing additional farmer clients to make time for participating in this project. The payment recognises their time contribution and provides an incentive for them to participate.
- Advisers have the capacity to quickly identify concepts and ideas that offer a strong relative advantage, are simple, triable, have a fast “payback” time and are compatible with current thinking – and are known and trusted by their clients as having a full appreciation of their individual farm and business circumstances;
- Change steps can be described simply; starting at lack of knowledge moving through awareness to intent to perform and to maintain. The coaching and mentoring role that advisers provide to their clients is a vital step in achieving change.
- When the appropriate technical understanding and skill levels of advisers is reached, they will be able to effectively facilitate change in farming businesses to incorporate carbon farming technologies into everyday operations;

The project is therefore based on the premise that the private sector is a critical part of the change process and can become full partners in the extension process. The project is not based on the extent of adoption of specific technologies – rather it is about facilitating an increase in understanding about a complex topic in producers through engaging their advisers in this process – paving the way for informed decision-making into the future.

Structures

Project Management

The project uses a project implementation team of 5 plus a project manager / coordinator. These are described as *highly experienced farm advisers from Victoria and SA with significant established networks with highly credible researchers across Australia to draw upon for supporting the up-skilling proposed in this project.*

The Management Team were noted by researchers as leading one of the most *proactive and forward thinking groups*, they have been involved with: *they asked the tricky questions and really dug into the subject.* They were described as being *very influential; well engaged; right on top of the landscape* and were able to put issues into context, supported by their farming backgrounds. In describing the projects team and advisers involved, it was noted: *they are some of Australia's leading extension and advisory advisers with in-depth knowledge on how it all operates with farmer clients. Some of them are [on the] cutting edge of agriculture, I think they have incredible insight into this stuff.*

The project was noted to have had *good team coordination*, based on a good model and *willingness to take on the learning.*

The project's access to key researchers was discussed as a positive outcome. Leaders in their specific fields, this was noted as being uncommon in government presentations and that advisers may not ordinarily have gained exposure to this type of information otherwise.

Based on involvement in other projects it was noted by researchers that there are many policies and research, *but what has been missing is the engagement with the people involved in agriculture.* They suggested that more input from consultants is necessary as well as determining *how they are better informed.*

Adviser engagement

The proposal includes payments for the thirty advisers for travel and 11 days of their time to *attend the training, to develop and implement a Monitoring and Evaluation plan, and for preparation time for localising carbon farming messages and strategies for their farmer clients.* This is justified on the basis that advisers will be *forgoing additional farmer clients to make time for participating in this project – and/or* taking time from existing clients or taking time out of their business to learn about something from which it may be very difficult to gain commercial advantage. It is seen as clear market failure – “Who would spend 11 days at their own expense when a client is unlikely to pay you for the extra advice?”

Communications

Communications expertise was accessed over the term of the project to assist in *developing and facilitating the implementation of the communications plan.* This included: contracting journalists to write plain English summaries of research presentations and to write media releases; contracting digital media experts to produce ‘YouTube’ presentations from the adviser workshops; and trialing novel communications techniques through song and social media. Summaries of technical discussions were also produced by advisers and seen to have added clarity to discussions. Use of hooks as a way of starting discussions was also highly regarded as entering into discussion about a subject that offered little to no obvious benefit was challenging to many advisers.

Process

Project Logic

The project proposal describes the overall process as providing *adviser training and support through the development of a communication plan and strategy, defining a monitoring and evaluation program and equipping them with the knowledge to discuss opportunities at the farm gate level*. This is then to be followed by *engaging in discussion with peers which will allow the development of common and well-designed strategies to implement change*. It also developed adviser skills and confidence to know how to discuss the advantages and disadvantages of such change and assist growers with decision-making to see if it is right for their business.

The flow of activities is shown in the Model Diagram at the front of the report.

The program logic is as follows:

1. An experienced and well connected management team uses their linkages and networks to source resources and research expertise in carbon farming related topics;
2. The 30 advisers contracted to the project attend two workshops per year where researchers give presentations, the advisers discuss the content and develop relevant key messages or points of entry into discussion (hooks);
3. Advisers are encouraged and kept up to date between meetings through a project website, newsletters, teleconferences and webinars;
4. Advisers engage with at least 20 of their clients and raise awareness and understanding about carbon farming related information, issues and opportunities – using ‘hooks’ to stimulate interest;
5. **These targeted growers make informed decisions about whether to pursue opportunities related to carbon farming and/or make changes in their farming practice.**
6. Advisers and the management team also attend other meetings, forums and field days to raise broader awareness of on the topic and the project;
7. A communications strategy involving a public website, newsletters, media articles, on-line videos, fliers and fact sheets is implemented to raise broader awareness;
8. Funds are offered to other grower groups to run activities with approved presenters to raise their awareness and further their understanding of the topic.
9. A monitoring and evaluation strategy ensures that feedback is obtained from advisers and their farmers to inform the management team and allow changes to be made where needed and reporting of impact to occur.

At first glance, this approach seems to mirror the classic Technology of Transfer model, where the Training and Visit system introduced by the World Bank involved extension staff being ‘schooled and trained by researchers’ and then taking the messages out to selected farmers who then have the opportunity to implement the research recommendations on their farms. This approach appeared to work well in irrigated systems with relatively straight-forward technologies – but failed in harsher environments (e.g. Sub-Saharan Africa) where the complexities could not be addressed by simple research driven solutions.

The differences with the Carbon farming Futures model lies in the partnership arrangement with the advisers, the emphasis on capacity building rather than specific adoption and the manner in which the advisers provided feedback to the Project management team, interacted with the researchers and explored the topic and messages. Another difference was that the aim was to understand the implications and costs and benefits to their grower clients – not ‘sell’ a message or promote change that was not in the interests of the client. These aspects are addressed in subsequent sections.

