

# WHAT ARE NSW FARMERS' EXPERIENCES OF ENVIRONMENTAL MARKETS?

Findings landholder Interviews

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### **Declarations of Conflict of Interest**

The authors have no conflicts to declare.

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# EXECUTIVE SUMMARY

## PURPOSE

Having synthesized the current state of knowledge in the first EMLP report, BWA conducted semi-structured interviews with NSW farmers and landholders. The goal is to understand how the experience of different barriers and facilitators and the local context of participating in, and shaping, environmental markets in NSW, varies between farmers already involved in some form of Environmental Market (EM) versus those who are curious but not yet engaged. Differences identified indicate possibly useful leverage points for EMLP and parallel initiatives to target in efforts to increase participation and shaping of EMs by farmers, and as such, are useful topics for program monitoring and evaluation research to track .

## APPROACH

Our qualitative, exploratory interviews seek to understand potentially important differences in the barriers and facilitators experienced by NSW farmers who currently ARE participating in environmental market transactions (EMTs), compared with those who are not. Respondents also answered questions on trusted information sources, valued aspects of capability and network building program design, and experiences of support from NSW Local Land Services (LLS). The current report builds on a previous literature and practice review study identifying common understandings in the literature, for interviewed policy and program designers and administrators.

Interviews took place with 7 current EMT participants (3 carbon, 4 biodiversity scheme participants), and 13 non-participants, who were interested, but not yet engaged (including some skeptical farmers).

## RESULTS

Current participants described environmental markets (EM) as transaction incentivizing farmers to produce environmental services on their land, that they can then sell (or potentially use to offset their own impacts). Only a minority of non-participants describe it this way, with most expressing confusion about exact meanings. About half of them saw EMs as being exclusively carbon related. Beyond 'offsetting' transactions, non-participants are also thinking of direct payments, environmental certification and marketing, and supply chain pressures. This broader understanding is more consistent with EML program definition: *An environmental market is created when an economic value can be placed on natural capital or environmental services that benefit society, AND there are people willing to produce, sell, buy, or otherwise exchange these in the market.*

## BARRIERS AND FACILITATORS OF EM PARTICIPATION

Environmental markets are not seen as easy to understand, nor easy and cheap to access and participate in by participants and non-participants alike. Financial return is a key facilitator inversely, but this is undermined by perceptions of scheme complexity and uncertainty. A lack of a trustworthy, independent source of advice and support for making good decisions, without conflicting interests, is felt strongly.

EM participants appear to successfully reconcile environmental values with land stewardship values (i.e. good for the farm, farmer and landscape), whereas non-participants with environmental motivations have doubts as to EMTs ability to support their values. This suggests a possible gap in articulating how EM participants realise stewardship values – which would be of value to more environmentally minded and mainstream farmers alike. Participants also mentioned tensions with

tradition as a barrier, but also the aesthetic pleasure and satisfaction of seeing their land thrive, whereas non-participants are not anticipating these experiences.

Non-participants also anticipate problems with opportunity costs (being locked into an agreement when better value options to leverage environmental services emerge) and limited flexibility for future land management and business decisions, to a greater degree than participants, potentially reflecting the above gap in articulating the stewardship middle ground. They were also more likely to mention anticipated difficulties in measurement and reporting as barriers than participants, and not being able to 'count' existing good land management practices. They were suspicious of what happens with and who controls environmental data about their farm, and are discouraged by potentially being complicit in 'greenwashing' someone else's bad behavior via offsetting. Non-participants were more likely to contrast the relative value of this with 'insetting' (i.e. improving their own net balance environmental performance). Participants emphasized the value of 'honest brokers' and intermediaries, whereas non-participants are worried about dodgy brokers with conflicting interests, indicating the important and problematic role of intermediaries and experts in EM. Unsurprisingly therefore, both groups see trusted, independent knowledge sources as important. Participants value the chance to share and learn from each other, but non-participants may not be thinking of this potential.

## INSIGHTS FOR PROGRAM DEVELOPMENT

For the EMLP, these results indicate perceived barriers and facilitators we can anticipate for our program participants. We recommend that both the online platform and supportive network activities directly address the above perceptions, and particularly emphasise the chance for peer-to-peer learning, practical learning and field/case based learning. Articulating how EMT can help realise stewardship values and the outcomes of environmentally friendly and profitable farms is key. Simplifying information where possible, and providing strategies and approaches for making good decisions under uncertainty and time pressures (i.e. entrepreneurship) is also going to be important. This includes on the business side, but also regarding EGS methods, measurement and reporting. While doubts were expressed about the current capacity and resources of LLS in this space, results indicate that active support of participating LLS staff is welcome and important, but also that of other farmers, agronomists and local networks. While online learning is not preferred by most respondents, encouraging in-person interaction between LLS staff and participants from the same regions might offset this negative design characteristic of the program.

It is likely that our interview sample represents fairly interested farmers, already involved in practices like regenerative agriculture, and is less representative of mainstream farmers and corporate farms / agri-businesses. We also suspect that biodiversity scheme participants were less dissatisfied with some scheme aspects relative to the Emissions Reduction Fund (ERF) and carbon trading, but need more evidence to confirm this. The results also indicate that even with this group of farmers who are relatively interested in EM, there are important differences in experience and level of engagement, which shape perceptions and experiences of barriers and facilitators. These results are indicative, and their relevance and distribution across the broader population of NSW farmers requires further research, e.g. via the forthcoming quantitative population survey, and program participants survey.



# INTRODUCTION

NSW Local Land Services, Ethical Fields and Monash University are collaborating on the Environmental Markets Leadership Program (EMLP) with the support of the NSW Environment Trust. This report presents the results of interviews with subject matter experts, and a literature search, supporting the development and evaluation EMLP.

As the program materials describe:

*The Environmental Markets Leadership Program is designed to inspire and support a network of land managers and farmers to play a leading and entrepreneurial role in natural capital and environmental markets. The program supports land managers and farmers to identify, market and financially benefit from activities that protect, restore and/or enhance natural capital. We intend that they complete the program with the confidence, skills and knowledge they need to influence and participate in existing markets and drive the development of new market opportunities.*

For more information about the EMLP please visit the website here: <https://www.emlp.com.au/>

In brief, the program's foci is on the transformative potential of EMs to help farms and landholdings already producing environmental services to be financially rewarded for these activities; and to shift high impact, extractive, production orientated models of agriculture to those that integrate and value the potential to produce environmental goods and services at the same time. In aiming to help farmers and land managers understand and realise this potential, the program recognizes that primary producers play a unique role with their inherent relationship with land/environment, and thus are in a prime position to contribute to a positive future. The hope and belief is that Environmental markets and market-based approaches can influence this transition. The program theory of change includes a focus on boosting a spirit of entrepreneurship and leadership in the sector amongst farmers as key mechanisms.

## OVERVIEW OF THE ENVIRONMENTAL MARKETS LEADERSHIP PROGRAM

The program which this report informs aims to: *inspire and equip a network of farmers land managers with the **knowledge, skills, confidence and aspirations to play a leading and entrepreneurial role in environmental markets.*** (Burkett pers. com. May 2022).

It supports this via four main activities

### Network Building

The program will create a network and community of practice of 125 farmers and land managers that support each other to adapt and innovate. The network will connect online via a social networking platform and meet online bi-monthly for 2 years to share experiences, successes and lessons. Network meetings will be facilitated and include presentations from network members and other market stakeholders to support continual learning and network building. Members of Local Land Services and Landcare will participate in the network and provide regional and on the ground support and advice. The program will facilitate two multi-stakeholder workshops including the network, government and non-government agencies and local advisors such as lawyers, accountants and others to explore new and innovative private market mechanisms emerging from the network, and discuss how to improve the design and delivery of regulated environmental markets.

## Environmental Markets Leadership Course

The program will develop and deliver the EMLC, an eight-week digital learning program designed for farmers, land managers, and agricultural communities to develop the skills, knowledge and behaviours needed to identify, create and optimise existing and future environmental market opportunities. Topics include leadership and entrepreneurship in environmental markets; natural capital and environmental services, current environmental markets, emergent environmental markets; barriers to entry, market readiness and market entry.

## Environmental Markets Plan

A key concrete output of the EMLC is generated when participants complete a 'real work' environmental markets plan project that they start working on during and after the EMLC, take forward and implement with the support of the network. The environmental market plan project invites participants to identify potential environmental services (ES) and natural capital on their property, identify and assess existing market mechanisms, explore bespoke and innovative market mechanisms not available on the market and then plan a path forward. Over the course of the program participants will be provided opportunities to meet market stakeholders such as peers, natural capital and ES buyers and funders, natural capital and ES assessors and certifiers, government agencies administering environmental markets and others.

## Behaviour Change Framework, Research, Monitoring & Evaluation

The whole program is informed by research to identify what environmental market readiness and entry requires from primary producers and land managers, and understand their barriers and facilitators. Our approach combines behavioural insights from literature, interviews and surveys collecting with transformative narratives of change. The research informs the design of the EMLdP, network, farm plan project and other activities to optimise positive uptake and successful outcomes. The program will also monitor key behavioural determinants and outcomes, and will document and share innovative responses to challenges, across a two-year period via surveys and ongoing story harvesting and review. The present report is an initial deliverable within this activity (see Figure 1, below).

# METHOD

## RESEARCH QUESTION AND APPROACH

The primary research question for this report is:

*What differences in barriers and facilitators are experienced by NSW farmers who are currently participating in Environmental Markets, compared to those who are not?*

Given complexity of the issues related to farmers engagement with environmental markets, also outlined in report 1, an exploratory qualitative approach was adopted for this study. This method facilitates a rich and in-depth understanding of the issues based on the honest opinions and experiences of farmers and land holders in New South Wales via semi-structured interviews.

Two interview guides were developed and revised iteratively in collaboration with LLS and Ethical Fields (see p. 18). We were interested to hear from farmers that are already participating in an environmental market transaction— we call them participants – and from farmers that are currently not participating – we refer to those farmers as non-participants. The two interview guides were created for each sub-group, with the intention of identifying what differences in capabilities, motivations, barriers and opportunities might explain market involvement.

The questions focused broadly on:

- Farmers understanding of the term EM
- Drivers and barriers to EM participation including the value for farmers to engage in markets and potential outcomes of market participation
- Interaction with LLS
- Information sources that farmers rely on for decision-making
- Pathways and experiences in EM – for participants only

Recognising that people experience and interpret behaviours, events, and challenges differently, multiple interpretations from a range of individuals were sought until saturation of broad recurring themes was reached.

Farmers were sourced through a list of contacts provided by the LLS. Before being contacted by the research team, LLS informed farmers about the project and asked if they were interested in participating in the interviews.

A total of 20 farmers were interviewed. Seven farmers currently participated in environmental schemes (four participated biodiversity markets and three in carbon markets). The remaining 13 interviewees were interested in EM but haven't actively participated, including a minority having strong opinions against market participation.

