



Carbon Farming Knowledge

*Engaging farmers in south eastern Australia into carbon farming through trusted, independent advisers*

## Project Summary

**The Carbon Farming Knowledge project has proven to be extremely effective in engaging 30 farm advisers, who are the key influencers of farmers across south eastern Australia, in building their knowledge, understanding and attitude to reducing GHG emissions on farm and storing carbon across the farming landscape. In three years, the project has shifted the advisers and a majority of their farmer clients from ignorance and sceptics of carbon farming to where they are now actively engaged in positive discussions on how farm practices can be changed to reduce emissions and build carbon in soils and vegetation.**

A critical aspect of the project has been the interaction between key researchers and the farm advisers. Researchers commended the project on being able to: *translate the science, helping advisers to understand the context of information completely and distill it down to the important [issues], which advisers would be discussing with their clients.*

One researcher involved in all the adviser workshops 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 consultants identified the information most relevant to their clients and farmers.*

The researchers noted that farm advisers are *incredibly powerful gate keepers so long as you are dedicated to change.* Their participation in the process was noted as vital and that involvement of private consultation 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 important that this message: that *it can be a viable business practice,* came from commercial consultants, as opposed to a hard sell by the government. Researchers felt this came across in the project process *as a balanced message.*

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.

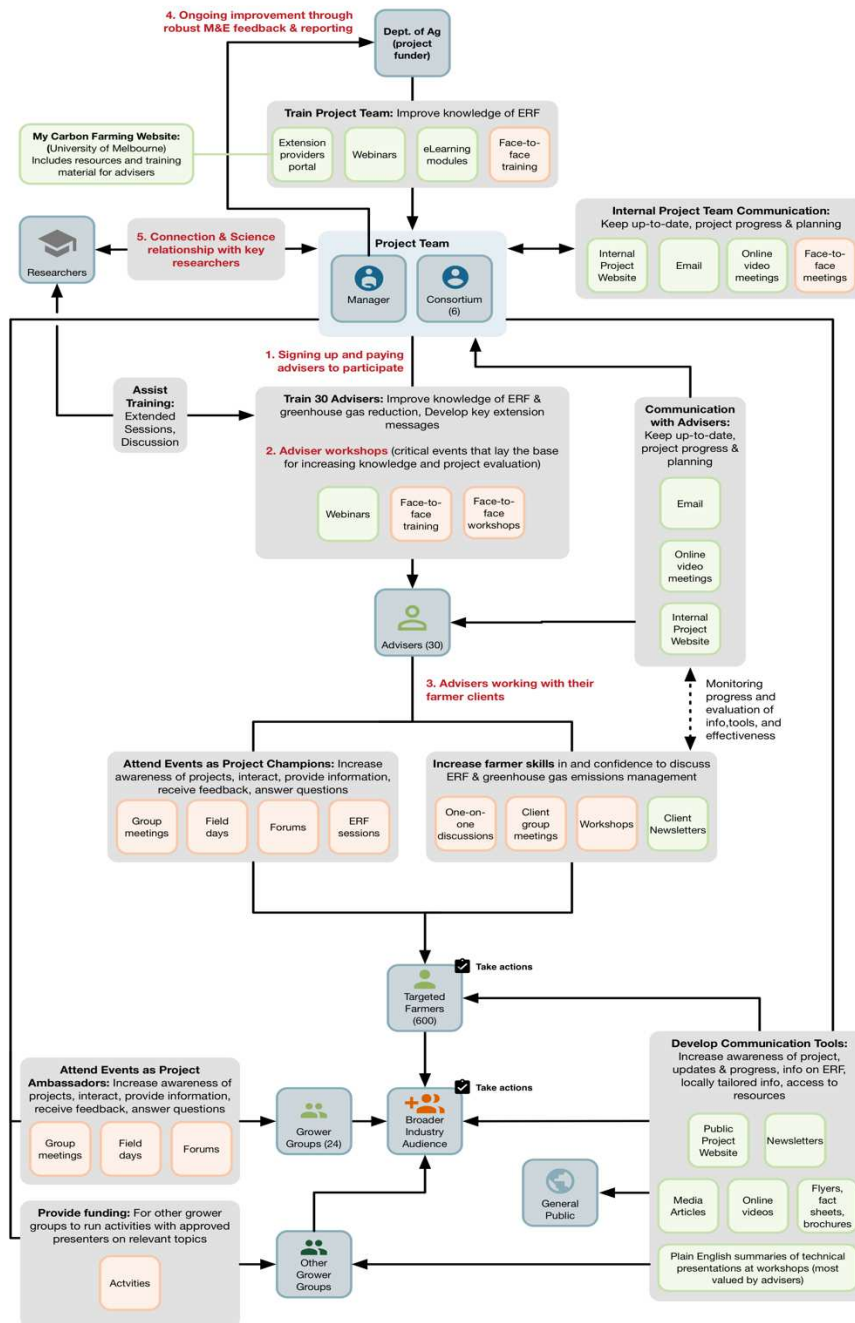
Feedback from one of the farm advisers at the end of the project noted: *It was really surprising how passive the learning has been over the period. Reinforcing the message twice a year over the three years has been really effective. The group now has a great capacity to negotiate their way around some pretty complex issues without any problems. It has given all the participants a great platform of knowledge on which to make decisions.*