Adviser involvement

Reasons and expectations

Central to this project was the interest and willingness of advisers to be involved in the project. When the 33 advisers were interviewed about their reason for participating, the most common reason given was a desire to increase their knowledge and understanding of carbon farming (and relay this information to clients) (27 mentions). The group format and networking with and learning from other advisers and respected peers was also an attraction (10 mentions), as was the financial compensation (5 mentions). Other reasons for involvement included: previous involvement and/or exposure to the topic (4 mentions); and an invitation or prompt from a colleague or someone involved with the project (4 mentions).

The issue of payment to advisers

A key issue (initially only mentioned by 5 respondents as a reason for participating) in the project was the direct payment to advisers for their time and commitment to the project. When all were asked about the importance of this factor, the majority believed financial compensation was important and that it needed to continue for any future projects (30 mentions). Financial compensation was seen as important as it was recognition of the time commitment made by advisers and the potential lost income and business opportunities. Some advisers described financial compensation as key to their involvement, with many believing adviser uptake would be negatively impacted without the payment, as it was important in getting people interested in and prioritising the topic.

Overall experience

In terms of how these expectations were met, most advisers provided positive comments relating to their project experience (20 mentions) describing the project in terms of being excellent, extremely valuable, fantastic, useful exercise, well structured, and interesting. The project had exceeded the expectations of many advisers (12 mentions), with particularly positive aspects highlighted including: quality of speakers/presenters (4 mentions); networking and peer interaction (4 mentions); good organisation and structure (3 mentions); and valuable workshops (3 mentions). Disappointments and concerns noted by some advisers (6 mentions) were few and varied with a few finding less opportunities for their clients to benefit than they had hoped.

Researcher perceptions of adviser involvement

Researchers saw benefits of their engagement with advisers in this way. They described them as being *incredibly powerful gate keepers*. Their participation in the process was noted as vital and that involvement of private advisers has *become far more important for the future*. Their involvement was also noted as being important in generating an awareness of sustainable agriculture and an understanding that they are *custodians of the carbon*. It was seen as important that the message *‘it can be a viable business practice’* came from commercial advisers, as opposed to a hard sell by the government. Researchers felt this came across in the project process as *a balanced message*.

It was noted that adviser engagement was effective and that *a lot (of input and information) came from them*. The process was described as a *shared journey* where advisers’ input, many of whom were *forward thinking and educated in their own right* and contributed *farm knowledge*, could be

converted into *something practical*. Advisers were able to relate their experiences gained from talking with clients about carbon farming and the issues faced by farmers.

Future involvement

Overall, advisers were very likely to engage in similar projects in the future (8.6/10 average rating from 29 advisers). Reasons provided by advisers on why they would likely engage in future projects included (12 mentions): importance of climate change, quality/depth of information, access to cutting-edge/current research, interacting with other like-minded advisers, builds skills, and getting paid to learn. Some advisers put caveats on their future engagement (7 mentions), including how valuable and relevant future information is and if the same project methodology is being used (implication that that would be more interested if there was a similar approach).

Researcher involvement

The three researchers interviewed were positive about their involvement in the project. The project's access to key researchers – and leaders in their fields - was seen by them as a positive part of the project. This was noted as being uncommon in government presentations and that advisers may not ordinarily have gained exposure to this type of information otherwise.

One of the researchers contacted had been involved in carbon farming for a number of years, had attended each of the project's workshops, supported the project and has provided occasional input into *other sessions* relating to this subject. One researcher was approached early on in the project to assist with setting the project theme as well as being involved in discussions regarding the need for such a project. The third researcher had a role in the national Carbon Farming Futures program, which involved him in coordinating training at the national level for all project leaders delivering Outreach & Extension projects.

Overall Process

Provided with the opportunity to give any other comments on the project or process used, many advisers praised the project (22 mentions), with comments such as: great job, worthwhile, excellent approach, learning experience, well organised/coordinated/structured, good information, good process/delivery, efficiently run, and very professional. The value of the project in bringing together like-minded advisers was also highlighted (12 mentions), with advisers enjoying the networking, interaction, and discussions with peers.

Suggestions on how the project could have been improved included (4 mentions): changes to the groups (e.g. smaller, different areas, more field stuff); need to be more specific with what was required of and expected from advisers; need for more evidence of on-ground changes; and a need for more focus on broadacre farming.

Issues and concerns raised included (5 mentions): concern with the direction being set by federal government; concern with the lack of commitment of some advisers; difficulty getting through to farmers; concern from clients regarding pushing an agenda; and issues with some venues.

Key elements

The proposal stated that *the project will focus on the design and implementation of a professionally supported extension and communications program for delivering the carbon farming messages*

ensuring all those involved have the confidence to effectively influence their farmer clients. It notes that the project will focus discussion on carbon initiatives and through linkages with existing programs....will link with (credible) researchers to define key local and regionally based messages and package the information in a way that will provide practical and viable activities that farmers can adopt at the farm level.

The promise of delivery to at least 600 growers is based on the project engaging with 30 highly experienced key trusted advisers who then in turn, engage with at least 20 of their clients with what they have learned. Opportunities to influence other growers is included through links to farming systems groups and providing inputs to other grower forums.

The key elements of the model are shown in the Model Diagram at the front of this report.

- **Training Workshops for advisers:** There was an initial on-line training that each adviser had to complete that was organised by the University of Melbourne. This provided base line knowledge on the CFI, climate science and emissions reduction science. Researchers/experts attend workshops with advisers to improve their knowledge of ERF and greenhouse gas reduction and assist them in developing key extension messages.
- **Communication with Advisers:** Webinars, emails and other means employed to keep advisers up to date with latest information, project progress and planning.
- **Attend Events as Project Champions:** Advisers – including the management team - take opportunities to speak at group meetings, field days and other forums to increase awareness of the project, interact and provide information, receive feedback and answer questions.
- **Communication Tools:** Use of website, newsletters, flyers, fact sheets, brochures, media articles and on line videos to increase awareness of the project and provide information, resources and project updates.
- **Adviser engagement with farmer clients:** Advisers working one on one with their growers and working with grower groups to increase awareness of topic, issues, opportunities and implications for farms.
- **Funding for other grower groups:** Encouragement for other growers and groups to increase their awareness and understanding by providing funding to run activities with approved presenters on relevant topics.