Each interview lasted between 30-55 minutes, and was recorded where permission was granted by the interviewees. Interviews were transcribed and then imported into the qualitative data analysis software package NVIVO to identify patterns of meaning across the interviews that provided insights to the research questions. Patterns were identified through an inductive process of data familiarisation, data coding, theme development and revision, where codes and themes were directed by the content of the interviews. Specific topics or insights that were mentioned by only a few interviewees were typically not collated under a separate theme heading, as they were considered topics that were not predominantly held across the interviews, and may have been biased by particular subject matter expertise.

We characterise barriers and facilitators of participation in terms of differing experiences of Capability, Opportunity and Motivation, mapping key themes from the interviews to the COM-B framework, which describes a central system of behavior that can be mapped to commonly used intervention types, and policies (Michie et al., 2014) - see Figure 2, p. 1.



## Prior research

This interview study builds on a previous report providing a snap shot of the state of current knowledge, based on a literature review and subject matter expert interviews. Report one investigated what is generally known or assumed about the the barriers and facilitators faced by NSW Farmers and Land Holders to participating in, and co-creating, Environmental Market transactions (EMT). While the previous report identified general knowledge of barriers and facilitators, the present report provides in depth, contextualized insights into what might be some of the important differences that potentially explain participation in EMTs. The current interviews also inform the design of a quantitative survey to facilitate baseline comparison of EMLP participants with their peers in the broader farming community (see Figure 1).

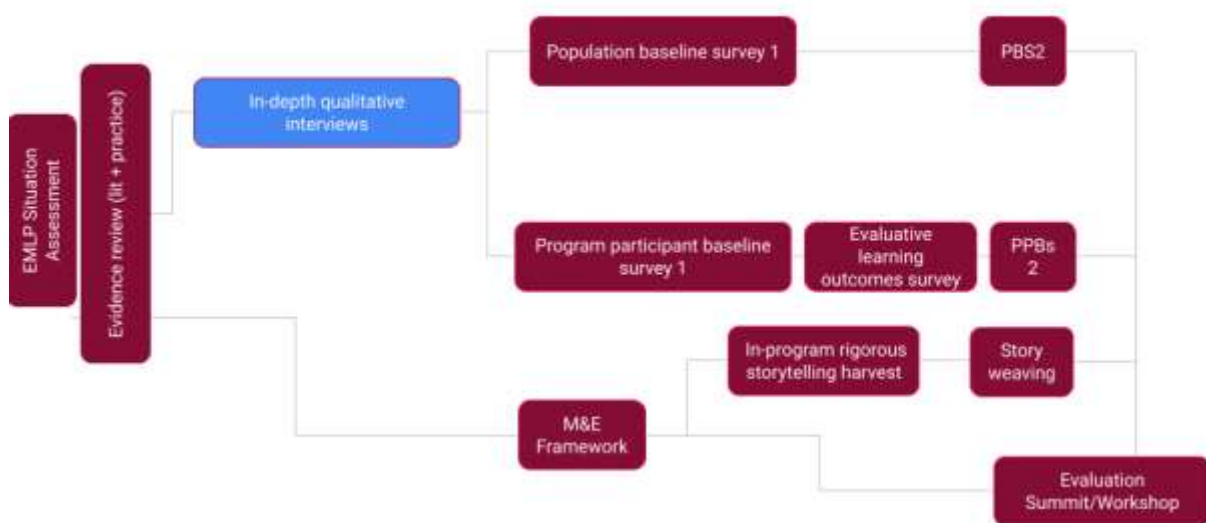


Figure 1: EMLP behavioural research, monitoring and evaluation activities

## Behaviours in scope

A dual strength and limitation of a behavioural approach is that behavioural science tools and approaches are most effective when focused on a key audience and a key behavior. This supports very fine grained identification of drivers and facilitators of change, but also requires careful identification of the focal behavior change using more holistic, integrative thinking (Kaufman et al., 2019). For this initial report, the focus is on the behavior of entering into an environmental market transaction, but we recognize this is just one (key) behavior amongst at least four thematic clusters of behaviours relevant to the research question:

1. **Environmental market readiness:** such as on-site assessments, measurement and business planning to produce environmental goods and services, accessing support and advice
2. **Market entry:** i.e. registering for existing markets, joining associations, approaching funders and commencing negotiations.
3. To have something to sell in markets, farmers must **adopt new or continue with existing practices that create environmental goods and services** typically via one or more of three practices (FAO, 2007, p. 12): **changed production;** where lands remain in agriculture but production activities are modified to achieve environmental objectives (e.g. reduced tillage or leaving more crop residues on fields); **land diversion** e.g. from crop and livestock production

to other uses; and, **land maintenance**, avoiding a change in land use (e.g. retaining native vegetation instead of conversion to agriculture).

4. **Strategic** Given the dynamic nature of environmental markets, **exploring and piloting new and innovative market mechanisms and exchanges**, appropriate for their land, business and region, for example outside of government schemes and in 1:1 arrangements, and also **participating** in shaping the future, e.g. via policy review, development and co-design and co-production of new and emerging markets.

Figure 2: The behavior change wheel and “Capability, Opportunity and Motivation = Behaviour” model (Michie et al., 2014, 2011)

The Behaviour Change Wheel (BCW) was developed from 19 frameworks of behaviour change identified in a systematic literature review. It consists of three layers.

The hub identifies the sources of the behaviour that could prove fruitful targets for intervention. It uses the COM-B ('capability', 'opportunity', 'motivation' and 'behaviour') model. This model recognises that behaviour is part of an interacting system involving all these components. Interventions need to change one or more of them in such a way as to put the system into a new configuration and minimise the risk of it reverting.

Surrounding the hub is a layer of nine intervention functions to choose from based on the particular COM-B analysis one has undertaken.

The outer layer, the rim of the wheel, identifies seven policy categories that can support the delivery of these intervention functions.

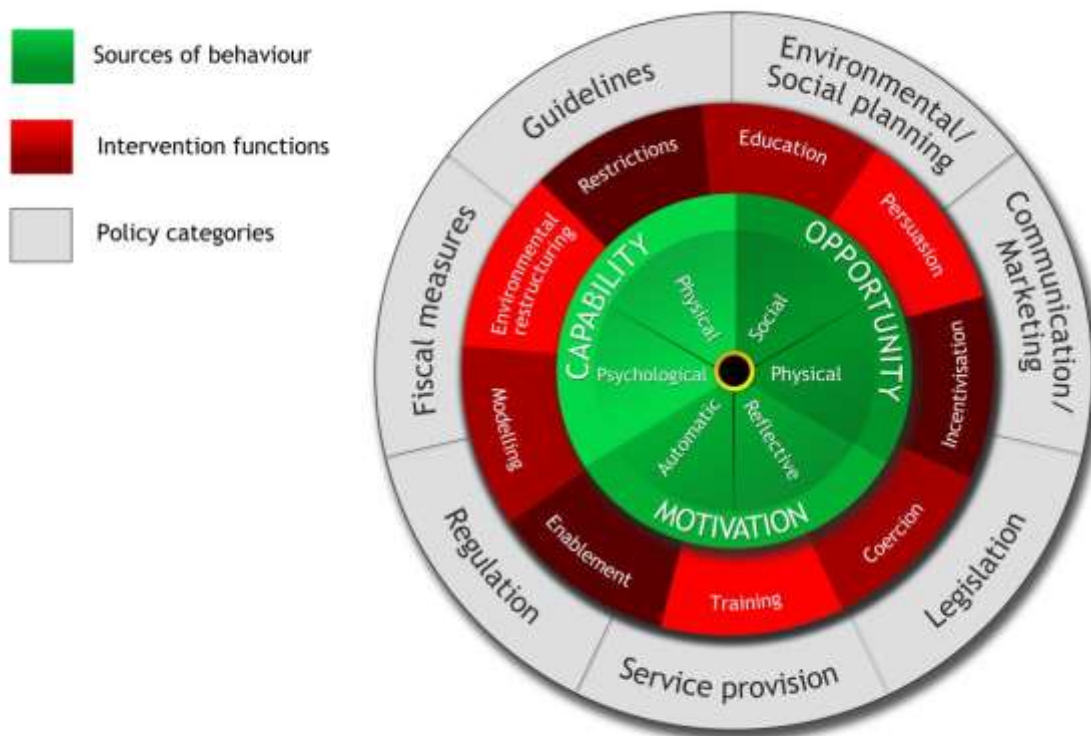


Figure 3" The behaviour change wheel (Michie et al., 2014).

The BCW helps us more precisely characterize barriers and facilitators experienced by the two groups focused on by this study – EMT participants, and non-participants ( , p. 1).

# RESULTS

## BACKGROUND OF INTERVIEWEES

Most interviewees were livestock farmers primarily working with cattle (grazing and beef production) and some had sheep for wool or meat production. Four farmers were predominantly cropping or selling seeds. This is broadly representative of the relative proportions of NSW farm types, but does exclude some lower overall number farm types such as dairy (ABARES, 2022b). Farm sizes ranged from 110-7000 acres with about ¼ of interviewees describing themselves as hobby/part-time farmer or moving into farming for their retirement. NSW locations represented included: Northern Tablelands, Central Tablelands, Upper Hunter, Hunter, Tamworth, North West, Central West, Tenterfield Shire, Riverina, Upper Horton and North Coast.

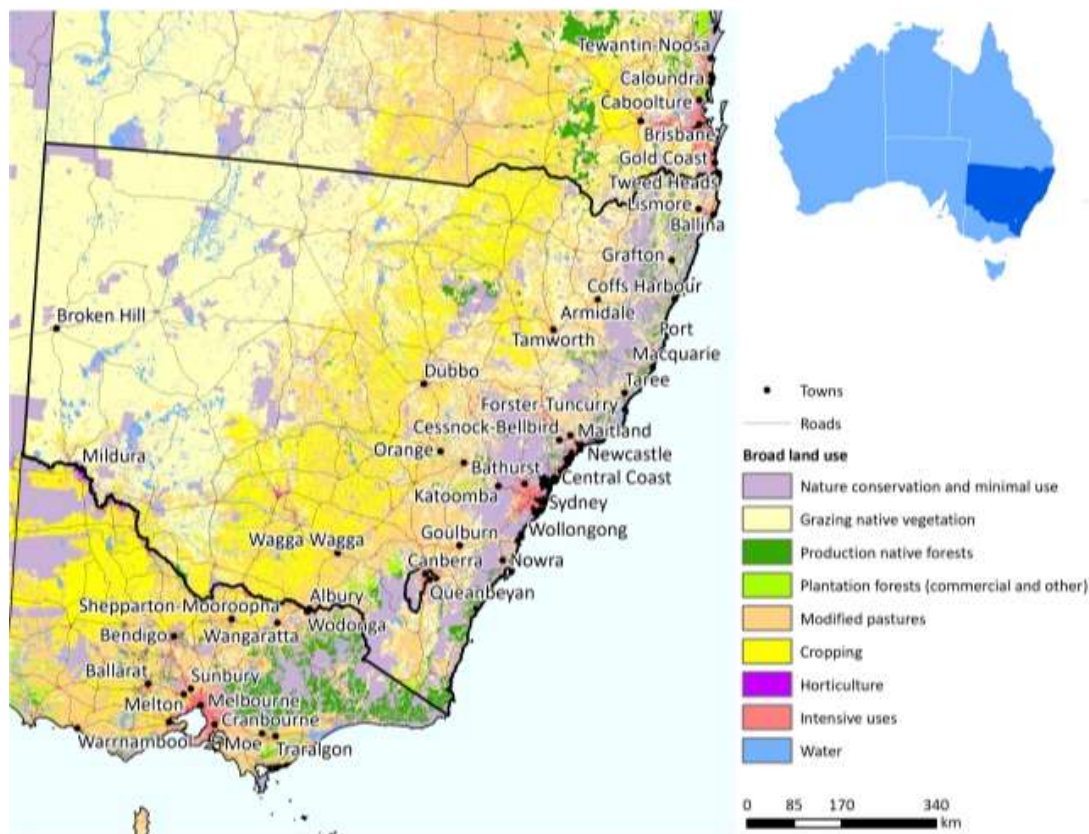


Figure 4: Broad land uses in New South Wales (ABARES, 2022b).

