



**A Nuffield Farming  
Scholarships Trust  
Report**

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**CENTRAL REGION FARMERS TRUST**



**FARMER TO FARMER  
KNOWLEDGE EXCHANGE:  
RELEVANCE AND CHALLENGES  
DURING CHANGE**

**VICKY ROBINSON**

**JUNE 2020**

**NUFFIELD  
UK**

## **NUFFIELD FARMING SCHOLARSHIPS TRUST (UK)**

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# A Nuffield (UK) Farming Scholarships Trust Report

Date of report: June 2020



*"Leading positive change in agriculture.  
Inspiring passion and potential in people."*

Title	Farmer to Farmer Knowledge Exchange: Relevance and Challenges During Change
Scholar	Vicky Robinson
Sponsor	Central Region Farmers Trust
Objectives of Study Tour	<p>To research:</p> <ul style="list-style-type: none"> <li>- the value of farmer to farmer knowledge exchange at times of change,</li> <li>- different methods of knowledge exchange,</li> <li>- what creates the ideal environment for knowledge exchange,</li> <li>- the impact of knowledge exchange during change</li> </ul>
Countries Visited	Austria, Belgium, Ireland, Italy, Australia, India, Canada, New Zealand, UK.
Messages	<ul style="list-style-type: none"> <li>• We are central to the solution, creating opportunities and normalising new practices. Individuals taking a lead to stand out from the crowd play a key role in enabling this to happen.</li> <li>• The value of tacit knowledge is often not realised and trusted relationships need to be formed to enable it to be shared.</li> <li>• People are complex; everyone is an individual so a variety of methods of enabling knowledge exchange will reach the widest audience.</li> <li>• Knowledge exchange builds capacity, capability, social capital and good mental health which increases resilience to change.</li> <li>• Farmers sit within a wider landscape of the supply chain and rural communities; knowledge exchange is of equal importance throughout. Networks need to be created within this to breakdown siloed thinking.</li> </ul>

## EXECUTIVE SUMMARY

Change is constant, but at this moment the pace and breadth in agriculture is unprecedented. With the biggest change in domestic policy in the UK since the Second World War combined with extreme weather events, trade agreements and global pandemics farming can seem very daunting. As individuals we have to take control and drive our own destiny without waiting to be told. Encouraging curiosity to seek knowledge is vital whilst being open minded and aware of one's own biases and filters.

Having the confidence to identify strengths and weaknesses under pressure is not easy. Building capacity, capability and social capital to enable resilience needs to happen; farmer to farmer knowledge exchange plays an important part in this.

Information and data provide the building blocks for knowledge. The knowledge created through personal experience; tacit knowledge, is often undervalued by people who possess it but, unless it is shared it will be lost. Knowledge exchange is a two-way process and we can choose whether to use our knowledge for our own benefit or share it for the wider benefit of the industry.

There are a variety of ways in which farmers share knowledge which have evolved with the introduction of social media. Social bonds formed through small groups can be the most effective in creating trusting relationships to drive change and enable what could be deemed sensitive subjects to be discussed. Larger groups and online sharing also provide opportunities if there is trust. Trusted relationships not just between farmers but throughout the wider network are crucial; farmers are part of the knowledge exchange landscape.

Knowledge exchange goes wider than technical topics; it creates interactions vital for mental health, particularly during the uncertainty of change. Getting people off farms to a local group or simply connecting with another farmer to share 'what's keeping you up at night' is essential to prevent isolation and build mental resilience. You need to be 'optimistic to learn something new'.

Farmers automatically have a connection with other farmers, 'it's the messenger not the message' which facilitates the exchange of knowledge. The memorable examples I saw always had people at the heart who were generous in their sharing, had seized an opportunity and made it happen.