Each of these are discussed below based on feedback from participants and secondary documentation.

Training Workshops for advisers

Workshop Process

Researchers commented on the project approach in terms of breaking down or simplifying complex science into useful information, tools or insights to better equip advisers when engaging with their farmer clients about the topics of carbon farming. From their perspective as presenters on climate change for a number of years, one researcher noted they relied on their own experience in simplifying information into an understandable manner. Overall researchers commended the project on being able to translate the science, helping advisers to understand the context of information completely and *distil it down to the important [issues]*, which advisers would be discussing with their clients.

Based on their experiences delivering presentations and attendance at workshops, researchers described the project approach as being a forum where sessions were not a one-way delivery of information, instead a discussion where advisers *got out of it what they wanted to get out of it*. Researchers suggested that participating advisers represented a *strong capability* and understanding of what is happening, what is important. One researcher discussed the challenge as being to *hook clients from a business perspective*.

Researchers commended the project framework and the way the team designed the project to include *plenty of input* and *catch-ups*, including group facilitation outside of the workshop environment, for example the evening dinners that sometime included a guest speaker on project related topics.

It was noted by the researchers that adviser engagement was effective and that *a lot (of input) came from them*. The process was described as a *shared journey* where advisers' input, many of whom were *forward thinking* and *educated in their own right* and contributed *farm knowledge*, could be converted into *something practical*. Advisers were able to relate their experiences gained from talking with clients about carbon farming and the issues faced by farmers.

Overall, advisers also reported that they had a high level of opportunity to provide input into the workshop process (8.0/10 average rating from 33 advisers). Positive comments relating to input opportunity (23 mentions) included: very good, ample time, plenty of opportunity, well facilitated, project designed for advisers to provide feedback, plenty of open discussions, and two-way interaction encouraged.

Workshops valued by advisers

The top five most valued methods used by the project to increase advisers' understanding and awareness of carbon farming related to the workshops. These were (on a 0-10 scale where 0=no value and 10=high value):

1. Researcher presentations (8.6 avg.)
2. Informal discussions with other advisers (7.8 avg.)
3. Focused small group discussions with other advisers and researchers (7.8 avg.)
4. Plain English summaries of presentations (7.7 avg.)
5. Interactive workshop sessions where tools were put into practice (7.6 avg.)

Researcher presentations (18 mentions) were valued for being *practical, up-to-date, cutting edge, interactive (ability to ask questions), on the 'same level', and well explained in layman terms*. Discussions in small groups and with other advisers (14 mentions) were valued for being *stimulating, clarifying ideas, a powerful method of making sense of data, and providing different perspectives*. The underlying information and content (6 mentions) was valued for improving confidence to engage farmers and respond to questions (e.g. by providing scientific data to underpin discussions). Key quotes around this feedback are shown in the table below:

Comment Type	Example Comments
Value of the researcher presentations	<ul style="list-style-type: none"> • <i>...and the speakers - some of these guys are sometime busy with other issues - if it wasn't for this project the private adviser would not have heard from them.</i> • <i>The researcher and hearing the latest the cutting edge information. The research helps me form my own opinions and to see it in the field as well...</i> • <i>The presentation was fantastic - you could do Q&A...</i>
Small group discussions / discussions with other advisers	<ul style="list-style-type: none"> • <i>...There was enough time given to do that and the follow up group discussion was fantastic as other people would look at it with a different spin on it who were your peers...</i>

- *I found that talking to the other advisers put it into layman's terms and you can talk to them at a later date so the networking was great.*
- *The general participation with others on the team was the most useful - we are thinking on the same way - the informal side was just as useful as the technical presentations.*

A large number of advisers praised the project and felt not much more could be done (18 mentions). Some advisers suggested that more information and updates on government policies and regulations would be helpful (6 mentions). Other suggestions included: more practical real world examples (2 mentions); more background information on the researchers (1 mention); more information on the impact of modelling on clients' costs and benefits (1 mention); improved sessions summaries/fact sheets (1 mention); more transparency on the lack of money in carbon farming (1 mention); and the possibility of introductory videos showing a worldwide point of view (1 mention).

Impact on knowledge, confidence and motivation

Researchers were generally satisfied that there was evidence the project approach was successful and that advisers gained what was important and useful from the interactions. One researcher commented they had delivered information about climate change and were aware that advisers had taken this knowledge and passed it on at workshops and shared it with clients and others at the varied events they were involved in organising.

One researcher noted how *the conversation changed* over the course of the workshops: *where you could see the greater in-depth knowledge and [maturity of] knowledge* as advisers identified the information most relevant to their clients and farmers. Another researcher commented they had received *positive* feedback on their presentation and another that there had been a fair amount of feedback at the time of their presentation where the *direct engagement was incredible*. This was noted as an indication that it was a *healthy two-way discussion, which was what the aim was*.

The two most common 'main messages' advisers took from the project was the current limited business opportunity for carbon farming (14 mentions) and that most farmers are already adhering to best practice (10 mentions). Other messages received included: the importance and necessity of carbon farming in the context of climate change and variability (5 mentions); the complexity of the topic (4 mentions); and the value of the project as a successful model for disseminating information from researchers to farmers via advisers (3 mentions).

Overall, advisers indicated the project had a high level of impact on their confidence and motivation to engage clients and other producers on Carbon farming (8.3/10 average rating from 32 advisers). Examples of how the project had increased advisers' confidence included: came from a low understanding to high understanding, improved knowledge of topic, provided sound knowledge and data, provided context, and provided common sense ways of communicating to farmers. Some advisers were however concerned with the lack of opportunity and tangible benefits for farmers (4 mentions), with a few attributing this to their decreased motivation to engage farmers on the topic.