Many respondents were the latest generation of farmers in their family, representing, for example, a fourth or fifth generation of farmers. Although we didn't ask for it specifically, the majority of farmers identified as following a regenerative agriculture approach. We included some more information about the farmers' background in Appendix 2.

Seven farmers were active participants in an environmental market (three took part in the carbon market and four signed up for the Biodiversity Conservation Trust). Interviewees described the scheme that they were participating in at the start of the interview and some interesting difference between participants evolved that we will describe next.

### Participants experience in carbon markets

Two participants took part in carbon sequestration schemes and one was part of a scheme five years ago and in the process of signing up again. For one farmer there were some technical problems resulting from a discrepancy between the baseline measure in 2015 and the T1 measure point.

### Participants experience in the Biodiversity Conservation Trust (BCT)

Four farmers were currently participating in the BCT and most had very positive experience with the BCT highlighting that they found the rules and guidelines around their BCT agreements clear.

*I'm very happy with the biodiversity side of the market, that the experience we've had. And I think that is a pretty open process. I know where I stand, I know what I'm getting, and therefore I'm looking to, we've got another 25 hectares of endangered woodland that we could put under some form of an offset or a biodiversity thing.*

Some had an agreement of grazing as well as vegetation management. The restrictive nature of one BCT agreement that didn't allow any kind of grazing and instead encouraged burning of vegetation was a problem for a farmer who was just in the process of signing up. A holistic approach to biodiversity conservation that considers the risks and benefits for the landholder as well as for biodiversity seems to encourage EM uptake.

The overall experience of farmers in the biodiversity scheme was quite positive, however, it was also very specific towards biodiversity schemes and some farmers expressed their concerns about carbon markets.

*Well, my view rightly or wrongly and talking to quite a lot of people. And I've got a neighbouring farm who's got right into the carbon sequestration side of things, sort of from the big end of town to use the phrase. But my view is that there is a lot of misinformation going around about the viability, the financial returns, et cetera, et cetera, within the whole area of carbon sequestration. Particularly soil carbon sequestration. There are a lot of, I'm not sure I've lost the right word, but there are quite a number of advisors, aggregators, people involved in that side of the carbon market who act as aggregators, middle men. Oh yes we can make you X, Y, Z dollars. Oh yes you can put another two or 3% soil carbon in your soil and get paid for it.*

*The only problem is, depending on your soil type, your rainfall, your management, and a few other things you may get paid for five or 10 years, or most of these schemes are 20 or 25 year period. There's a lot of upfront costs and ongoing costs to test and retest. And if somewhere along the line you've filled up full carbon and then it falls off the cliff because of a drought or whatever.*

This could indicate that the different types of schemes attract different audiences who may have different views and experiences in regards to their drivers and barriers. Given the small number of scheme participants, we were not able to analyse both groups separately but would like to point out this possible point of difference. The following round of quantitative research can explicitly explore differences between these two groups, and potentially other schemes and other environmental market transactions (see below), if sufficient numbers of participants are recruited into the survey.

## UNDERSTANDING OF ENVIRONMENTAL MARKETS

One of the first questions asked of interviewees how they understand the term EM. Understanding differed markedly between participants and non-participants.

Participants were often able to describe the concept of in terms like the following:

*Environmental markets [...] is where there is an economic incentive provided to the landholder to create an environmental service that they can then sell. That environmental service might be a biodiversity, it might be carbon, it might be water, it might be trees, and it might be any one of a number of those things.*

Only a minority of non-participants had a clear understanding of the term EM:



*Oh, it means, a market farmer is actually getting paid to do what essentially everybody wants them to do, but are not prepared to pay them to do. So, to produce a delivery of environmental services, whether that be clean water or whether it be carbon storage or whether it be maintaining biodiversity.*

Nearly all definitions from both groups appeared to focus on a transaction, typically in an offset scheme (i.e. someone else purchases the 'credit' generated). It wasn't clear how many participants understand such credits are then 'consumed' and can't be claimed as part of the farm and its products environmental credentials, although this is a common confusion we have heard in related projects. Understanding of the term EM was much less clear for non-participants and out of the 13 respondents in this category, ten stated that they are confused about the term and do not know what it is about.

About half of the respondents focused primarily on carbon and did not mention biodiversity schemes at all. Among non-participants, there may be a broader expectation of the term applying to non-offset transactions, such as Payments for Environmental Services (i.e. a direct investment to enhance environmental services), or as a reward for good land management practices

*I was wondering what it is all about. I would think it is being more friendly towards the environment, but in a macro scale. So, there would be many smaller things that would contribute towards the environmental market and benefit from that.*

And some non-participant farmers have a sophisticated understanding of alternative pathways to derive value from being able to monitor, report and verify environmental services produced on their land. But, rather than by selling the credits, retaining them for marketing to consumers, supply chains, market access etc (see barriers discussion below).

*I know I'm going roundabout, but I'm trying to get my head around what this is all about and what the point of it is. And the other type of environmental markets would be the type that I was talking about before, which seems to be the one that politicians seem to be most in favour of talking about. And that is the offsets and carbon offsets and carbon credits and things like that, which is very different. Because [inaudible] wants to pay you directly so that they can pollute or knock down some bush somewhere, whatever. Yeah so, I am interested in environmental markets from a marketing-to-consumer point of view. And in that respect, I suppose I am in a couple of those systems or programmes.*

*One is called the EOV, which is Ecological Outcomes Verification. That's run by Australian Holistic Management Cooperative. And the other one is The Responsible Wool Standard, so that's another QA programme which you get an internal audit, you get an external audit, it's a global certifying stamp. You have to tick boxes on biodiversity, ground cover, animal welfare, all that general environmental market stuff.*

*And then you get to put on your paperwork that goes with your wool to auction, or private, that it's RWS certified. And generally I've found that it tends to give me a premium on my wool 20c, 50c, 100c a kilo above the market indicator. So I'm absolutely confident that there is demand for qualities behind a product that aren't necessarily about their product, but how it's produced and all that stuff from the consumer point of view and they're definitely demanding it. I'll be interested in continuing my engagement in those. Oh yeah. But the other ones...*

Overall, this shows that the term EM means a lot of different things for different people and farmers often lack a clear understanding of what it is all about. This has implications on the participation and taking up a leading role in EM if there is no general understanding of what EM entails. We included all definitions provided by interviewees in Appendix 3. Amongst this confusion, there did seem to be some appreciation that EM value exchanges can occur outside of formal credit transfer policy frameworks, i.e. more in line with the broad program definition of EM given in the introductory section (i.e. including, but not limited to, formal market schemes like the Emissions Reduction Fund or state or federal biodiversity schemes.



## SUMMARY OF BARRIERS AND FACILITATORS TO EM PARTICIPATION

We report the results for non-participants and participants together to reduce redundancy particularly in cases when similar points were made. The items were coded with references to the COM-B model, and we first present an overview table of what the main themes for drivers and barriers were.

COM-B	Barriers	Non-participants (n=13)	Participants (n=7)	Facilitators	Non-participants (n=13)	Participants (n=7)
<b>Reflective Motivation</b>	“in-setting” v “off-setting”	X				
	Ecological values				X	
	Stewardship values				X	X
<b>Automatic Motivation</b>	Tradition/ path-dependency		X			
<b>Psychological Capability</b>	<b><u>Information complexity</u></b>	<u>X</u>	<u>X</u>	<b><u>Reducing info complexity</u></b>	<u>X</u>	<u>X</u>
				EM options / awareness	X	X
<b>Physical Opportunity</b>	Opportunity cost	X	X	Seeing healthy land	X	
	Measurement & reporting hard	X	X			
	Additionality problem	X	X			
	<b><u>Financial and time cost</u></b>	<u>X</u>	<u>X</u>	<b><u>Financial incentives</u></b>	<u>X</u>	<u>X</u>
<b>Social Opportunity</b>	Data sovereignty	X				
	Green washing	X				
	Distrust in government/policy	X	X			
	<b><u>System dissatisfaction</u></b>	<u>X</u>	<u>X</u>	<b><u>Scheme characteristics</u></b>	<u>X</u>	<u>X</u>
	Dodgy EM broker		X	Honest EM broker		X
				Linked-up EM participants		X
				Trusted source of knowledge	X	X

Note: **Bold underlined barriers and facilitators, and ‘X’ marks**, indicate this theme was particularly prominent for both groups. **Orange tinted** barrier cells or **green tinted** facilitator cells indicate possibly important points of difference between participants and non-participants that may be fruitful targets for interventions.

Table 1: Comparison of EMT Participants and non-participant's experience of barriers and facilitators.

## BARRIERS TO EM PARTICIPATION

In our interviews we asked about the barriers to EM participation. The complexity of both the system and information about it loom large, but a wide variety of barriers are evident.

### “In-setting” versus “Off-setting” – non participants (Motivation – Reflective)

Some farmers that are currently not participating stated that they are not likely to participate and sell carbon credits because they prefer to use their own carbon credits that they may need in the future to prove that they are carbon neutral or carbon positive. This was particularly brought up by beef cattle farmers but also merino wool farmers who preferred to add more value to their core product by engaging and being audited for environmentally friendly farming practices. This is related to ‘lock/in’ below, but more about embodied environmental performance of the farm and its products. Representatives of Meat and Livestock Australia have described this as ‘insetting’ carbon credits versus ‘offsetting’ them.