Creating the right environment so that people feel comfortable is often on farm providing the opportunity to 'kick the dirt' and 'seeing is believing'. Facilitators are important to manage group dynamics and draw out knowledge; the answer is often in the room. A balance needs to be struck between comfort and disruption; bringing different sectors together can assist this. The challenges of today are cross sectoral; the industry needs to move away from a sectoral focus to address these.

People are complex and trying to apply logic or model how people will react to a particular situation is fraught with difficulties, as has been experienced with Covid-19. We must recognise we hold the future in our hands and seek the knowledge we need to realise our ambitions.

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## **DISCLAIMER**

The opinions expressed in this report are my own and not necessarily those of the Nuffield Farming Scholarships Trust, or of my sponsor, or of any other sponsoring body.

Please note that the content of this report is up to date and believed to be correct as at the date shown on the front cover

Note that full reference details are given on the last page of this report. Only abbreviated references are given in the main body of the document.

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Nuffield Farming Scholars are available to speak to NFU Branches, Agricultural Discussion Groups and similar organisations

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## Chapter 1: Introduction

I feel very privileged to have grown up and spent my career working in farming. Spending my childhood roaming around my family's arable farm in Oxfordshire instilled a huge sense of pride in what my father and those before him did. Now run by my brother, Granny was the first generation, milking a herd of Jerseys to supply the family's restaurant in Oxford. Both parents on my Mother's side farmed although Grandad was first generation, moving out of London with his brother George to follow their farming dream; knowledge George later shared with others through his book, *The Farming Ladder*.

After a degree in agriculture and equine business management at the Royal Agricultural College I realised that despite growing up on a farm I was very ignorant about the wildlife that depended on it. This was coupled with the growing realisation of the decline in wildlife and the importance of the farmed environment and its habitats. I decided this was the area I wanted to work in and set about making it happen. With the help of my very knowledgeable mother, some volunteer work, a part time diploma in environmental conservation and a brief spell with the Environment Agency I achieved my dream job combining farming and the environment working for the Farming and Rural Conservation Agency. Twenty years and a number of roles later I am working for its successor, Natural England providing technical advice to Defra on the current agri-environment schemes as we find ourselves at an unprecedented time, shaping our own agricultural and environmental policies.

A 'Nuffield' had been the back of my mind for some years without understanding exactly what it involved. Meeting two Australian Scholars on the Worshipful Company of Farmers Challenge of Rural Leadership course in 2018 enabled me to learn more and sparked an interest. Coincidentally this combined with a point in my husband's career that enabled him to be at home to look after our two children and after a lot of consideration I applied.



The Author Vicky Robinson (Source: Author)





## Chapter 2: Background to my Study Subject

Agricultural businesses worldwide are facing many common challenges; consumer trends, trade policies, labour shortages and two that will have the biggest ongoing impact: weather patterns and water. The UK has the added dynamics of EU Exit with the associated Agriculture and Environmental Bills and new trading partnerships creating the biggest policy change in over a generation.

The removal of EU-driven direct payments (Basic Payment) in the UK, which accounted for 51% of average farm business income across all farm types between 2011/12 and 2015/16, varying between 6% for specialist poultry to 84% for grazed livestock in Less Favoured Areas, has to drive change. To survive farmers need to stand back, look at what is important to them and their business, identify opportunities and what changes need to be made. In order for this to happen farmers will need, more than ever, to be sharing their knowledge and experiences. I believe this will be essential to the future resilience of the industry.

Sitting in a warm farmhouse kitchen in Norfolk in 2018 when the Beast from the East struck, I chatted with two farmers involved in an innovative project I was managing, looking at an alternative approach to agri-environment, Payment by Results. One of them remarked that an unexpected benefit of being involved was getting together with the other farmers, getting to know them and sharing experiences. This comment lodged in my mind.

Throughout my career I have long held the view that farmers have so much knowledge to share but encouraging them to do so, especially those who are naturally introverts, is the challenge. I specifically chose the term knowledge exchange instead of knowledge transfer to recognise the value of the knowledge of all parties involved.