In the mid-term adviser survey, 24 of the 30 respondents indicated that their confidence in identifying actions to reducing Green House Gas emissions on farm had increased. All indicated that there had been some or significant change in their knowledge of the ERF and mitigation techniques.

Communication with Advisers

Communication between workshops with advisers occurred mainly through email updates, new information on the internal website and webinars³. When asked about the value of these forms of communication, advisers rated the email updates as 7/10 and the website as 6.1/10. As expected, these were not as high as the face-to-face workshops but still reflected value as supplementary methods. The option was also given for advisers to rate the value flowing from discussions with their farmer clients and these were rated as 6.6/10.

When asked in the mid-term survey of advisers which resources available on the project website were the most useful, respondents rated workshop summary notes as having the main value, followed by adviser update emails, newsletters and the latest news blog.

Adviser engagement with farmer clients

Type of engagement

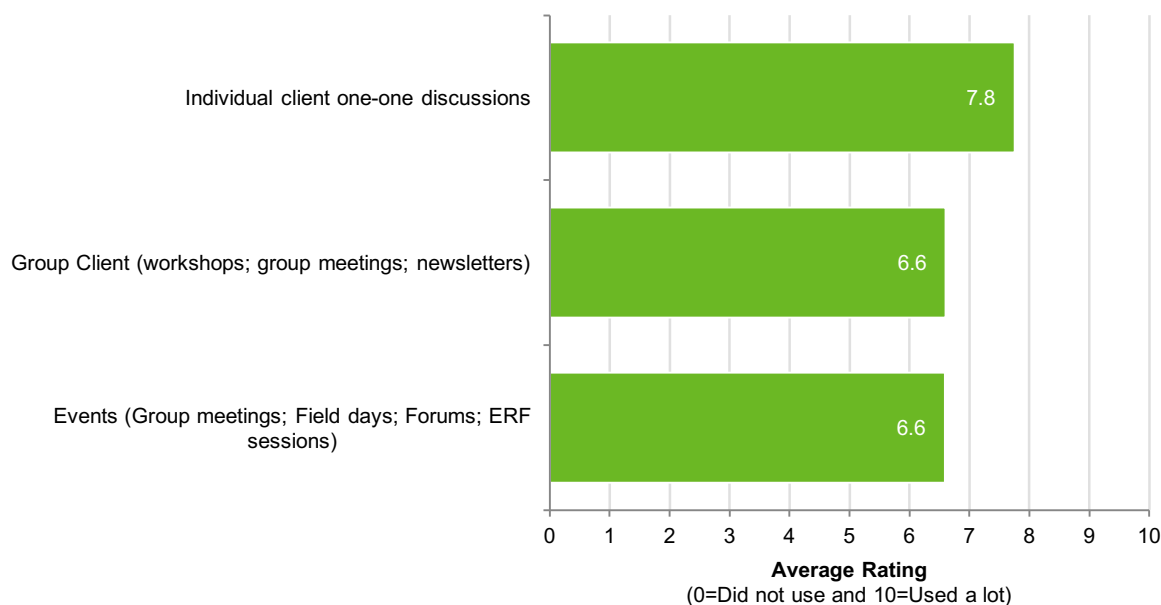
Individual farmer client one-on-one discussions was rated as the most used engagement method to increase client awareness about Carbon farming (7.8 average rating from 32 advisers on a scale of 0 to 10 where 0=did not use and 10=used a lot). Note the rating scale reflects the extent to which they engaged one-on-one about this topic rather than whether they used it or not.

The advantage of one-on-one compared to group engagement was highlighted by many advisers (11 mentions), with farmers seen to be more open, honest, and liberal asking questions when engaged one-on-one, while differing opinions and dominant personalities often caused disruptions in group settings. Other benefits of one-on-one noted (5 mentions), included the value in being able to listen to and understand individual farmer needs. A couple of advisers used newsletters as an unobtrusive method of providing information to clients.

The difficulty in engaging uninterested, resistant, or sceptical farmers was noted by some advisers (6 mentions). The following graph shows the *degree to which* advisers used the different methods to engage growers in discussions about carbon farming.

³ Webinars were organised centrally by the University of Melbourne for all delivering Outreach and Extension projects across the country, and participation by Carbon Farming Knowledge project advisers was compulsory part of their project participation

Use of specific engagement to increase client awareness about Carbon farming and its opportunities/issues



Key Messages/points of discussion entry (hooks)

Hooks were intended to be used to engage farmer clients in discussions on emissions reduction strategies / options on their farms. The majority of advisers were positive about the use of ‘hooks’ (21 mentions), describing how they were important in getting farmers involved and thinking about a particular topic. It was noted that ‘hooks’ needs to be tailored to suit individual clients, with some advisers observing what successful ‘hooks’ others were using. A small number of advisers described issues they had with ‘hooks’ (4 mentions), including their lack of relevance to broadacre farming.

‘Hooks’ developed by advisers to engage their farmers fell into two categories, ‘hooks’ relating to **climate change and variability** (16 mentions – e.g. climate records/long term trends/weather patterns, local climate data, and impact on future generations) and ‘hooks’ relating to **increased efficiency and production** (13 mentions – e.g. compaction, nitrogen efficiency/loss, and input costs).

Comment Type	Example Comments
'Hooks' related to climate variability/change	<ul style="list-style-type: none"> • I used scientific facts to give examples on how in the last 60 years the climate is changing and show research and data to my clients • Varying degrees and depending on the clients. I picked the ones who were more open to it. The hooks I used were the impact on future generations in regards to climate change • The farmers were about the variability in the weather and you can enter into a discussion not about climate change but a discussion about the weather
'Hooks' related to increased efficiency/productivity	<ul style="list-style-type: none"> • The livestock (project/business) that I was involved in was increasing livestock productivity and efficiency and the use of technology and how they can be used to increase efficiency and productivity • The hooks were production benefits you could grow with less inputs and more profitably • I used how much money you waste by compaction over your farm. Nitrogen loss and the new findings are new to people and make or save them money - it always works.