*We're probably also leaning towards the fact that we don't want to sell the carbon, [...]. I think that in the next five to 10 years, how we market our beef could actually... We need to validate that we are carbon neutral or carbon positive because our customers are going to demand that.*

*There's some value in terms of, I guess, being able to bring in their own product that could be an advantage to some producers. Because there's two types of environmental markets, I suppose we're talking about. There's one where you catalogue and you collect the data on your environmental services and then you present that data bundled with your product that you sell, be it grain, vegetables, wall, lamb, milk, whatever. And you use that purely as a marketing tool to give yourself some credibility in the consumer market*

### Tradition / path dependency - only participants (Motivation – automatic)

Changing land management practices is hard and tradition can get in the way of any change. Participants often referenced the quote of *‘this is how my father has done it, that's why I do it, and my father didn't work with carbon farming, why would I?’*. One participant described *‘farming as the peer pressure from dead people’*. Non-participants didn't note tradition as a barrier – but this may reflect they're not feeling the conflict at the present time – i.e. analogous to the joke/philosophical reflection about how fish take water for granted until a major change (Wallace, 2009). This may also exacerbate the dynamics we note on regarding the additionality barrier below.

### Information complexity / EM are too complex (Capability – psychological)

While strongly influenced by related drivers below like system dissatisfaction, uncertainty and a lack of trusted sources, the result is confusion around understanding EM information. We include it as its own barrier, because it was one of the most prominent barriers in interviews.

Participants and non-participants critiqued that people simply don't know about the different types of existing markets and potential market approaches. They are forced to navigate in a sea of conflicting information from sources of uncertain trustworthiness for farmers.

*Well, I guess the information and where to find information is also always very helpful at these programmes, because sometimes navigating your way around government sites is not only time consuming, but sometimes you feel like you're going around in circles and can't navigate the information that you want. (Non-participant)*

Participants described the challenge of having to enter the market without enough information to make informed decisions.

*So we were early adopters and we knew we were locking in, but we saw that at that point was the best thing to do. We don't regret the decision at all. [...]. But there's small things along the way where we probably were not as informed as we could be now because there just wasn't information. (Participant)*

*Probably trying to work out where we thought it was going in the future. From not a lot of information available. We didn't, we probably... We understood that you couldn't lose. [...]. Probably biggest concern was how do we make a maximum win if you understand what I mean? And in hindsight, we've probably done some things that will not give us as good a result as possible, that's clearly possible now. (Participant)*

### System dissatisfaction (Opportunity – Social)

Dissatisfaction with the current EM system was the major barrier and point of critique by all farmers. We report the general dissatisfaction first and then go into specific issues that farmers pointed out around EM.

The current system is not set up in a way that it is easy to navigate in for farmers and participants and non-participants alike shared the experience that:

- The market is not well regulated

*The carbon market seems to be a space that is not very well-regulated, if you like, in Australia. And also not very well-explained. Seems to be a lot of promise there, but not a lot of rigour in what is actually being sold by some people. (Participant)*

- People don't understand the market and market service providers do not try to reduce the complexity

*I talked to a lot of traditional farmers around me and they all sort of half know about it. They're all interested in it, but just don't understand it at all. (Participant)*

*At the moment, it seems like the market's being driven by the aggregators. And it's in their best interest to make it as complicated as possible so they will continue in their existence. (Non-Participant)*

*So maybe if you relate it to the tax system. Some people can put in their tax return on their own, and some people need to pay a whole floor of Pricewaterhouse to do their tax. It feels like everyone needs to pay the whole floor of Pricewaterhouse just to enter the market. Surely there's different levels of entry. (Non-Participant)*

- Even providers struggle to answer questions and navigating in this complex sphere.

*Even current accountants won't know how to do carbon accounting.*

In the carbon market, changes in the measurement methods and underlying science were leaving landholders confused and unsure. In regards to biodiversity, strict regulations on land management practices ('locking land up and leaving it'), are central barriers to market participation.

Recurring questions that need to be answered were

- 'What happens with my contract when I sell my property?'
- 'What happens if I can't deliver the amount of carbon that was set out?'
- 'What happens if I get affected by floods, droughts, fire?'

### Lock-in / opportunity cost (Opportunity – Physical)

Another major point of dissatisfaction with the current EM system was the fact of 'being locked in' a contract that runs over several years or decades. This point was frequently mentioned by non-participants but also came up in our interviews with participants. Participants were less concerned about this aspect when they felt the scheme regulators had some discretion to be flexible – for example allowing winter grazing, or emergency (non-permanent) changes of land use to adapt to fires and floods. But these concerns also extended to future business and inheritance plans:

*So I think just knowing where you're locked in and your commitments, that's a big thing because it sort of hampers your freedom in a way and whether... If you sold the property, what would happen? So those kind of legal sides of it as well are important. (Participant)*

Non-participants as well were considering the impact on future generations and frequently brought up the concern of what happens when you sell your property. In addition, they also expressed the concern of being restricted by a current contract to enter a 'better' contract that might come up in the meantime given that EM are still evolving. Non-participants were also mindful of the implication that entering an EM agreement might have on changing one's current production system.

*I just think you need to be mindful of the longer-term wealth creation, so you don't want to be locked into a production system that's restrictive because of some of the outcomes you need to produce if that's going to limit your capacity to generate longer-term wealth from potentially a more profitable enterprise, but that might not have the involvement or outcomes that you're wanting to achieve. (Non-participant)*

This theme is similar to, but broader than, "in-setting v offsetting", raising issues of land use flexibility, adaptability to changing availability of transactions, volatile value of credits, business model changes, adjusting to climate and natural disasters etc.

### **Additionality problem (Opportunity – Physical)**

Whatever the pathway to generating value, participating in environmental markets requires initial measurement and baselining of current natural capital and environmental services on the farm. For example, to participate in the carbon market, baseline measurement to determine carbon levels at T0 are currently required. Through a change in land management practices the amount of carbon is then monitored over the contract length and additionality<sup>1</sup> refers to the amount of carbon that is sequestered due to a change in practice. This process is a major hurdle for market participation for non-participants, as it is felt to discount any kind of 'good work' (i.e., environmentally friendly practices) that the farmer has practiced in before engaging in EM, and reducing the net gain that a farmer can achieve.

Applied bluntly, it raises the problem that farmers who've demonstrated their ability to deliver sustainable land management (SLM) practices may not be able to claim credits for them (on current land under management at least). Meanwhile, farmers who may face a steep learning curve to apply new sustainable land management practices may be incentivised to rush in and do it poorly, or lack support to implement them.

Some existing SLM practitioners also pointed out the 'perverse incentive' to undo existing practises to qualify for additionality:

*So we believe in the practises that are driving the carbon from an agricultural point of view. We've been doing it on one block for nearly 12 years now, so the gain that we would actually have had on the increase in carbon there is probably already done. But I think the way the market's set up, they've got a very narrow focus on additionality, and that will cause perverse outcomes. So I could walk out onto what I've done, doing amazing farming practises, and implement something less advantageous. Or I could go out and essentially destroy the carbon that would've build up in the last 10 years. I could change my practises in five years. I'd have it back down to half of what it is now, get a baseline and then start again. (Non-participant)*

*Who decides what additionality is? That can get very grey, that could get pretty politicized. (Non-participant)*

*Yeah. I think that's pretty much the view that most of them take, which is really not necessarily what the regulator wants to hear. The regulators seem to expect that everybody's going to suddenly wake up, have an epiphany, and become a regenerative farmer, even though they've got several generations of tradition. (Participant)*

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<sup>1</sup> GHG reductions are *additional* if they would *not* have occurred in the absence of a market for offset credits. If the reductions would have happened anyway – i.e., without any prospect for project owners to sell carbon offset credits – then they are not additional. Additionality is essential for the quality of carbon offset credits – if their associated GHG reductions are not additional, then purchasing offset credits in lieu of reducing your own emissions will make climate change worse. (<https://www.offsetguide.org/high-quality-offsets/additionality/>)

### Measuring and reporting is hard (Opportunity – Physical)

For current participants the need for record taking and discrepancy in the measurement process as described represents a hurdle.

*One of the other things, as I said earlier on, being on the bleeding edge of it was, perhaps a bit of naiveté on my part as to the almost obsessive-compulsive need for record keeping. That, on this date I got up and I did that. Which may suit some people, but definitely doesn't suit everybody. (Participant)*

### Financial costs and time costs (Opportunity – Physical)

For participants and non-participants alike money and time are considerable barriers to participation. Participants mainly referred to the high upfront costs for baseline measurement of carbon and biodiversity markets and described markets in general as not being a free ticket.

Non-participants comments referred as well to the high entry costs that may not be in relation to the gains that they could achieve due to expensive baseline carbon testing. This was paired with the concern of not being of a certain size to justify the cost. One farmer mentioned to hold off with the baseline testing for now, due to the unregulated market and the fact that testing may be only half the price in six months' time, indicating that uncertainty and risk may be escalating perceptions of this barrier.

Both groups acknowledge the time factor that is needed to get ready to participate in EM (receiving and processing all relevant information) and then the administrative costs that come from participation and record holding. This is coupled with the fact that farmers are being already described as time poor.

*Just from my experience, working with farmers over the last 20 years, when it comes to environmental stuff, they're very time-poor. Having time to stop and think about something that's a bit different, whether it's doing environmental works or engaging in the market, they might be interested, but it's a bit low down on the priority list. There's always something that pops up, which is a new priority. They find it hard to get to it. (Non-participant)*

### Data sovereignty- only non-participants (Opportunity – Physical)

For some non-participants only, concerns about sharing farm data with an EM provider was expressed as a barrier to EM participation. These concerns were not brought up by current participants.

*Sovereignty over data is an issue that had to be dealt with in relation to carbon markets. (Non-participant)*

*And also, if you give away that administration knowledge of how your carbon's being measured to someone else, and they're keeping all that data, I don't know. What happens when they go broke and things like that? You are at a deadweight loss. So there needs to be a way where you can figure it out yourself, and have it stored on your own systems. And you know where you're at, instead of putting it in the hands of someone else. (Non-participant)*

### Green washing - only non-participants (Physical Opportunity)

The current reputation and system of EM is dubious for some non-participants. Non-participants were not willing to participate in a market where the 'perpetrators' can just buy some credits and keep damaging the environment. Interviewees were generally interested in the concept of EM but would like to see a clear path that they would contribute to the greater good and not just provide a justification for environmental degradation at another location. One farmer described EM in this context as a convenient accountant's solution to a scientific problem of biodiversity loss.

*I'd like to see environmental markets or a type of environmental market where it's very clear that there's not this trade off. We're not selling our environmental services so someone can undermine environmental services somewhere else. If I can see a clear path where the environmental services that, I guess we want to get paid for them, but there's no strings attached. I guess that's the problem I've got with the carbon stuff, the major buyer is the emission reductions fund. And while they're doing that, there's not the pressure to decarbonize industry, transport, coal, whatever. (Non-participant)*



*Well, to give you your donate blood analogy, which I think is a really good one, I think we could work on that. [...] if you donated blood and you donate it or even sell it [...] and then the highest bidder bought it and just tipped it out on the ground and said, "Ah, well, I've paid for it so you shouldn't care." (Non-participant)*

*It's it seems to be a convenient accountant's solution to a scientific problem, of biodiversity loss. Like, "Knock down a forest here because we'll just find somewhere similar." I want to be firmly helping solve the problem of biodiversity loss. I don't want to be trading what I've done to allow some inappropriate development somewhere else. So that's, what's really made me just not go near it. (Non-participant)*

These comments further indicate that while environmental values combined with a belief in the integrity transactions can be a facilitator (below), when they are combined with beliefs and experiences of greenwashing and scepticism about the integrity of the scheme, or that 'monetising' environmental services fundamentally degrades their value, it becomes a barrier.