The consortium team which led the project were noted by researchers involved the project 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 consultants involved, it was noted: *they are some of Australia's leading extension and advisory consultants 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*.



**Figure 1:** The Carbon Farming Knowledge consortium team, left to right, Peter Cousins, Mark Stanley, Bill Long, Can Nicholson, Mick Faulkner and Harm van Rees.

While looking in from the outside the project methodology appeared to be relatively simple, analysis of this proved to provide a different picture. The following diagram (*Figure 2*) represents the different pathways and connections the project required to be a success.



**Figure 2:** Flow diagram of the Carbon Farming Knowledge project methodology

The Carbon Farming Knowledge project was entered in the South Australian Government ran Climate Leaders Awards. More than 40 award entries were received from industry and community sectors and the winners were chosen from 11 finalists, who represented a wide cross-section of the community. The awards recognise the achievements of South Australians who lead the way in either adapting to the effects of climate change, reducing greenhouse emissions, supporting South Australia’s transition to a low carbon economy or raising awareness of climate change.

Climate Change Minister Ian Hunter awarded Regional Connections the overall prize, as well as winner of the Industry and Business category. Climate Change Minister, Ian Hunter, said that: *These individuals and organisations prove South Australia has strong, passionate and inspiring leaders who are helping the community prepare for and combat climate change.* Premier’s Climate Change Council Chair, Bruce Carter, said that: *Our SA Climate Leaders Award winners are to be congratulated for their pioneering actions to address and respond to the impacts of climate change. Their work is*

helping to build the State's resilience to climate change, and inspire other individuals, business and organisations to take action to support SA's transition to a low carbon economy. The CEO of the Department of Environment, Water and Natural Resources, Sandy Pitcher, tweeted: *Overall winner for carbon farming project ... Regional Connections. Fantastic story of influence, commitment, leadership.*



**Figure 3:** Mark Stanley, Regional Connections with Minister for Climate Change, Ian Hunter, accepting the SA Climate Leaders Award in Adelaide.

### Independent Review of the Carbon Farming Knowledge project

An independent analysis of the Carbon Farming Knowledge project by *Coutts J&R* concluded that the extension approach used 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. (A full report on the evaluation is provided with this report).

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.

The funding provided access to thirty very experienced and respected advisers across south eastern 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.

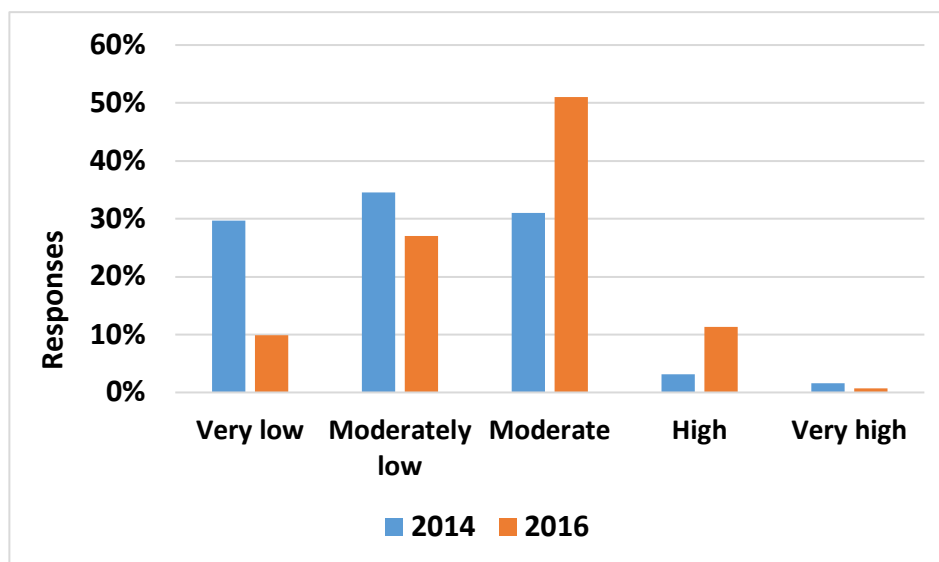
- The study highlighted the importance of commercial arrangements with advisers. Extension programs involving private advisers targeting public good outcomes - where there is little demand from producers and little obvious economic benefits to individual enterprises - require private advisers to be engaged 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.