The project was praised by advisers for providing them with **scientifically grounded information and data that enabled them to (more) confidently answer client questions** (18 mentions).

- *...Having confidence in your knowledge was the biggest thing out of the project -you are not going to come across as very convincing if you are not sure of your facts. Sorting out real facts against emotional statements - if you can put numbers behind the science it is a lot easier and it is more convincing than emotional statements.*
- *...The project has really enabled me to tackle the issue - before this I couldn't at all. It has helped me greatly.*
- *There has been some interest from people at field days and you have some confidence in what you are saying is right and this is what the project has given.*

Grower Response

There appeared to be a mixed response from farmer clients (6 mentions), with some advisers describing negative, cynical, and sceptical responses (8 mentions). Others had experienced a generally positive response (6 mentions), with some noting that farmers had become more receptive to the message over the life of the project. Recent seasonal and weather events were seen to have convinced some farmers of the reality and importance of the topic (5 mentions).

Example comments

Comment Type	Example Comments
Mixed response	<ul style="list-style-type: none"> • <i>The feedback has been mixed from very interested to don't really want to discuss it...</i> • <i>The responses have been varied to negative to very good.</i>
Sceptical/cynical/negative response from farmers	<ul style="list-style-type: none"> • <i>In the discussion groups in the forums with farmers from OK to skepticism and stop talking about this, we are wasting time, lets move on...</i> • <i>It is varied, some people didn't believe in climate (change) and didn't want to, so you don't argue with them. There is a generation difference the younger ones are a bit more open to it.</i> • <i>Not a topic that my clients are interested in and wanting to know what is in it for them - and there is not anything in it for them...they will ignore it as there is not much they can do.</i>
Generally positive	<ul style="list-style-type: none"> • <i>I would say a positive response even the people who were negative about it don't mind talking about it... (8)</i> • <i>...and in general pretty good and 70 to 80% of the growers are happy to engage on it... (7)</i> • <i>...and positive feedback from the growers - that is the reason they employ us is the filter for them. They always like to see you are doing some professional development for yourself. (5)</i>
Recent seasons/weather events have convinced some farmers	<ul style="list-style-type: none"> • <i>The last 12 months there is a much greater acceptance that something is happening... (11)</i> • <i>We have had low rainfall and climate swings the last year and we have had bad springs so they can see it is really happening right here right and now - people are taking notice of what is happening. Farmers are good at adapting (27)</i>
Farmer response improved over life of the project	<ul style="list-style-type: none"> • <i>The response from clients has been cautious but over the life of the project it got better as I got a better understanding, and over time the clients got better informed as well as improved in understanding (23)</i>

When asked in the mid-term adviser survey about the proportion of clients who had shown an interest in involvement in the ERF, 4 of the 30 respondents indicated that 40-60% of their clients had shown an interest, 10 indicated that 20-40% of their clients had and 17 indicated that less than 20% had

shown an interest. Eight indicated that clients had directly shown an increase in interest as a result of the project input. It is likely that the way different advisers communicated with their clients on this topic could have influenced this response – but there is insufficient data to make this conclusion.

The analysis of responses from the pre and post grower survey showed the following changes over the life of the project:

Knowledge and beliefs on the impact of greenhouse emissions

- There was an overall increase in respondents' current knowledge of the impact of greenhouse gas emissions on their farm business (increase of 0.5 from 2.1 to 2.6 on a scale of 1 to 5 where 1=very low and 5=very high) – although knowledge still remains only moderately low to moderate.
- There was an increase in the percentage of respondents who believe that greenhouse gas emissions are causing the climate to change (+14% - from 31% to 45%).
- Increase in the percentage of respondents who believe that humans are responsible for increasing greenhouse gas emissions (+10% - from 60% to 71%).

Confidence in ability to identify actions

- There was an overall increase in confidence in respondents' ability to identify the most appropriate actions to take to reduce greenhouse gas emissions on their farm (increase of 0.6 from 1.9 to 2.5 on a scale of 1 to 5 where 1=no confidence at all and 5=very confident) – although confidence still remains relatively low.

Actions taken over previous three years

- The 'post' survey reported that 70% of respondents had put at least one action into practice over the last three years. Actions put into action by respondents included:
 - 70% - Increase soil organic carbon
 - 56% - Improve nitrogen use efficiency
 - 50% - Increase fuel efficiency
 - 41% - Sequestering carbon
 - 36% - Use renewable energy sources
 - 23% - Reduce methane emissions
 - 5% - Other
 - 5% - None
- While most (93%) of respondents were not involved in any Government recognised Emission Reduction Fund projects, a number (35%) of respondents were interested in participating in these projects.
 - Cost, time and legal requirements (59% of respondents) were the main barriers that might prevent respondents from pursuing a Government sponsored ERF project.

Attend Events as Project Champions

A number of advisers indicated that they had opportunities to talk at group meetings (other than their own client groups), field days, forums and ERF sessions – but gave little feedback on the response or value of this involvement.

In the mid-term survey of advisers, 21 of the 30 respondents said they used material provided by the project for presentations at workshops and 11 reported including material in newsletters.

The December 2014 to May 2015 progress report reported the following interactions by the advisers over the project.

Interaction	Numbers
One on one farmer discussions	552 farmers
Farmer Group events where carbon farming was discussed	83 events
Numbers at farmer group events	1,544 farmers; 255 farm advisers; 146 others*
Carbon Farming Knowledge specific events	6 events
Numbers at specific events	191 farmers; 14 farm advisers; 10 others*
Farmer and adviser events where the advisers provided a project presence	6 events
Numbers at above farmer and adviser events	503

Communication Tools

The December 2014 to May 2015 Progress Report reported the following communication outputs produced.