### **Distrust in government/policy (Opportunity – Social)**

Farmers from both groups expressed concerns towards the integrity of EM and their distrust in the government. Particularly non-participants had questions about how EM might be affected by a change in government policy goals, and/or possible implications for compliance and enforcement functions (related to data sovereignty concerns also).

*Oh, I think generally land farmers have been very cautious of participating in government programmes. It comes back to trust in terms of why is the government wants to do this? Is it the big brother system? Looking out for what we are doing. (Non-participant)*

*So is all your potential good work going to be undone because of a change of policy or how is it guaranteed that those changes that you've made are going to be recognised and valued into the future? (Non-participant)*

This can also be associated with seeing EM as a commercial pathway to pay farmers to have any sort of stewardship role, without the government itself being willing to fund it.

*There just doesn't seem to be a willingness for the government to pay farmers to have any sort of stewardship role. If there's a commercial way to do it, which is the way I see most environmental markets happening.*

As is indicated by specific comments about LLS as an arm of government later in this report, this maybe more of criticism of politics and its flow-on impact on policy priorities, public administration and programs, rather than necessarily distrusting local representatives of government. However, the two come together when trusted local representatives are seen as being overridden by changes in political and funding priorities, or unable to protect farmers from conflicting goals of other arms of government (e.g. compliance and enforcement functions).

## **FACILITATORS OF EM PARTICIPATION**

We asked what kind of things tend to make it easier for farmers to engage in EM. Financial incentives, making the system easy, providing an independent advisor service and sharing farmers' experiences of engaging in EM with other farmers were the key themes that we heard.

### **Ecological and Stewardship values (Reflective – Motivation)**

Only farmers who are currently not participating in EMs saw the value of EMs purely in environmental context. This seems surprising at first, but we also found that almost half of the non-participants stated that they are 'doing it anyway', which means that non-participating farmers already engage in the practices that are part of EMs but without being rewarded.

*And at the moment, we do all these carbon sequestration practises. But no one knows, we're just doing it from our own ethos and values. (Non-participant)*



Non-participants see the value of EMs in “leaving the land in a better condition than when they took over” and they referred to the potential of strengthening the connection with land through different land management practices and as the only option that farmers have in order to survive the changing climate.

*I think it's the only way farmers are going to survive. I think it's the only way our environment is going to get managed any better. (Non-Participant)*

These insights seem to suggest that for some farmers environmental values and concerns could be a strong motivator for engagement in environmentally friendly practices that align with EM. However, it seems that there is something stopping farmers with ecological values engaging in EMs – i.e. at least some of the ‘unique’ barriers experienced by non-participants but not participants may reflect perceived conflicts and tensions. If this is correct, EM participants may have found a way to navigate those tensions, whereas non-participants can not yet see that pathway.

For most farmers in our sample, environmental values and financial gains are intertwined. Participating farmers described their holistic view of farming in the way that increasing sustainability in the farming context often automatically improves economic outcomes. EM participation is then often seen as money for something that the farmer is doing anyway because they initially instigated it to improve their farming productivity.

*I think that environmentally healthy properties produce healthier economic outcomes. Yeah. But again, you need to run country in a more sophisticated way. I think that the ability to spread and diversify income is important for farmers. I think that there are health benefits for thinking about country in a holistic way and living country in a holistic way. I think that there's a happiness question in all of that. And I wouldn't underestimate that either. I think that it's when you see farm suicides and all those sorts of things, I'm betting they don't occur with the environmental farmers. But I don't know the statistics. (Participant)*

*For doing what we're doing anyway. We were in this programme to make a better farming process and a better farming output and more profitable outcome. And in doing that, we create soil carbon. And therefore we decided to take the step to get a credit bit so that we could claim the benefit. (Participant)*

For non-participants the desire to improve the natural environment and ecosystems on their land is a primary value. They see the financial incentive as a nice encouragement to continue their environmentally friendly work.

*Well, first and foremost, for us, it is about our own desire to have a better environment around us and our ecosystem functioning for us and for our property. If obviously we're participating in an offset style or we're selling some of these environmental aspects of our property, then that money, those funds would go back into helping improve your property, into help improve your landscape. (Non-Participant)*

*Well, if it's going to increase sustainability. I mean, some cash in the pocket to be able to do some good stuff would be really encouraging, but at the end of the day it's about being sustainable. (Non-Participant)*

Positively, this may indicate potential for EM transactions that stack and combine ‘co-benefits’ (e.g. carbon and biodiversity, or increased productivity and some environmental benefits being ‘in-set’ (e.g. biodiversity) while others are ‘off-set’ or sold as credits (e.g. carbon). Negatively, it suggests possible conflicts and disappointment around additionality (i.e. being unable to be rewarded for existing land management practices), or not being able to claim as ‘insets’ environmental goods and services already sold as ‘offsets’, particularly where this fuelled by perceptions of greenwashing and a lack of scheme integrity.

It may be significant that subject matter expert interviewees in our previous report felt that environmental values and identity may alienate more mainstream farmers, yet most of our interview sample appear to hold them. If that is correct, then encouraging mainstream farmers into EM transactions represent yet another puzzle, as many of these values dimensions could apply in very different ways. The quantitative survey study following this interview report is an opportunity to better understand more mainstream farmer values and perspectives.

### Reducing complexity / trusted source of knowledge (Physical and social opportunity)

Reducing the complexity around EM systems and providing information in a user-friendly way is one important way to increase EM participation expressed from both groups alike.

Central for this is to bring clarity around the obligations, so that the farmer knows what he/she signs up for and is clear about the risks and opportunities. Setting up a central trustworthy platform with all relevant information around the scheme would be regarded as beneficial. There was no consensus around whether this central platform should be government run or through a private market provider. Some farmers recommended LLS to become this channelling voice, other landholders preferred an independent contractor similar to their agronomist. In any case, farmers were calling for an expert in the field that preferably is not local and therefore independent of any local politics but still needs to know what they are, and be a credible source for landholders. When asked who this could be, farmers didn't know themselves.

A key focus in any case should be on providing clear guidance about different options for EMT, their relative costs and benefits, and what requirements they place on whom over the lifetime of the arrangement.

*Understanding what restrictions or limitations for opportunities can be put on the existing enterprise. And then what sort of outcomes that's going to encourage to produce. (Non-participant)*

Evidence informed behavioural science principles have been successfully applied to communications to improve and simplify regulatory guidance in other policy problems (Faulkner et al., 2019).

*So it'd really be helpful for there to be an independent body, if you like that could oversee, say, "Well, this is set. This is what you're committing to here. And this is how much that person's getting for what you are doing, and this is what you are getting. And if you want to do it, go ahead." But yeah, just reading through the jargon and reading through the technical part of it, that may be above the heads of the people involved, I suppose. (Participant)*

*That is why I think there should be maybe something built, where complexities are taken out and explained in a simplified way. (Participant)*

When providing information, it is also important to keep the needs and capabilities of the target group in mind. E.g., some farmers are older, with potentially less technical affinity, and have a preference for printed information in a font size that is easily readable. Others might be university educated and entrepreneurial, wanting highly relevant, concise and technically literature information to help make a very specific decision.

*Simplify the message by don't let people go and read 20 pages to get a single line answer. (Participant)*

But beyond communication, there are underlying challenges with the suitability and availability of different methods and metrics to apply.

*I think quantifiable metrics that have some standard that is recognised widely, they're the basis for anything I think. And if you can point to it and identify it very clearly, and it's recognised by everyone that that is what you're actually trying to sell, then that's probably the basis for any of them, I think. (Participant)*

### EM options / awareness – knowledge of (Capability – psychological)

A positive experience leading to better understanding and knowledge about the general EM process was a facilitator of engaging in EM for both groups. A participant pointed out that going through the process has helped a lot to get further insights into carbon sequestration. A non-participant could see that engaging in EM may help to gain a better understanding of different types of EM and identifying the ones that are most suitable for their farm.

*Being more aware, more conscious of the environmental markets and perhaps gives you the opportunity to continue to develop some parts of your property to focus on particular markets that may suit you better than others. (Non-participant)*

### Financial incentives (Physical opportunity)

The most frequently mentioned driver for EM participation is the financial reward, although as discussed above, this can relate to how it enables long term business plans, the viability of the farm and increasing resilience. Particularly current participants see EM as a bonus for practices that they are doing anyway.

*Well, I would've done it anyhow, but then no, there's an opportunity for me to get some revenue out of this. (Participant)*

*Again, for me, I think what I do is, anyway, putting the carbon in the soil, and therefore, okay, I can get a financial benefit by just doing what I would do anyhow. (Participant)*

Few participating farmers valued EM purely for the money.

*So yeah, there's no real benefit for a lot of people to look after their farm in any particular way, unless there's a dollar in it. So like anything, no one's going to mow their lawn around the house if you don't have to, unless your neighbours start complaining and all that sort of stuff. So no one does anything for nothing. (Participant)*

But also for non-participants is profit a strong driver.

*Well, you'd have to look at the economic, the dollar that you would get out of it. (Non-participant)*

Some participants pointed that the narrative around EM should be changed to attract more farmers by emphasising productive co-benefits, mixed use and stewardship values. Instead of focusing on the upfront cost for environmental services, more emphasis should be placed on the profit that farmers can get from purely engaging in environmentally friendly practices plus the benefit that can come on top of this from EM participation.

*If you came to farmers and said, see all that upgraded forest you got up there, there is a way there is potentially a way where you could still harvest some of that, but also get biodiversity credits or carbon credits. That's how you would get interest (Non-participant).*

### Linked up EM participants (Social Opportunity)

Collaborations between farmers currently participating in EM and those that are about to sign up for an agreement were seen as a driver for EM uptake. This could include networking and site visits as well as having someone to turn to for questions that have been through the process before. Landcare was often mentioned, and a regenerative agriculture network and short courses.

*About two years after we did our BCT agreement, another family who got some biodiversity type country [inaudible] a bit of grazing country not far from here got in touch with me and I'm sure other people would do the same. I shared my experiences. I went and had a look at their block and just discuss what I'd learned, gave more information I could. So I think there's more people out there who have had experience who are prepared to, I hope, [inaudible] are prepared to share that experience. (Participant)*

### 'Honest' brokers - only participants (Opportunity – Social)

Choosing 'the right provider' has a positive impact, and the 'wrong one' a detrimental impact on market participation and the outcome of EM participation for the farmer. This specific point was only brought up by participants.