I wanted to explore:

- How farmers seek knowledge when they face change:
- What role do organised groups have alongside informal networks?
- What roles do social media play alongside face to face events?
- How knowledge exchange can accelerate change.
- The role of lead farmers and facilitation.
- Who provides leadership?
- How does competition impact on willingness to share?
- Does it matter if farmers don't engage with organised networks/groups?
- How to measure the effectiveness of knowledge exchange.

Ultimately I wanted to find out how best to build the capacity of an individual so they can adapt to change and be resilient as an individual and a business.

I am passionate about farming and want to see a thriving industry but recognise that change is needed to meet the needs of food production and the environment. The farming industry needs to work collaboratively to achieve this.



I am not a psychologist or a social scientist and recognise there is a lot of academic research on this. I make no apologies for the fact my study is based on my observations as I have travelled and is a record of the many conversations I have had.

I want to share my experiences, for farmers to realise the importance of the knowledge they have and to be encouraged to share, for organisations to hear about different examples across the world and for policy makers and organisations to recognise the knowledge that exists and realise the importance of knowledge exchange to the well-being and future resilience of our industry.



## Chapter 3: My Study Tour – Where I Went and Why

As my topic is of a social science nature, I felt that countries with strong spoken English would be best to ensure I was able to maximise the content from meetings.

When	Where	Why
<b>2019</b>		
March	USA	Contemporary Scholars Conference
April	Austria	Hosted by Austrian Agency for Food and Health Ltd (AGES), a partner in AgriDemo Horizon 2020 project <a href="https://agridemo-h2020.eu/the-project/">https://agridemo-h2020.eu/the-project/</a> aiming to enhance peer to peer learning using on farm demonstration. I learnt about the project, Austria's extension service and visited a demonstration farm.
May	Brussels	Farm Demo Conference: To share learning between three European projects funded under Horizon 2020 – PLAID, NEFERTITI and Agridemo F2F.
May	Ireland	A country with a long-established extension service – Teagasc, dairy discussion groups and a number of EIP-Agri funded projects.
June	Sicily	24 <sup>th</sup> European Seminar on Extension and Education: The overarching theme was "Agricultural Education and Extension tuned on innovation for sustainability, experiences and perspectives".
July	Australia	New South Wales, Victoria, South Australia, Western Australia. Australia's extension service was scaled back in the 1980s and has been replaced by farmer and industry led groups.
August	India	Tamil Nadu, Bihar and Punjab. A non-Nuffield country, India was suggested by Mary Boote, CEO of the Global Farmer Network due to the strong culture in local communities and the impact on knowledge exchange.
September	Canada	Ontario, Alberta and British Colombia. To look at how dispersed farms exchange knowledge.
October	Italy	UN FAO CFS 46 – Committee on World Food Security Conference. Member of Private Sector Mechanism. Meetings with UN Farmer Field School staff.
<b>2020</b>		
March	New Zealand	North and South Island. NZ agriculture experienced a policy change in the 1980s with subsidies removed. The resulting impact on the environment has meant a second wave of change to farming practices is occurring.
Throughout	UK	I met and spoke with a range of people involved in knowledge exchange including AHDB, PFLA, Princes Countryside Trust, facilitators, farmers, WeFarm, The Farming Forum. I attended Groundswell and the Oxford Farming Conference



## Chapter 4: Change

Changes are constant, some can be anticipated e.g. UK Agricultural Policy, others are unexpected; this could not be more apparent than with Covid-19. The pace and range of pressures seems to be increasing and a word that is often used is 'resilience' to enable people to deal with change. Change acts as a disrupter to the norm and can impact not just the farmer but the entire supply chain and rural communities they sit within.

I often hear the word 'traditional' used when describing UK farmers and that they are resistant to change. Are they any different from the wider populous? Change by its nature creates uncertainty. There comes a point at which change is inevitable, the trigger point or 'burning platform' will be different for each individual or business, but if businesses have built resilience they are better placed to adapt.