Type of Product	Number produced
Newsletter articles by advisers	7
Project newsletters	1
You Tube videos - public	1
You Tube videos – advisers only	8
Adviser Updates - email	3
Power Point presentations by advisers	2
Project evaluation reports	6
Presentation summary notes from March adviser workshop	5 (draft)
New releases	2 (1 in draft)
Total number of products	35

Funding for other grower groups

Funding support was offered to grower groups across south east Australia to cover costs associated with holding events that covered carbon farming topics. In all ten events were supported. These are listed below. Over the course of the project, 62 carbon farming focussed events were held, attracting in excess of 754 farmers and 82 industry personnel

- SA No Till Farmers Association Annual Seminar – Climate and carbon farming
- Roberts Limited, Tasmania – Bio Char Day
- Alpha Group, South East SA seminar – Carbon farming
- Woody Yoloack Landcare Group – Carbon farming
- Women in Farming Group, Victorian – Carbon farming
- Eyre Peninsula Agricultural Research Foundation Members Day – Climate and decision making
- Enrich workshop – South west NSW – Role of perennials on GHG mitigation
- Laura Ag Bureau, SA – Climate and carbon farming
- Mid North High Rainfall Zone seminar – Climate and carbon farming
- Mid North and Yorke Peninsula Farmers Study Tour of western Victoria – waterlogging management and N efficiency

These events attracted farmers and consultants who may not otherwise have been engaged in the project. The uptake of this support was less than anticipated. Many of the project advisers organised and held carbon farming focussed events in association with grower group and consultancy group networks without accessing the funding support being offered. Typical of the feedback received from the events supported was:

Overall it was a very successful event. Interest in the soil carbon stuff and the sceptics of climate change having to think their view of 'it's just a natural cycle' may only be partly right. Then had trouble getting them to leave – turned the lights out at 10.15 pm!

Performance Measures and M&E employed

In the project proposal, it was stated that *through a professionally delivered training, mentoring and evaluation program, this project will go beyond awareness to developing the appropriate technical understanding and skill levels of advisers to effectively facilitate change in farming businesses to incorporate carbon farming technologies into everyday operations.* It was proposed that *the benefits will begin in the first year with the 30 advisers increasing their knowledge and skills around carbon farming and building and refining communication skills and developing key messages to discuss with their farmer clients.*

The promise was that *this project goes beyond creating awareness, building advisers skills and knowledge in delivering an effective program to their farmer clients and providing ongoing mentoring support and evaluation to ensure the program is achieving its objectives. Advisers and farmers are in their businesses for the long haul, and the design of project means that there will be ongoing support*

for those involved with the view that the knowledge and skills developed by this trusted network will continue to influence farmers on all aspects of carbon farming well past the life of this project.

The project undertook a benchmark survey with advisers involved, a mid-term survey and an end of project survey (supporting this report). Feedback is captured from workshops.

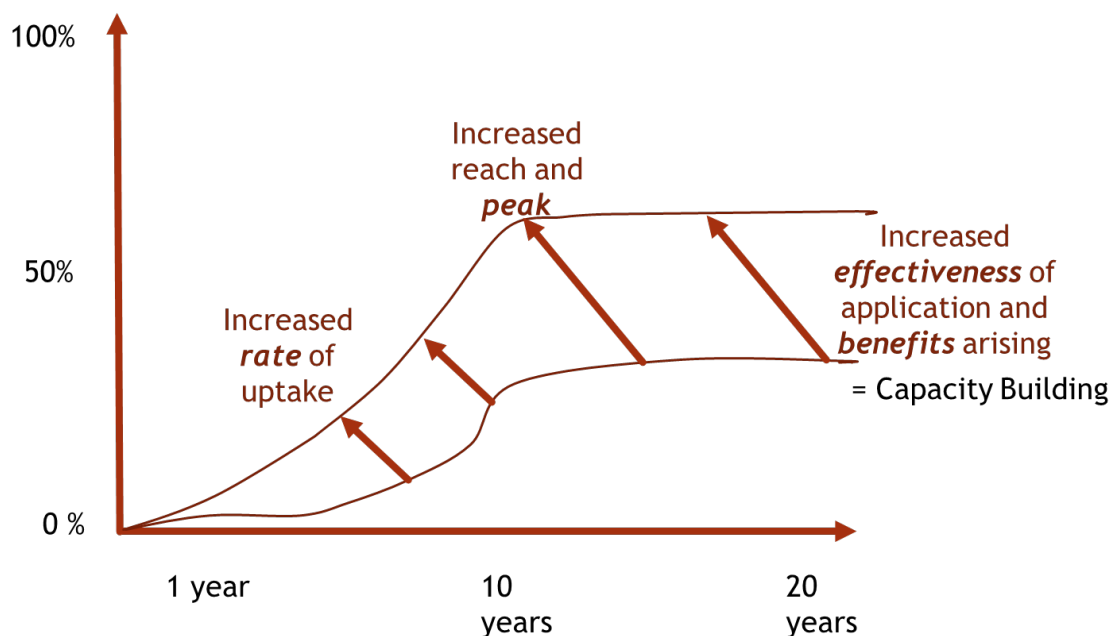
Efficiency and Effectiveness

Why invest

The reason why investment is undertaken in extension is because it is expected to have an impact in a targeted area beyond that which would happen without such intervention – and the benefits of the intervention outweigh the cost of that intervention. Interventions have the capacity to:

- Increase the *rate of change* (whether capacity, practice change or systems change);
- Increase the *reach* or number/groups of people engaged in a topic area (than otherwise might have engaged); and/or
- Increase the effectiveness of the change process (by having more appropriate technologies or choices and/or more skilled and informed people).