## Farmer surveys

Two farmer surveys were conducted to determine the change in farmer attitudes and knowledge resulting from the Carbon Farming Knowledge project. The surveys were conducted in July 2014 and again in September 2016. Questions around knowledge, beliefs, confidence and practice change were examined. The surveys were conducted by advisers in face-to-face conversations with their farmer clients. There were 506 responses in 2014 and 529 in 2016.

The emphasis of this project was to build adviser knowledge, with the expectation this would lead to changes in the knowledge, beliefs and ultimately actions of their farming clients. It was assumed that a difficult subject like climate change required more than just a transfer of knowledge, it also needed time to make sense of the information and identify what actions might be appropriate to fit an individual farming business. This required time for one to one discussion. The established trust and confidence that already existing between client and advisers was recognised as an inexpensive way to enable those discussions to occur (Coutts *et al*, 2016) if the advisers could be better informed about the agricultural sources leading to climate change and what could be done about reducing them.

It is clear from these survey results that a very large change in knowledge and understanding has occurred at both the advisor and farmer level. Three adviser surveys conducted during the project (not reported here) showed a massive shift in knowledge as well as confidence in identifying and knowing what actions a farmer could take. This has translated into farmer knowledge, with a profound shift recorded in farmer knowledge on the impacts of climate change on their farm business. The increase in knowledge, whether it was from a very low or a moderately high starting base, was statistically highly significant. The change in both advisor and farmer knowledge occurred in just over two years.



**Figure 4:** Farmer response to the question “How do you rate your current knowledge of the impact of greenhouse gas emissions on your farm business?”

The survey results also support the premise that using existing relationships between adviser and client would lead to changes in beliefs and help inform what actions to take. Using this approach, information could be discussed between client and adviser and important concerns and reservations examined in the context of each farming business. New knowledge, combined with regular one to one conversations that advisers had with their clients, led to an equally positive change in farmer

beliefs about climate change and their confidence in identifying appropriate actions. During the period the project operated, there was a significant increase in farmer's belief that humans *are responsible* for increasing greenhouse gas emissions and that these increased emissions *are causing* the climate to change. In addition, the confidence to select appropriate actions, if they chose to implement them, also increased significantly.

The results provide strong evidence the project has been successful and vindicate the extension model used. While it would be inappropriate to ascribe all the credit for the positive change in knowledge, belief and possible actions just to the Carbon Farming Knowledge project, the speed at which the change has occurred is likely to be the result of active engagement around the climate change issue rather than passive learning and discovery simply through media and extension materials. The project had active face-to-face discussions at the core of project delivery (Coutts *et al*, 2016).

The extension model used will leave a legacy. Most change on farm requires the operator to (i) want to change, (ii) know how to change and (iii) have the capacity to implement change because there are appropriate practices to adopt that are profitable. The Carbon Farming Knowledge project has rapidly influenced the first two of these three criteria by achieving a positive shift in the recognition that change is required and by providing the knowledge, via the adviser, to identify what change is appropriate for an individual farm business. Unfortunately, the possible actions that could be used to capture Australian Carbon Credit Units (ACCUs) were, and remain, very limited for most broad acre farmers.

The reasons there were no projects seeking ACCUs through the ERF was attributed primarily to project set up costs, the carbon price and that there were no actions that were practical, had methods or met the additionality test. The additionality requirements were problematic for the cropping farmers engaged in the project, because most had already adopted stubble retention and we using best practice nitrogen application. This made them ineligible for a project to receive ACCUs. Project scale was also an important consideration that was not mentioned in the survey responses but by the advisors, and relates to the size of an ERF project not being large enough to generate sufficient funds to make it profitable. Opportunities for aggregation could be considered in the future as new methods emerge.