James Parsons NSch from AgFirst in New Zealand outlined that for change to take place the following has to happen:

### **Awareness – responsibility – action**

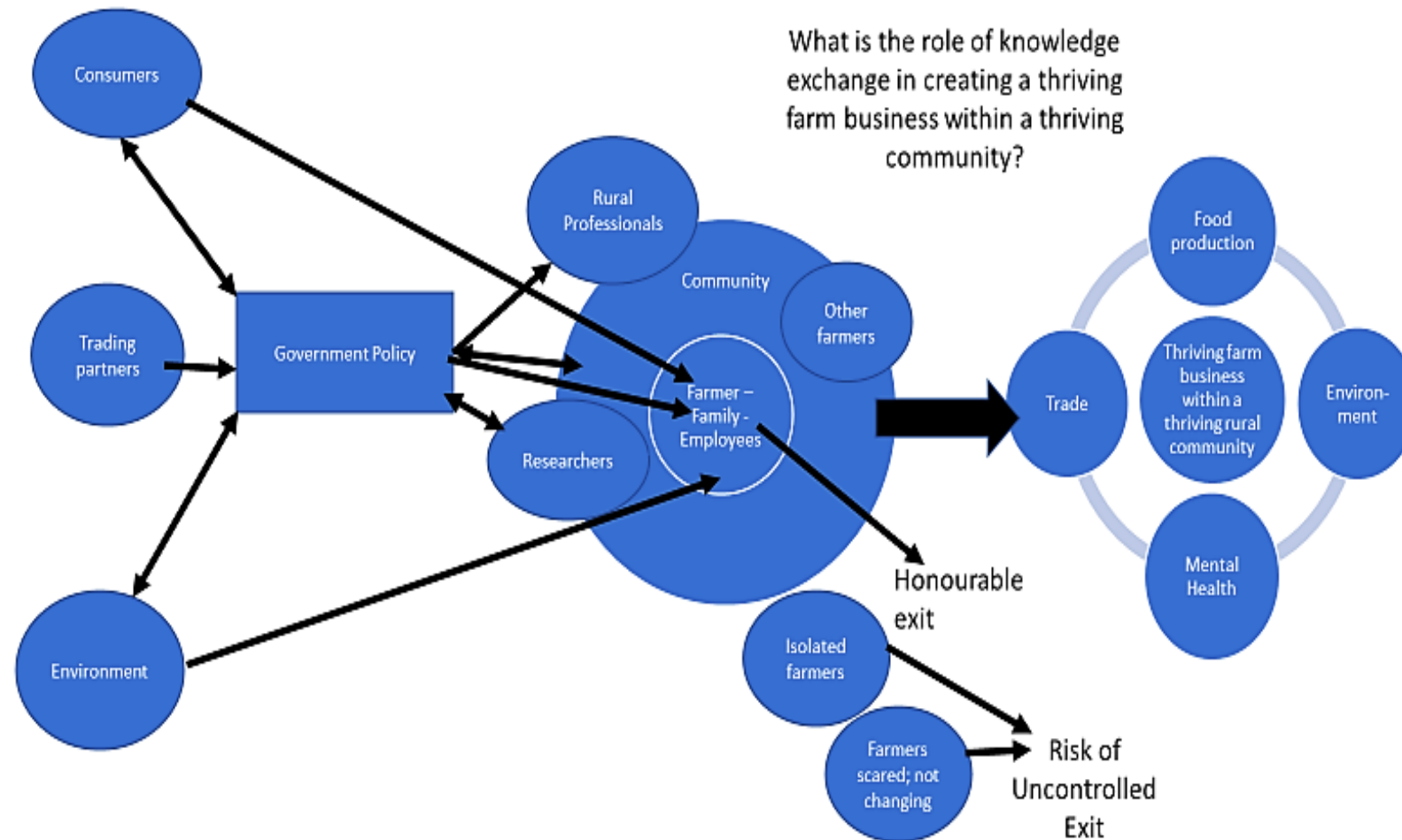
My initial focus was on finding the silver bullet to enable knowledge exchange to happen, the perfect solution which would answer all the questions on how to encourage people to change. The key word in this sentence is 'people'. It is the people who are fundamental to this not the process. I discovered there is no set formula because everyone has their own values and network feeding into an individual's decision-making process; one size does not fit all.