This is depicted in the following diagram⁴:



In this case, the objective was to:

- *build the technical understanding and skill levels of 30 advisers to effectively facilitate change in farming businesses to incorporate carbon farming technologies into everyday operations.*
- *Raise awareness and understanding in a minimum of 600 producers – clients of the advisers.*

⁴ Coutts J&R 2014

Impact on rate of gain in understanding and confidence of advisers

The survey data showed that the project had a high level of impact on the confidence and motivation of advisers to engage clients and other producers on Carbon farming (8.3/10 average). Examples of how the project had increased advisers' confidence included: came from a low understanding to high understanding, improved knowledge of topic, provided sound knowledge and data, provided context, and provided common sense ways of communicating to farmers.

In the mid-term adviser survey, 24 of the 30 respondents indicated that their confidence in identifying actions to reducing Green House Gas emissions on farm had increased (the others may well already have had their confidence at a high level). All indicated that there had been some or significant change in their knowledge of ERF and mitigation techniques.

Impact on reach

The project directly ensured that the 600 growers who were clients of the engaged advisers were directly engaged in some way, increasing their awareness and understanding of the issue and opportunities.

Based on the opportunities taken to present at other forums and on the communication outputs, it is reasonable to conclude that up to 2000 producers and 300 advisers were 'reached' – were presented with more (farmer appropriate) information about carbon management and opportunities than they would otherwise have been exposed.

Flow on impact to adviser's farmer clients

In terms of subsequent impact on the clients of participating advisers, they reported a mixed response with some advisers describing negative, cynical, and sceptical responses and others having had experienced a generally positive response, with some noting that farmers had become more receptive to the message over the life of the project. Recent seasonal and weather events were seen to have convinced some farmers of the reality and importance of the topic. Some advisers were however concerned with the lack of opportunity and tangible benefits for farmers – impacting on their motivation to engage on the topic.

The mid-term adviser survey about the proportion of clients who had shown an interest in involvement in ERF, 4 of the 30 respondents indicated that 40-60% of their clients had shown an interest, 10 indicated that 20-40% of their clients had and 17 indicated that less than 20% had shown an interest. Eight indicated that clients had shown an increase in interest as a result of the project input. Financial issues were seen as a major limitation to farmer interest as well as not being seen as beneficial or having a lack of understanding.

Cost efficiency

According to the project proposal, the total cost of the project was in the order of \$3.5 million dollars over 4 years, with almost \$2 million dollars provided by DAFF and the rest through in-kind contributions.

For this cost, the project fully delivered on its objective of developing the capacity of thirty advisers to better engage with their clients around the topic of carbon farming. This then had a direct opportunity to impact on the nominated 600 clients of these advisers. A critical element underpinning this investment was that the advisers already had a trusted relationship with that client – and understood the individual business circumstances of the farm. The awareness, understanding and potential implications/opportunities for the farm business is then context bound with the adviser being able to have the discussion over time and when appropriate for that farm business – and supporting them with associated decision making. This is not the case with an ‘outsider’ who comes in on an extension program around a single issue – without the trust, relationship and time-frame.

From this perspective, the funding provided access to 30 very experienced and respected advisory people in South East Australia and with them direct contact with a minimum of 600 clients – ready at the commencement of the project. The legacy will continue with the capacity gains in both the advisers and the current and future clients. Material that has come out of the program provides a further legacy to build on the gains of the project.

Putting the equivalent funds into a specialist extension program would require significant staffing costs and would lack the ready grower relationships, trust and continuation factor which embedded advisers can bring to such programs.

Flow-on benefits and legacy

A critical element of the project is also the on-going legacy. The project proposal noted: *advisers and farmers are in their businesses for the long haul, and the design of project means that there will be ongoing support for those involved with the view that the knowledge and skills developed by this trusted network will continue to influence farmers on all aspects of carbon farming well past the life of this project.*

This relates to the intervention ‘increasing capacity’ of those involved which will have a flow on benefit not only to on-going interaction with the nominated clients, but other and future clients – as well as the shared experience of producers with other producers. It goes beyond getting a ‘research message’ out to farmers – it is working through a complex topic, understanding its implications for farming enterprises and having significant number of advisers equipped to engage and support producers in carbon management into the future.

DISCUSSION

The purpose of this report is to present the findings of a study of the underpinning extension model being used in the Carbon Farming Futures project in terms of its: elements, theory, practice, effectiveness, contribution and implications for future interventions.

The Carbon farming Futures Model as explored in this paper firmly fits within the Facilitated Learning Extension Model. Although the project has focused on carbon farming related issues, there has been no intention to facilitate the ‘adoption’ of a specific pre-determined practice – rather it has been developing a greater understanding of a topic area as it impacts on farm enterprises within the research, adviser and farming community. This raising of awareness, understanding and implications means that all parties are better equipped to address this area over time in line with new research, policies and economics.

The specific of the model used can be captured in the following table:

Model attributes	Carbon Farming Futures Model
Underlying rationale and philosophy	<ul style="list-style-type: none"> • Using a well-established market based client relationship base • Partnering (including payment) with private advisers to reach and influence producers is an effective and efficient use of resources. • Trusted advisers engaging with researchers in an adult learning approach can generate a greater understanding of complex issues and technologies relevant to their producer clients. • Producers are more likely to engage and learn about new issues, approaches and technologies through on-going interaction with trusted advisers. • Increased understanding will lead to informed decision making to benefit farm enterprises.
Structures	<ul style="list-style-type: none"> • Project Management Committee with strong research networks and understanding of the adviser role. • Contracted advisers with nominated clients with whom to engage. • Dedicated communication staff.
Process	<ul style="list-style-type: none"> ➤ 6-monthly workshops between advisers and researchers/experts using an interactive process, discussion on main points and developing plain English Summaries and ‘hooks’. ➤ Advisers supported through internal communication measures including updates, website, fact sheets etc. ➤ Advisers work with clients - one-on-one and groups and raise the topic as appropriate. ➤ Advisers participate in other forums to raise awareness of the issue and implications for farming enterprises. ➤ External communication channels used to raise broader awareness – including provision of funds to groups to run related activities. ➤ Evaluation processes in place to gain feedback on process.
Key elements	<ul style="list-style-type: none"> • Baseline training provided to advisers at the start of the project • Training workshop with advisers • Communication with advisers