*And to me, the biggest question in the carbon market is who are you going to choose as your provider. Or if you are going to try to do it yourself. And I think most farmers don't have the wherewithal thing to get around the regulatory issues. So it's about how do you choose a provider, is the main marketing question. And then it's about how do you change your farming practises to build soil carbon and sustainable soil carbon. (Participant)*

*And there's going to be parties involved in the marketplace that want to take a fair chunk of the income from any markets and not accept any of the risk, and pass all that risk onto the producer or the farmer. So I think farmers need to be very aware of what risk they're involved in and what that means for their business, yeah. (Participant)*

This could be seen as the culmination of related barriers above – if its hard to understand, upfront costs are an issue, especially for baselining, government is not trusted or ‘absent’, then intermediaries such as carbon brokers play a crucial role. All-in one intermediaries have a potential conflict of interest in terms of being paid to both measure and verify the EGS on the farm on the one hand, and in negotiating the allocation of risks/obligations and benefits (receiving many of these) with the farmer and the funder. Therefore, choosing an ‘honest’ broker is crucial.

## EXPECTED OUTCOMES OF PARTICIPATING IN EM

We asked in our interviews what the positive and negative outcomes from the decision to engage in EMs are for participants or what they could be for non-participants. Positive outcomes around financial and environmental benefits, gaining a better understanding about EM systems and available markets, as well as promoting change and connecting with other like-minded people were the main themes. Interviewees stated far more positive than negative outcomes with the main one being restricted in one’s land management practices through EM schemes. Some farmers stated that they couldn’t see any negative outcome from the decision to engage in EMs.

### Positive outcomes

- **Financial and environmental outcomes**

Participants and non-participants alike mentioned most often the financial benefits as a positive outcome of EM engagement and focused secondly on the positive impact on the environment

*Oh, look, I suppose if you're seen to be doing the right thing, you're increasing land values ultimately. Yeah, I mean, everyone wants to get the return on investment. (Non-participant)*

*And positive outcomes for your wallet. (Non-participant)*

*So positive financial, positive protecting the land, protecting the biodiversity. (Participant)*

This also relates to the opportunity support the transition to business models with more diverse income streams, that deliver stewardship value aligned outcomes.

- **Seeing healthy land (only non-participants)**

Seeing things grow and experience change was a positive outcome that non-participants could imagine from the decision of EM engagement. This was not brought up by participants.

*I think the other outcome genuinely, whether you're in the markets or not is, there's a significant sense of achievement personally and within the farm to training and making change in making improvements, when you can see them actually working in your environment. And I think that given the massive four years of drought given COVID, these things are really significant when we go out and we can feel and see these things because as farmers, that's what we want to do. We want to actually see things grow and see things produce and see things looking good. But we also have to have the ability to be able to manage them and maintain that as well, as best we can. (Non-participant)*

- **Connecting with other like-minded people (only participants)**

Making friends with like-minded people was described as a positive outcome by one current participant.

*I think that we've generated income, which has been positive as well. On an empirical basis, we have improved the water holding and infiltration capacities in this block. We've come across people we like. We've faced remarkably little opposition or ridicule, or as I might, but I don't know that... Yeah. No. Yeah. We're happy. (Participant)*

## Negative outcomes

- **Land management restrictions**

Participants and non-participants biggest concern of EM engagement is the risk of being locked in and being restricted in the possibilities that they have to manage their own land.

*Negative, certain aspects are not encouraged [...]. So, if you have a species that you feel is a bit too prevalent like a Pine, they [scheme provider] are not keen on any tree chopping down at all. (Participant)*

*The other thing, if you wanted to put on, even if it was just a sort of organic type of fertiliser what have you, that's not allowed. (Participant)*

- **Green washing**

'Offsetting someone's guilty conscience' was seen as a negative outcome for one farmer currently not participating in EM schemes.

*Well, number one, I think when big companies, I find this a huge negative, is when big companies don't change their ways and just go and buy a heap of carbon credits from a farmer. I find that that's wrong. And I just find that that's how it shouldn't work. I think there could be a carbon exchange, that's fine, but not to offset someone's guilty conscience because they want to make a mobile phone every year and just chew through our resources. (Non-participant)*

## PROMPTS TO ENGAGE IN EM

Our interview also focused on the reasons why people get involved in EMs in the first instance and what keeps them staying in the market. Specifically, we asked for the factors or influences that might prompt a farmer to engage in EM and those that impact on maintaining in the market. This question does have some overlap with our previous question around what are the drivers for EM uptake but it focus specifically on the first step of what gets people involved. It is also useful because when asking about the drivers and barriers, participants reported far more barriers than drivers for EM participation. Therefore, asking specifically again about the prompts to engagement provided some deeper insights.

### Factors that might prompt a farmer to engage in EM

- **Social influences**

Human behaviour is heavily impacted by what other people around us are doing. This social influence is also identified by participating and non-participating farmers as a driving force for EM engagement. Farmers from both groups mentioned that other people that are currently participating in EMs can be a prompt to EM uptake. Farmers value the networking process and the power of the word of mouth. Particularly field days are seen as highly valuable to promote the uptake of a new practice by providing hands on knowledge and insider information from people currently participating in EMs.

*You need good factual information from people involved. (Participant)*

*Being able to sit around in a group and share a discussion about something, and hear what other people have to say, and learning from other people's experience, that's the most valuable thing we can have, I think. (Non-participant)*

*You need to have examples that are relevant to your property. If there was someone that presented and looked at a property that I can relate to nearby, you'd say, I could do that. (Non-Participant)*



One farmer described a bit of a different pathway into EM. Through his farm succession planning and the start of a work relationship with a new business partner, who was very interested and convinced by EM, this farmer changed his attitudes towards farming and is now a strong supporter of carbon market participation.

- **Double benefit of being environmentally friendly and economically profitable**

Participants and non-participants emphasised the opportunity of a double win by engaging in environmentally friendly practices that improve farm productivity and lead to an additional income stream through EM participation as a big factor that can prompt farmers to engage in EM. Participating farmers referred to this as the fact of being rewarded for something that you do anyway. Some farmers also described that it is important to phrase the narrative around EM in a way that the focus is on a more profitable farm and as a by-product you are also able to be environmentally friendly.

*So it's really about trying to take up a practise that's going to be a double benefit to the actual business bottom line, on the core business. So if you talk about farming as being the core business, and then your carbon market or environmental market being a secondary. If you can do your secondary that adds to your core business without a huge expense or input into it, you go and jump into it. (Non-participant)*

*I think that an access to knowledge that you can be environmental without impacting on your profitability, your productivity, in fact, improving your productivity in many cases, I think the availability of that information and examples as to how that plays out. (Participant)*

- **Good and simple information**

A key point for EM uptake is seen in the availability of good and easy to understand information. This refers back to the major barrier that we identified earlier in the interviews about the EM system being very complex and complicated.

*I think maybe more people are thinking about it, but that's probably I suppose I divide farmers into about four groups. You've got 20% that don't want to have anything to do with environmental stuff. You've got another 20% who do, and then there's 60% in the middle, if you give them good information they may get involved. So that's the way I look at biodiversity and farming. And that's about encouraging people with good information to get involved. (Participant)*

*Now you've got your expert. Let him read the 20 pages and give me the single line. That's what you need to know. I don't want to read the 20 pages to know what I need to know.*

*Well, I think if they had, again, information, proper sound information that can be trusted, is what would then say, okay, would prick their ears and they would go, "Okay, maybe this is for me." And I don't know what other environmental [inaudible] there are [inaudible] who but there could be a lot more out there I don't know. I think it's all about information that they can trust.*

- **Support to be entrepreneurial and make decisions under time pressure and uncertainty**

In their pathways into EM four farmers criticized the pressure to make critical decisions about the timeframes and method of EM transactions without adequate information. When setting up the agreement (for both carbon and biodiversity), farmers lacked important information about the tender process, the payment schemes and/or the amount of carbon that they needed to determine that they would supply. They describe the scenario as having to choose a number that somehow seems reasonable. This shows that the process requires farmers to make decisions under uncertainty and is one aspect of an entrepreneurial mindset as farmers were willing to take risks.

What helped farmers to get through this challenge? For one farmer it was merely the prospect of financial compensation at some point whereas two other farmers stated that the social support they received from the scheme provider and/or biodiversity assessor made a difference, particularly when there was some understanding for the current difficulties of the farmer's situation (e.g., going through drought or flooding) and being reactive to these challenges.

*Talking to people has just clarified some issues and people who are sort of a bit in the know, and weren't quite so constrained.*

This was also one of the reasons for the ongoing engagement as the landholder stated that cooperation, collaboration and sharing of information with the local BCT representative kept him interested in the market.



- **Support overcoming technical problems and measurement discrepancy**

In the carbon market, one interviewee experienced major discrepancy between his baseline and T1 measurement, which showed that they apparently lost carbon although parallel measurements didn't support this fact. At the time of the interview, the farmer was still waiting for a solution of this problem and the only thing that helped him so far was the support that he received from being part of the carbon market consultative stakeholder reference group and in particular working in close relationship with one project developer who now oversees the relationship between the farmer's carbon project and the CEO.

- **Financial benefit**

In line with our earlier findings, financial benefit is seen as crucial for EM engagement.

*There's got to be value in it for the landholder. They have to be getting something out of it. Ultimately, I would think that that would be some sort of financial benefit, but it depends what that financial benefit looks like and how it's couched, so what the ties are, what the strings are that are attached to that.*

- **Care for the environment**

Again, stewardship values are described as important for the uptake of EM.

*I think an inherent desire to want to improve the landscape that we're operating in. Seeing ourselves as being custodians of the land rather than land owners. (Non-participant)*

### Factors that might prompt a farmer to maintain EM participation

Two factors were identified by multiple farmers from both groups as important for maintaining in an EM agreement. The first factor relates to scheme complexity and flexibility. Farmers pointed out that if the administrative load is too high and the scheme does not provide any flexibility in regards to adopting to unforeseeable circumstances, this may be a reason for farmer to not continue with EM. The second factor for staying in the market is a sufficient financial return from market participation. Farmers don't see that there is any reason for changing anything, if it is environmentally and financially viable.

*They need to know there's a reason for what they're doing. They need to see the return, I guess.*

*I mean, if they change their practises to be in the market and they're accumulating credits or dollars or selling, I mean, they're not going to change their practises if it's beneficial to their farm, environmentally, it's better for their wallet, financial.*

Persistence and in-direct benefits can help with navigating these pressures. As part of the process to signing up for a BCT one landholder discussed the challenge of inflexibility around grazing options. Instead of grazing the area twice a year to manage the vegetation, the landholder is only allowed to burn the area which is risky and a greater threat to environment. A stubborn attitude helped the landholder to get through:

*Well, my attitude was, if this didn't go through, when I do sell my property, I know what I can get for it, I'll just add \$60,000 onto it [that he paid for the application process so far], onto the bill basically.*

He hasn't received any social support from peers doing the same thing because he is the first farmer who is signing up for this agreement from a grazier's point of view. But being connected with people that can come in and help him with weed management and fencing is the one thing that contributed most to his ongoing involvement based on his higher age.