I broke down what I was looking at to see where knowledge exchange fits into the process of change producing a model to identify where my Nuffield report should focus. Figure 1 on the following page shows this model.

My report is not going to tell people what the solution is; it will present questions and examples I have seen, my thoughts and interpretation so people can take from it the messages that are relevant to them.

### **Key Messages**

- Change is constant
- There is a point at which change has to happen
- People are central to change and are all different so one size does not fit all



**Figure 1:** A model to demonstrate the complex factors and relationships impacting a farm business.



## Chapter 5: You Need to Know Where You Are

‘You need to know where you are before you can decide where you want to go.’ This was a statement made in New Zealand at a Beef and Lamb Farming for Profit Field Day. Only by knowing this can you define the journey.

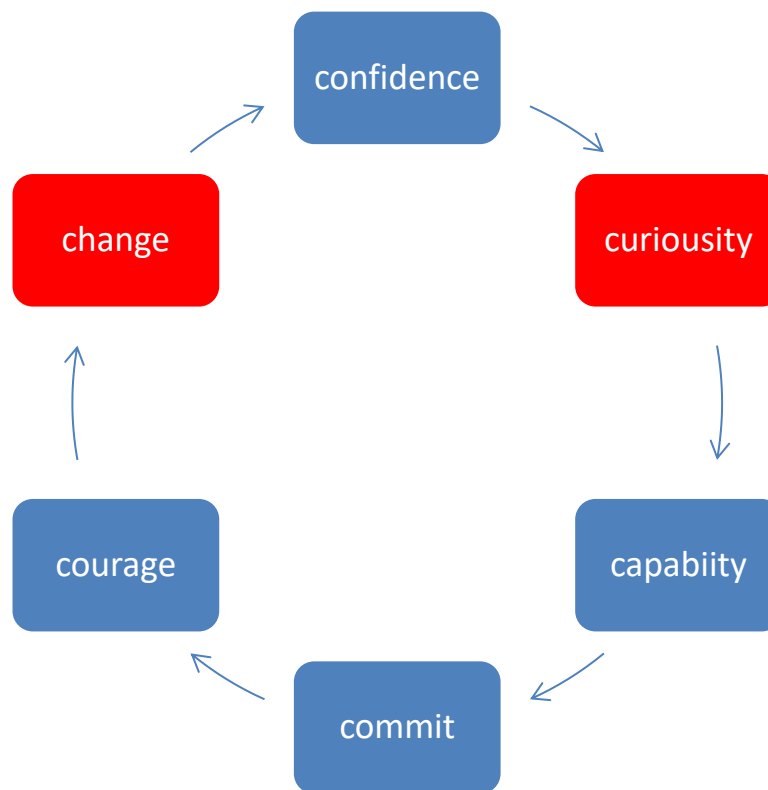
This is harder to achieve than it sounds, especially with all the variables that impact farming combined with human variables of mind-set, attitude to change and appetite for risk.



**Figure 2:** Beef and Lamb NZ Field Day: Source: Authors own



Mind-set impacts on how an individual reacts to change and the willingness to share knowledge. Focusing on mind-set during change, the word 'confidence' came across in my interviews and the correlation between this and willingness to change. This was described by New Zealand farmer, Doug Avery, during his UK tour (Shift Happens) as the '4 C's': I have added two more 'C's' that I think are relevant in red boxes as shown in Figure 3.