	<ul style="list-style-type: none"> • Adviser engagement with clients • Attend events as project champions • Communication tools • Funding for other grower groups
Performance Measures	<ul style="list-style-type: none"> • Gains in understanding and confidence by advisers • Extent to engagement with farmer clients and reactions • Extent of awareness raising in other forums

Central to this model is the emphasis on capacity building through partnered engagement. The central element is the 6-monthly workshop between advisers and researchers and the process used is critical to success of the model. The Carbon Farming Knowledge Project has ensured that this is not a passive information transfer between researchers and advisers – but rather an opportunity for both parties to explore the information presented in the light of shared adviser experience and an understanding of their client contexts and farming systems. Time and process has been allocated to ensuring that this happened in practice.

Funding of the advisers involved has been a critical (and cost effective) element in ensuring their commitment and involvement. Given the commercial demands of their businesses and the lack of 'pull' from the clients, such an arrangement has allowed them to allocate the time needed as well to give ownership of the project to them. This highlights the relevance of this approach to other public good areas where market failure would otherwise occur.

The model has been shown to effectively build capacity within the engaged advisers and to develop understanding and materials relevant to producers – with some flow-on impact on understanding to their farmer clients. Having capacity to respond to the longer-term opportunities for practice change as other drivers emerge (price of carbon, government policy, and productivity benefits) will drive practice change to occur in a more efficient manner given the increased knowledge and understanding.

If the end objective is for more immediate widespread practice change/adoption (not the aim of this project) of specific Natural Resource Management practices - and there is no immediate economic advantage to the producer - then further elements may need to be included to facilitate this change. These elements include such things as:

- Cash/market incentives to producers to implement changes;
- Localised demonstration trials, field days and workshops targeting the desired change;
- A focus on short and long term economic implications of the changes; and
- Case studies and farmer champions promoting the changes and their benefits.

IMPLICATIONS

The major implication from the analysis is that the *Carbon farming knowledge Model* firmly fits within the *Facilitated Learning Extension Model* and is well suited to developing capacity around complex and public good topics such as carbon farming. The model can be directly applied to other topics and rapidly develop targeted capacity gains.

Specific components and implications include:

- Private advisers have been shown to be a significant professional resource to provide targeted extension services to farmer clients and farming groups.
- The study highlighted the importance of commercial arrangements with advisers. Extension programs involving private advisers targeting public good outcomes - where there is little demand from producers and little obvious economic benefits to individual enterprises - require private advisers to be engaged on a commercial 'partner' arrangement to ensure that time can be allocated and commitment obtained from them.
- A critical element of developing capacity was the opportunity for advisers to be both exposed to presentations from experts in the field *and* being able to discuss the implications of this information for their clients with the researcher and with other advisers. Adviser experience with their client group and context allowed them to better consider together the relevance of the topic and how best to engage growers in considering options.
- A key element is capacity building of advisers to better enable them to have the skills and confidence to engage their grower clients in targeted topics and assist them with the decision making process. Overall, advisers indicated the project had a high level of impact on their confidence and motivation to engage clients and other producers on carbon farming.
- Increased confidence can lead to actions. A survey of grower clients showed a small increase in confidence in their ability to identify the most appropriate actions to take to reduce greenhouse gas emissions on their farm with 70% having put in at least one action (e.g. increase soil carbon) into practice over the last three years.
- Understanding is not the only precursor to change – a 'no' decision can be influenced by such factors as cost and complexity. Although most (93%) of growers were not involved in any Government recognised Emission Reduction Fund projects, a number (35%) were interested in participating in these projects. Cost, time and legal requirements (59% of respondents) were the main barrier that might prevent respondents from pursuing a Government sponsored ERF project.
- If the end objective is for more immediate widespread practice change/adoption (not the aim of this project) of a specific Natural Resource Management practice - and there is no immediate economic advantage to the producer - then further elements may need to be included to facilitate this change. These elements include such things as:
 - Cash/market incentives to producers to implement changes;
 - Localised demonstration trials, field days and workshops targeting the desired change;
 - A focus on short and long term economic implications of the changes; and
 - Case studies and farmer champions promoting the changes and their benefits.

- It is a sound premise that increased knowledge, understanding and confidence of key industry advisers to deal with the issues around carbon farming is an important component of change. As opportunities in this topic increase in the future and pressure comes on agricultural industries to change practices to reduce GHG emissions - and greater financial rewards or regulatory pressures come to bear - having a skilled advisory sector will assist in making these changes.

REFERENCES

Botha N, Coutts J & Roth H (2008) The Role of Agricultural Consultants in New Zealand in Environmental Extension, *Journal of Agricultural Education and Extension*, Vol. 14, No. 2, 145_158, June 2008

Coutts J & Roberts K (2003) *Extension Models and Best Practice*, APEN Extension Conference, Hobart November 2003

Coutts J (2015) *Changing evaluation approaches for extension and education intervention – drivers and institutional responses in Australia*, European Symposium on Extension and Education, Wageningen, The Netherlands, May 2015

Hall A (2006) *Enhancing Agricultural Innovation: How to Go Beyond the Strengthening of Research Systems*, Agriculture and Rural Development, The World Bank, Washington

Hunt, W.D., and Coutts, J. (2009). Extension in tough times – addressing failures in public and private extension, lessons from the Tasmanian wool industry Australia. *Journal of Agricultural Education & Extension*, 15 (1), 39-55.

RIRDC (2016) *Extension and Adoption for Australian Farmers and Fishers – Fact Sheet*. RIRDC, Canberra.

Warren Hunt, Colin Birch, Jeff Coutts & Frank Vanclay (2012): *The Many Turnings of Agricultural Extension in Australia*, *The Journal of Agricultural Education and Extension*, 18:1, 9-26