The survey clearly showed it was not because of a lack of interest in some sort of carbon farming scheme, with three out of four farmers saying they would or may be interested in participating future ERF auctions, but a lack of suitable methods to implement a profitable ERF project.

The survey revealed substantial identification by farmers of useful practices to mitigate greenhouse gas emissions and store carbon. A significant finding was the amount of activity that farmers were undertaking that were not motivated by their belief in climate change. It just made good business sense. These practices included adoption of stubble retention, best practice use of nitrogen, tree and shrub planting, pasture sowing, reduction in fuel consumption through more fuel-efficient machinery and practices, adoption of renewable energy and to a lesser extent improved herd efficiencies.

A belief in climate change did not appear to alter practice change. Farmers who did not believe greenhouse gases were causing the climate to change could identify possible actions to reduce greenhouse gas emissions on their farms (if they chose to do so) at a similar level to those who did believe in climate change.

This also translated through to actual adoption, with a similar number of farmers adopting a practice irrespective of whether they believed in climate change or not. Clearly a belief (or otherwise) in climate change is not influencing adoption. Their motivation (I want to do it) was driven by seeking improvements in input efficiency and costs (nitrogen, fuel, renewable energy), productivity (stubble retention, herd management) and ultimately profitability. (*The full report on the farmers survey is provided with this report*).

### Project Statistics

The Carbon Farming Knowledge project achieved its success through the dedicated involvement of the 33 farm advisers contracted to participate in the training and workshop events that supported their capacity building, and to then actively engage their farmer clients and industry peers in discussions around carbon farming. Over the course of the project the 33 advisers held 2,979 one-on-one discussions about aspects of carbon farming with their farmer clients. In addition, they led 113 client group meetings with a total of 1,628 farmers and 432 industry peers. The farm advisers participated in 197 events where carbon farming topics were discussed with 4,213 farmers and 1,217 industry peers. They also supported 40 other events where the Carbon Farming Knowledge project was promoted to 24,835 farmers and 18,063 industry peers.



**Figure 5:** Project farm advisers and researchers in a discussion session at the sixth and final advisers workshop held in Adelaide

The project also reached an estimated 250,000 listeners and readers through radio and television interviews and articles in regional wide and local media. The project website attracted 6,183 hits with 12,158 page views.

Over the three years of the project a total of 355 extension products were produced. This included; 30 videos, including the Carbon Resolution song on You Tube which has attracted 3,338 'hits'; 67 newsletter articles; 91 PowerPoint presentations; 87 publications including 20 plain English summaries of presentations made by key carbon farming researchers at the adviser workshops, 33 articles on the Latest News blog on the project website; and 13 media articles. These products can be found on the project website at [www.carbonfarmingknowledge.com.au](http://www.carbonfarmingknowledge.com.au).





**Figure 6:** Infographic of the products produced and events deliver over the course of the Carbon Farming Knowledge project.

### The future

The Carbon Farming Knowledge project has built considerable momentum amongst the farm advisers involved in the project. There has been a lot of discussion and feedback on how the enthusiasm generated by the project can be maintained into the future. Some of this feedback is best summarised in the following statements from project advisers:

*Would be good to be updated with the group again. See changes and how all have gone with their training and what ideas each consulting group has.*

*Some form of process to stay up to date with changes in methodologies and scientific understanding and opportunities associated with those as they evolve would be interesting. In many cases these changes will be quite slow and small, so perhaps a less frequent webinar or meeting (annually) could suffice in keeping us abreast of these changes.*

*Need to find a way to continue the network. Would be very valuable for the group to try and provide learnings and on ground knowledge in a way to inform future government policy.*

Part of the legacy of the project is that that the conversation will continue between farmers and their advisers beyond the project completion as the difference between this and other extension approaches is the long standing and continuing relationship advisers have with their clients.

The Outreach and Extension program, which underpinned the Carbon Farming Knowledge project, was a very effective, professionally designed and driven initiative. Special mention needs to be made of Sue Bestow and her team in administering the program, and the University of Melbourne team who drove the capacity building section of the program. It was a privilege to interact with primary industry sectors from around the country and to develop relationships with key carbon farming researchers and policy makers at the national E&O meetings. Thank you to all involved in this innovative program and hopefully there is more to come.