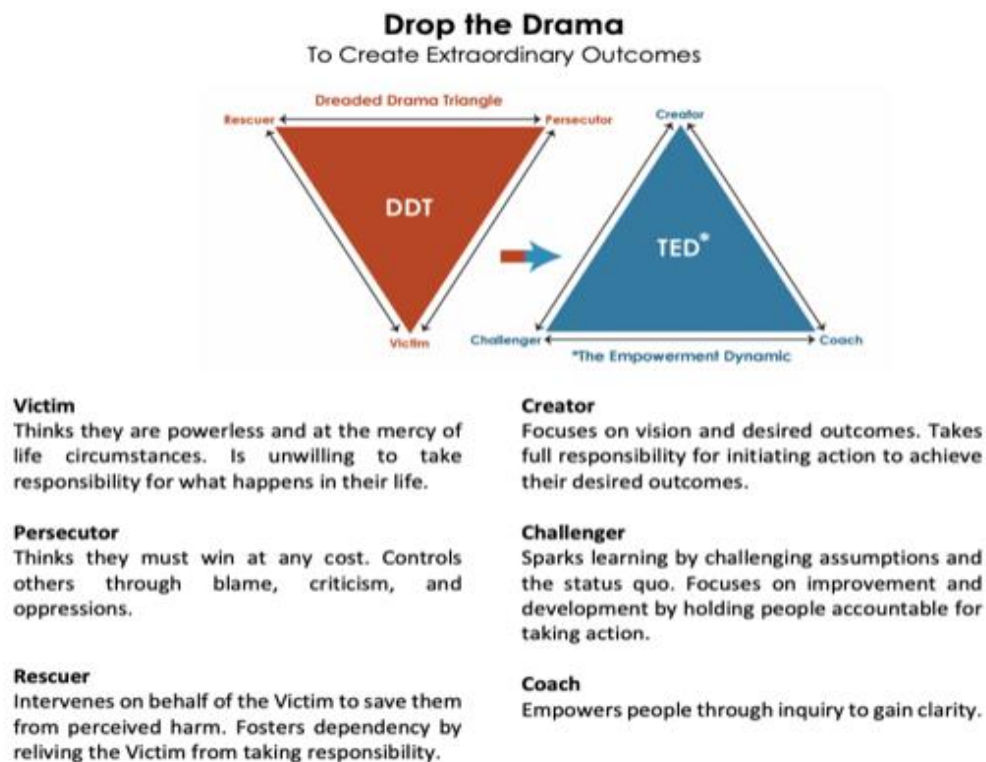
**Figure 3:** Adapted Version of Doug Avery's 4 C's

Taking ownership of the situation is not always easy, especially in the culture that the Common Agricultural Policy (CAP) has created. It has provided a security blanket and straight jacket and views expressed to me by UK farmers include it being a 'barrier to innovation' and having 'bought curiosity off farmers'.





At the Nuffield Contemporary Scholars Conference, we were introduced to TED by Bob Sinclair of Sinclair Tractors. Not the TED talks that many will be familiar with but 'The Empowerment Dynamic'. TED is the opposite of DDT; not the insecticide but the 'Dreaded Drama Triangle'.



**Figure 4:** The Dreaded Drama Triangle and The Empowerment Dynamic  
Source: The Power of Ted; David Emerald

This created more questions:

- How to empower people to take responsibility for their situation and become a Creator, to be confident, to encourage curiosity?
- Where and how the answers to curiosity can be found creating action?
- What is knowledge, how is it created and what is the right knowledge?

### Key Messages

- You need to know where you are before deciding where you are going
- The need to be empowered to take ownership
- The importance of confidence





## Chapter 6: 'If Knowledge isn't Shared it is Lost'

Alfred Grand's family have farmed in the same area of Austria since the 1600's. In 2006 Alfred converted his farm to organic. Working with various universities and EU funded projects, Alfred realised the importance of demonstrating what he was doing to other farmers to share the knowledge he had gained. He wanted farmers to realise the importance of their experiences and the need for them to share with others.