## TRUSTED INFORMATION SOURCES

We asked farmers what trusted information sources they currently draw on to inform their decision-making around land management. Interviewees mentioned a range of different ways they receive information. The list below provides an overview of the different sources that were mentioned with government entities, working with and talking to other farmers as well as field days being the top three sources most frequently mentioned across both groups.

### 1. Government entities (NSW Dpi, LLS, Landcare, BCT) and government courses (e.g., Gentle Handling of Cattle course)

*So, I attend a lot of courses, wherever they have the course, especially from Local Land Services, who I think is great. They're offering such a variety of courses, and all you have to do is make yourself available and you build up a body of knowledge. They give you references, I've done a lot of research, I still do a lot of research, I do a lot of reading to understand how this all happens. (Non-participant)*

*Government sites, where there's new projects. With the carbon credits for trees, there's a lot of information currently available online through government departments. So, navigating your way around that. We've done a number of programmes that the local land services have run on weed control, and they're sort of hands on. (Non-participant)*

### 2. Working with and talking to other farmers

*We explore. We work in networks as well with other growers and we'll challenge different ideas. That's probably our main one. I don't ring LSS and I don't ring Landcare, for example, because I know that we are working with people with other farmers, basically innovative farmers that are actually practising and doing the things that we want to learn about and practise here.*

*Well, I suppose for us, I was a bit uneasy with how our land was being managed, so I started looking around at what other people were doing. And so I heard that a couple of people, some friends of ours, were doing things a bit differently, so we went and visited them. And then that opened up the whole can of works in terms*

*I've been over at one, over in the Hunter Valley, where a group that will get together and kick a bit of dirt around and have a conversation along these sorts of lines about new ideas, new practices, how much it costs, how long you take, all the usual questions.*

### 3. Field days run by LLS, agronomists or others

*It's seeing what others do. That's the learning, I think that's most beneficial. (Non-participant)*

*We do attend a lot of field days and seminars with regards to soils and pastures. We try and attend a lot of those every year. (Non-participant)*

### 4. Agronomists

Agronomists were often described as risk averse and traditional and farmers were turning towards the advice of an agronomist for specific questions but not rely exclusively on them.

*Little bit from conventional agronomists but I think to be all honest a lot of the conventional agronomists have missed the boat on the regeneration of trying to reduce fertilisers and reduce chemical inputs, a lot of them have missed the boat they're still trying to get everyone to use lots of chemicals. (Non-participant)*

Other courses not necessarily run by government partners (e.g., Farming & Grazing for Profit, RCS)

### 5. Internet and newsletters

*There's a regenerative agriculture Facebook page which tends to attract a very wide range of people from one end of the spectrum right to the other. And I suppose I tend to probably be a bit in the middle or to one side rather than what I would see as a more alternate end. But I've picked up lots of good information and yes, follow up through the internet with a connection and read the article or whatever, and try and assess things on their merit. (Participant)*

## 6. Books, podcasts and audiobooks

*Listen to podcasts from respected soil and pasture people. (Non-participant)*

*I find audio books great because when I go to work, I can listen to it on my way in and out. And then if I'm doing jobs around, I listen to audio books so that way I sort of learn stuff while I'm still doing things. (Participant)*

## 7. Academic advice, incubator University of New England

# SUCCESSFUL PROGRAMS AND WHAT CAN WE TAKE AWAY FOR EMLP

Farmers mentioned various different programs and seminars that they have been involved in before. We asked to describe some that they thought were particularly successful in engaging farmers. In our analysis here, we focus on the 'what does it mean for EMLP?' in other words, how would farmers like to engage in a course like EMLP instead of describing the programs in details.

### No one size fits all approach

Although it was only mentioned by one farmer explicitly, it is important to design a course for a specific target group and not to assume that 'all farmers are the same'. This is an integral part of behavioural sciences and we think it is important to keep this in mind for the EMLC design too. One farmer pointed towards some research<sup>2</sup> about different farmer personalities that can differ according to the different regions they choose to live in. So, when reading about the design suggestions below, it is important to keep in mind that they work for some but not necessarily for all farmers that are targeted in the EMLC. In the farming context, the different regions seem to attract very different type of people.

*The first thing that needs to happen I think is that government needs to understand the types of people and how they vary across the landscape. (Non-participant)*

*Basically because I'm antisocial like most farmers, and I've been looking for years and years and years and years for property at the end of the valley with the national parks around me and no neighbours. (Non-participant)*

While our interviewees seem to be already fairly positively inclined to environmental outcomes and curious about environmental markets, it's likely that the mainstream population are different again. At face value, the narratives of change / pathways of change identified in first report for EMLP suggest that there may be at least four different 'types' or 'farmers' who might get into EM transactions, each experiencing different combinations of barriers and facilitators, and likely more. Quantitative analysis of the forthcoming survey will support identifying, and estimating the potential size and key barriers and facilitators of such groups for future iterations of EMLP and related activities.

### Collaborative approach and networking in field days, trials and courses

Participating in courses and having a chance to network is one of the most valuable things that farmers take away from any course that they think was particularly well run. It's about hearing other people's first-hand experience on a topic and being able to ask questions and connecting with like-minded people. This is something that farmers describe as lifting the spirit. In this sense, it is often valuable if a course is run over a couple of days away from the farm. This of course has the downside of making time for it which can be challenge, but when farmers are able to attend an in-person course away from home, mixing with other farmers with similar interests this was often a very positive outcome.

*[...] Being able to sit around in a group and share a discussion about something, and hear what other people have to say, and learning from other people's experience, that's the most valuable thing we can have, I think. (Non-participant)*

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<sup>2</sup> (<https://tinyurl.com/oe7c36s>)

*And doing those courses like a holistic management course and an RCS course certainly provides you with extensive networks that you can work in. (Non-participant)*

*I find in person allows you to do a shit load of networking before, after, and during the courses. And that's probably where a lot of the benefit comes. It also allows you to discuss the practicalities of what some of these courses do. (Participant)*

Combined with the general dislike/limited attention for online learning, this is an important finding for EMLC components of the program, and future versions of program should consider running the more of the program in-person, and/or maximizing the in-person and local participant interaction opportunities in the current delivery, as are presented by having LLS staff and participants involved from the same LLS region.

### Holistic approach

Farmers very frequently mentioned courses on regenerative agriculture and in particular the holistic approach that these forms of land management take. Programs that cover fundamental learnings from various areas such as ecology, soil health, financial aspects and the bigger picture of landscape management are highly attractive for farmers. For EMLP this could mean emphasising how a change of practice can not only increase productivity and improves local ecological characteristics, but also offers the opportunity to gain an extra income through EM participation.

*I mean, the regenerative agriculture word which is spread over a lot of different things has really got a lot of people in our area very excited, because they can see potential in not only increasing the quality of their pasture, especially reducing their costs. Getting different conventional practices and actually doing things differently, trying things differently, is getting everyone very excited because they can see that they can still do a good job on their pastures and on their paddocks without spending excessive amounts of money and that's come through knowing information that they didn't know five years ago. (Non-participant)*

### Working with your landscape – personalised advice

Farmers value getting advice that is tailored to their specific situation and maybe even provided in a one-on-one format. Farmer used the term 'seeing the implication in relation to their own piece of dirt'. That means, broad and generalized information that is not tailored to the individuals need are less likely to gain momentum.

*Yeah. I think that's where the one on one liaison works great. And if you've got really knowledgeable people who are really interested in the different types of land and soil and ways of practises.*

*So it's having really good evidence informed advice is really valuable, that's tailored to your specific land and management. (Participant)*

The current EMLP delivery could potentially encourage participants to share video footage of their land management challenges and opportunities raised by the EMLP farm plan, and get direct advice and troubleshooting from peers and invited experts.

### Farmers view on online courses

Most farmers prefer in-person courses and dislike online formats. The risk is that there is always something more important than the online training that one is enrolled in. Online courses require a lot of discipline. Another problem around online courses is the technology to participate. Not all farmers have access to the internet, have mobile phone reception or the skills to navigate an online course comfortably. Here again, it is important to consider the specific characteristics of the target audience (e.g., age and region).

*They [online courses] are good, but you've got to be disciplined. There are too many distractions if you're doing them from home as a farmer. I think if they're little bits, I did a soils one a couple of years ago where we actually dedicated two hours once a week for six or eight weeks, that's doable. But anything longer than that is just too much. (Non-participant)*

*Demonstration workshops is pretty important. But again, there's a couple of problems with that. And one is a low tech issue, and that is that a lot of these catchments don't have access to internet. They don't use Facebook. The email very seldom works.*

*Mobile phones don't work. The landline sometimes works. So a lot of the people you need to access are very badly connected.*  
(Participant)

# APPENDIX

## APPENDIX 1. INTERVIEW GUIDE

### EM Participants

#### *About you*

Tell me about your farm (warm-up question)

- History/years of operation/size
- Why did you get involved in farming (e.g., family, lifestyle, business)?
- Your role
- Crops (including type) vs livestock vs other
- 

#### *Significant change questions*

1. Is it correct that you are currently participating in biodiversity / carbon markets? Is this the environmental market activity you are involved in currently? Could you explain in lay terms what this means?
2. What does the term environmental markets mean for you?
3. When did you get significantly involved in carbon/biodiversity/other markets?

**We would like to learn a bit more *why* and *how* you got involved in carbon/biodiversity/other markets in the first instance.**

4. What started your interest in this area? Why did you engage in environmental markets?
5. What involvement did you have with carbon markets leading up to that point?
6. What was the hardest point in your pathway into carbon markets? Was there a 'darkest hour' where you nearly threw it in?
7. What was the one thing that changed to get you through that (i.e. convinced, an experience etc)?
  - Probe: motivation; capability; opportunity).
8. Why was this change significant to you?
9. How (if at all) did others, perhaps those supporting carbon markets contribute to this change?
  - Why was that important to you?
10. Of all the activities delivered by carbon markets which have contributed the most to your ongoing involvement and support for participating?
11. Returning to the present time; did anything else help or consolidate or expand your involvement in the time since you first got involved?

#### *Drivers and barriers to environmental market participation*

12. Based on your experience, what **kinds of things tend to make it easier** for farmers like yourself to engage in [EM market activity described]?
13. What **kind of challenges or hurdles should farmers expect** to encounter when starting to engage in [EM market activity described]. What about later on?
  - Are there specific circumstances (specific farm practices/entities/types) where these challenges are more pronounced?
  - Are these the same challenges that might prevent a farmer to engage in EMs
  - Why would some farmers not want to become EM participants?
14. What do you see as the value for farmers of engaging in [EM market activity described]?
15. Based on your experience, what are some of the specific **factors or influences that might prompt a farmer to engage in [EM market activity described]?**

<ul style="list-style-type: none"> <li>● Economic imperatives</li> </ul>	<ul style="list-style-type: none"> <li>● Changing climatic conditions</li> </ul>
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<ul style="list-style-type: none"> <li>• Managerial direction</li> </ul>
<ul style="list-style-type: none"> <li>• Peer influence</li> </ul>
<ul style="list-style-type: none"> <li>• External advice</li> </ul>

<ul style="list-style-type: none"> <li>• Personal identity</li> </ul>
<ul style="list-style-type: none"> <li>• Calculated risk</li> </ul>

- PROMPT: Are there any other factors you can think of that might impact on **entering** the market?
- PROMPT: Are there any other factors you can think of that might impact on **maintaining in** the market?
  - Social influences (e.g., family, employees, agronomists, other farmers, Land care groups)
  - Established farming routines that are difficult to change
  - Experiences after signed up

16. What have been some of the **outcomes** from the decision to engage in [EM market activity described]?

- Positive and negative

17. What has changed in EM markets across your time and experience of them?

18. Local Land Services are considering options to improve the level of **assistance and support** they can offer farmers in NSW on environment markets. What **previous contact/exchanges** have you had with Local Land Services in this area? PROMPTS:

- What did it involve?
- What outcomes did it lead to?
- How was the overall experience? Good/bad and what could be improved?