'If farmers don't share their knowledge it will be lost' was how Alfred Grand succinctly explained it. This was such an obvious statement, but it really resonated, how to enable people to understand the value of their knowledge and to share it for the benefit of the wider industry.



**Figure 5:** Alfred Grand with Taru Sanden (AGES), the author and authors Mother  
Source: Authors Own

Tacit knowledge is defined by the Cambridge English Dictionary as 'knowledge that you do not get from being taught, or from books, etc. but get from personal experience'.



Goffin and Koners (2011) explained that *‘With tacit knowledge, people are not often aware of the knowledge they possess or how it can be valuable to others. Effective transfer of tacit knowledge generally requires extensive personal contact, regular interaction and trust.’*

The lack of this knowledge awareness and requirement for trust hit home for me. Tacit knowledge is silent; farmers have a wealth of knowledge and need to recognise the value of this to others. Alfred had realised this and was keen to share his knowledge. It made me consider how knowledge differs from information. The conclusion I came to was that information is the building block created from sources such as data and research. Farmers apply their own experience and skills to create knowledge.

Data + information + experience = knowledge

This knowledge is unique to the individual as they have applied their own personal experiences, biases and values to the situation.

## 6.1 The Role of Research

Research plays an important part in furthering knowledge through the application of scientific methodology.

In Canada’s Peace Valley the Peace Country Beef and Forage Association (PCBFA) have seen the value of farmers steering research. Founded in 1982 by a group of farmers, part of PCBFA’s purpose is research and demonstration of new technologies and varieties. Recognising the importance of farmers seeing ideas in a real-life situation, they have demonstrations at field scale on Members farms. Members decide what is researched through an annual assessment; this combined with the fact all employees are farmers means the research is relevant. The field days at their main demonstration site have over 200 farmers attending; these farmers are PCBFA’s biggest advocate. This, coupled with the field scale trials and the scientific rigour around the evidence on the economics, has increased the rate of adoption of cover crops in the area.



Figure 6: PCBFA Trial Site: Source: Authors Own

Not all farmers require research trials to convince them to try something new. Quorum Sense in New Zealand is a fast-growing grass roots organisation with a focus on regenerative agriculture. This started as a farmer-led discussion group with a culture of support and sharing of current and experimental practices. Jono Frew, one of the founders, described it to me 'like microbes in the soil sharing their resources between plants, the same as a neighbour, supporting each other'.

How to make research relevant and translate into practice was a frequent topic of conversation. The need for a feedback loop so farmers can ask questions and steer research is vital and is often done through the presence of farmers on the research panel of organisations. There is also a need to involve farmers as 'end users' during the design stage so that they are 'co-creators'. I often heard how findings were out of date resulting in a gap between research and adoption.

## 6.2 What is Knowledge Exchange v Knowledge Transfer?

Knowledge transfer is a one-way flow and can be seen as 'top down'. Knowledge exchange is a multi-way flow and recognises that all the parties in a conversation have knowledge. Knowledge transfer has a role particularly when introducing something technical as I witnessed in the kiwi fruit industry in New Zealand. Zespri, the marketing arm of New Zealand kiwi fruit, has produced a red fruit. Involving existing growers in trialling the fruit is key and I attended a field day where a grower was sharing his experiences with others. The value of this to those attending was that the grower was transferring his knowledge in a commercial situation giving the demonstration credibility.





**Figure 7:** Knowledge Transfer in a Kiwi Orchard: Source: Authors Own

Knowledge transfer in this way is important to raise awareness of new ideas. It does rely on the receiver of the knowledge being in a space that they want to adopt or change practices, there has to be something in it for them.