19. What trusted information sources or programs do you currently draw on to inform your decision-making? PROMPTS:

- Agronomists
- Local rural stores
- Other farmers
- How do you use the information?

20. Can you give me an example of a program or initiative that you thought was particularly successful in engaging farmers? PROMPTS:

- What factors contributed to its success?

### *Final Remarks*

We have reached the end of our questions. This is an opportunity for you to tell me any thoughts you had that you might not have had the chance to share with me earlier. Do you have anything else to add?

Thank you for participating.

## **Non-participants**

### *About you*

Tell me about your farm (warm-up question)

- History/years of operation/size
- Why did you get involved in farming (e.g., family, lifestyle, business)?
- Your role
- Crops (including type) vs livestock vs other
- 

### *Drivers and barriers to environmental market participation*

1. What does the term environmental markets mean for you?

- PROMPT: How much do you know / have you researched them already?

2. What **factors would make it easy** for farmers like yourself to engage in [EM market activity described]?

3. What kind of **challenges or hurdles** could you expect a farmer like yourself to encounter when starting to engage in environmental markets? Or what you might have heard about from other farmers?
  - Are there specific farm practices/entities/types where these challenges are more pronounced?
  - Are these the same challenges that might prevent a farmer to engage in EMs
  - Why would some farmers not want to become EM participants?

4. What do you see as **the value for farmers** of engaging in [EM market activity described]?

5. Based on your experience, what are some of the specific **factors or influences that might prompt a farmer to engage in [EM market activity described]**?

● Economic imperatives
● Changing climatic conditions
● Managerial direction
● Peer influence

● External advice
● Personal identity
● Calculated risk

- PROMPT: Are there any other factors you can think of that might impact on **entering** the market?
- PROMPT: Are there any other factors you can think of that might impact on **maintaining in the market**?
  - Social influences (e.g., family, employees, agronomists, other farmers, Land care groups)
  - Established farming routines that are difficult to change
  - Experiences after signed up

6. What do you imagine could be some of the **outcomes** from the decision to engage in [EM market activity described]?

- Positive and negative

7. Local Land Services are considering options to improve the level of **assistance and support** they can offer farmers in NSW on environment markets. What **previous contact/exchanges** have you had with Local Land Services in this area? PROMPTS:

- What did it involve?
- What outcomes did it lead to?
- How was the overall experience? Good/bad and what could be improved?

8. What trusted information sources or programs do you currently draw on to inform your decision-making? PROMPTS:

- Agronomists
  - Other farmers
  - Local rural stores
  - How do you use the information?
9. Can you give me an example of a program or initiative that you thought was particularly successful in engaging farmers? PROMPTS:
- What factors contributed to its success?

*Final Remarks*

We have reached the end of our questions. This is an opportunity for you to tell me any thoughts you had that you might not have had the chance to share with me earlier. Do you have anything else to add?

Thank you for participating.

## APPENDIX 2: FARMERS' BACKGROUND

Scheme	Area	Size (acres)	Beef	Sheep	Cropping
<b>BCT</b>	Northern Tablelands	1500	1		1
<b>BCT</b>	Upper Hunter	2000	1		
<b>BCT</b>	Tamworth	500			1
<b>BCT</b>	Northern Tablelands	3000	1		
<b>carbon</b>	North West	1000	1		
<b>carbon</b>	Hunter	225	1		
<b>carbon</b>	Central Tablelands	3460	2	1	1
<b>no</b>	Central Tablelands	1600	1	1	2
<b>no</b>	North West	n/a	1		
<b>no</b>	Hunter	M	1		
<b>no</b>	Tenterfield Shire	3000	1		
<b>no</b>	Riverina	4500		1	
<b>no</b>	Upper Horton	7000	1		2
<b>no</b>	Northern Tablelands	M/L	1		1
<b>no</b>	Northern Tablelands	155	1	2	
<b>no</b>	Riverina	530	2	1	
<b>no</b>	Riverina	n/a	1		
<b>no</b>	Northern Tablelands	110	1		
<b>no</b>	North Coast	3580	1		
<b>no</b>	Central West	420	1		

## APPENDIX 3: DEFINITIONS OF THE TERM ENVIRONMENTAL MARKET

### Scheme participants' definition of the term environmental markets

Definition	Scheme
"I can see the biodiversity conservation fund as an environmental market because we are caring for the land to try and maintain biodiversity, carbon, protect species et cetera. And we are being paid for it. We can still manage our stock on there so it seems to be a lot of different factors that are working in the market situation."	BCT
"This environmental agreement, obviously I'm going into now, requires me to manage it like a national park. And they won't allow livestock to be grazed on the area or any sort of production."	BCT
"For us, it's of the environment. It's a usage of country which doesn't have non-organic inputs and leads the country at the same or better than it was when we came here. [...] So it's really, the principle, for us, is about assisting nature to regenerate itself, really."	BCT
"Well, you could break up the environmental market into the biodiversity offset being paid for managing native vegetation of some description, whether that's grassland or woodland or whatever. And then you could also break the market into a second area, which I think is a little more controversial [...] and that would be the carbon farming, carbon sequestration market. So I would see two quite distinct markets within that environmental market."	BCT
"Environmental markets [...] is where there is an economic incentive provided to the landholder to create an environmental service that they can then sell. That environmental service might be a biodiversity, it might be carbon, it might be water, it might be trees, and it might be any one of a number of those things."	Carbon
"So the market carbon market is a number of factors. One is the sequence of soil carbon through change of practise and building soil fertility and soil carbon levels and by, and if you can maintain that, then you can earn credits. [...] We've also had discussions with another group to talk about soil carbon by tree planting or setting [...] forest."	Carbon
"[...] a market that rewards stewardship of the environment that is under your control. [...]there's different environmental markets out there with the biodiversity payments that some people are able to access. And there's obviously the carbon market as well, in a lot of different forms. [...] they're probably the two main ones."	Carbon



## Non-participants definition of the term environmental market

Definition	Clarifying remarks
<p>“Well, it's very confusing because we are hearing a lot of things in the market. We're hearing about carbon farming. We're hearing about natural capital. We're hearing about a whole range of things. Carbon plus biodiversity. And it is very confusing because you are not sure where to start or which one would be better than the other in terms of the... And they are all very complex from what I understand.”</p>	<ul style="list-style-type: none"> <li>▪ Confusion about the term EM</li> <li>▪ Mentioning of carbon and biodiversity</li> </ul>
<p>“Well, I'm not sure, actually. Environmental market, it could encompass anything. There's forestry and there's cattle. So forestry, I have no idea about, but just I know that people can sell their carbon credits more in that field of things is the only real experience I have in those sorts of... [...] Basically, people in either grasses or forestry and cattle using agricultural methods to generate carbon credits [...]”</p>	<ul style="list-style-type: none"> <li>▪ No clear understanding</li> <li>▪ Primarily focusing on carbon</li> </ul>
<p>“I was wondering what it is all about. I would think it is being more friendly towards the environment, but in a macro scale. So, there would be many smaller things that would contribute towards the environmental market and benefit from that.”</p>	<ul style="list-style-type: none"> <li>▪ No clear understanding</li> <li>▪ Neither mentioning carbon nor biodiversity</li> </ul>
<p>“I guess it's where people want to set impacts that they're having by... I don't know... buying environmental credits or buying environmental credits just to [inaudible] profile of their business. I guess that's what I would've thought the environmental market is.”</p>	<ul style="list-style-type: none"> <li>▪ Focus on environmental credits without any specification what they could be</li> </ul>
<p>“For me I suppose it's recognition of they've recognised more stewarding the land [...]. Providing good environmental outcomes. More financially.”</p>	<ul style="list-style-type: none"> <li>▪ Focus on environmental outcomes without any specification</li> </ul>
<p>“The only bit that I understand from it is [...] something that was in one of the emails leading up to our discussion now, and that was to do with carbon capturing. And I think to me, I think that the environmental marketing would probably be one, the fencing off of part of our farm so that the cattle activity does not impact upon the upper reaches of some of the estuaries here. [...] And I don't know, but potentially the others might be supporting environmental incentives rather than necessarily changing what we do.”</p>	<ul style="list-style-type: none"> <li>▪ Focus on carbon</li> </ul>
<p>“I mean, we're just basically done it on our own, but to replenish the land as it should be, we haven't looked at any of these environmental markets. I suppose there's a benefit in that. It enables you to do more [...]”</p>	<ul style="list-style-type: none"> <li>▪ Neither mentioning carbon nor biodiversity</li> </ul>
<p>“Well, I'd say I'm unsure, and that's why I was interested to learn more about it. [...] I was okay, environmental market, so does that</p>	<ul style="list-style-type: none"> <li>▪ Some understanding</li> </ul>

<p>mean it relates to carbon capture and sequestration? Does it relate to more land management and locking up country, or what does that look like?”</p>	<ul style="list-style-type: none"> <li>▪ Mentioning of both carbon and biodiversity</li> </ul>
<p>“[...] environmental markets burning carbon is the big one, we've all been hearing about. And a little bit of... What do you call it? Environmental stewardship type thing. You get paid to look after your country or not do things to your country. There are about the only two things I know of.</p>	<ul style="list-style-type: none"> <li>▪ Some understanding</li> <li>▪ Mentioning of both carbon and biodiversity</li> </ul>
<p>“Well, originally it was being talked about in terms of carbon trading back in the late 1990s. It was the idea that you might sell carbon sequestration services in the context of a cap and trade system, which was being developed at the time and for a brief time came in, so this is really important. So that was my original understanding of environmental markets, in that they were part of a cap and trade, be it on pollution, be it on environmental destruction, all that stuff.”</p>	<ul style="list-style-type: none"> <li>▪ Mentioning of both carbon and biodiversity</li> </ul>
<p>“Oh, it means, a market farmer is actually getting paid to do what essentially everybody wants them to do, but are not prepared to pay them to do. So, to produce a delivery of environmental services, whether that be clean water or whether it be carbon storage or whether it be maintaining biodiversity.”</p>	<ul style="list-style-type: none"> <li>▪ Detailed understanding</li> <li>▪ Mentioning of both carbon and biodiversity</li> </ul>