### 6.3 What is the Right Knowledge?

What I think might be the right knowledge might not be viewed the same by others. Farmers need to feel confident to question and apply their own checks and balances. This struck me when visiting a Hutterite Colony in Alberta. The Hutterites have an incredibly strong culture dating back to the sixteenth century with strong views on a range of subjects. The strength of their culture means these views carry on between generations. It made me think about biases and how this can impact on knowledge exchange.

How knowledge is filtered, and the influence of culture was apparent when I met Lt Col Judith Dando MBE MSc who is Head of Knowledge Exchange at the UK Army's Land Warfare Centre. Her Knowledge Exchange team was founded in 2009 after the UK Army faced criticism for failing to learn lessons from the Iraq war.

Two elements of our discussion particularly interested me:

1. After a mission, a discussion forum takes place amongst the senior ranks with junior ranks feeding in views. A Military Judgement Panel looks at the lessons learnt and decides what issues should be taken forward. This distilled conclusion ends up with Judith's team to share. To me this valuable process is not knowledge exchange due to the filters that could be applied. There is a risk that only what is deemed the right knowledge by those applying the filters is shared.
2. The Land Warfare Centre piloted an online discussion forum but it did not work effectively. The chain of command in the Army resulted in individuals being reluctant to comment in



case a more senior officer was not happy with what they said. The Chain of Command and rank structure, although critical for military operation, had restricted effective knowledge exchange.



**Figure 8:** Author with Lt Col Judith Dando: Source: Authors Own

### Key Messages

- Information is needed to create knowledge
- Research is important but has to be relevant; co-creation is needed with the end user
- If tacit knowledge is not shared it is lost
- Knowledge exchange recognises everyone has valuable knowledge
- Knowledge transfer from a farmer gives credibility.
- Culture and personal bias impacts on knowledge exchange





## Chapter 7: Have we lost the Ability to be Inquisitive?

### 7.1 Nature or Nurture?

Esperance in Western Australia was one of the last areas to be cleared for farming in the 1960s/70s. The pioneering farmers who carried out the work collaborated and adapted to survive. The farmers I met in this area were the sons or grandsons of those pioneers and their spirit lives on. Esperance had the highest uptake of precision agriculture when it was introduced and this created discussion with my host, Chris Reichstein NSch, about whether the pioneering mind-set had a part to play in this.



**Figure 9:** The challenging sandy soils in Esperance: Source: Authors own

What drives some people to seek knowledge and others not to? Humans are social animals and our basic instinct tells us it is risky to stand alone away from our 'pack'. The EU Common Agricultural Policy (CAP) has provided a financial safety net to farm business in the UK for so long that some farmers have not had to innovate and think outside the box. With 51% of an average farm income derived from CAP payments (increasing to 84% for some) has this driven complacency meaning we have forgotten what it is to be inquisitive?

Meeting with various dynamic farmers around the world strengthened my view on the impact of upbringing on an individual's values. A number reflected on their fathers or grandfathers being the 'first to have done' something or been heavily involved in community activities. This has then carried on down the generations as it is the culture they have grown up with and is their 'norm'. This creates a challenge for those who have not been immersed in an environment of sharing and/or may have limited social networks so are excluded from the opportunities of knowledge exchange.

A point can be reached when change must happen; the 'burning platform' driving the necessity to ask questions and seek information and knowledge. To ask the right questions, farmers need to understand the 'why' in a business and not just the 'what'. What does success look like and where



are the gaps in knowledge to get there? Success is not always about increasing production or income it could be about making life easier or different.

### **Key Messages**

- Humans' social culture can impact on 'standing out from the crowd'
- The culture of an individual's upbringing can impact on their opportunities to be part of the knowledge exchange environment
- Being curious can be driven by culture or necessity.
- 'Why' is important in understanding where there are gaps in knowledge



## Chapter 8: 'It's the Messenger not the Message'

Knowledge exchange takes place between farmers formally and informally; the importance is hearing or seeing something from another farmer. Reflected in the quotes in Figure 10, it was the fact the message came from a farmer, 'someone like me' that made the difference.



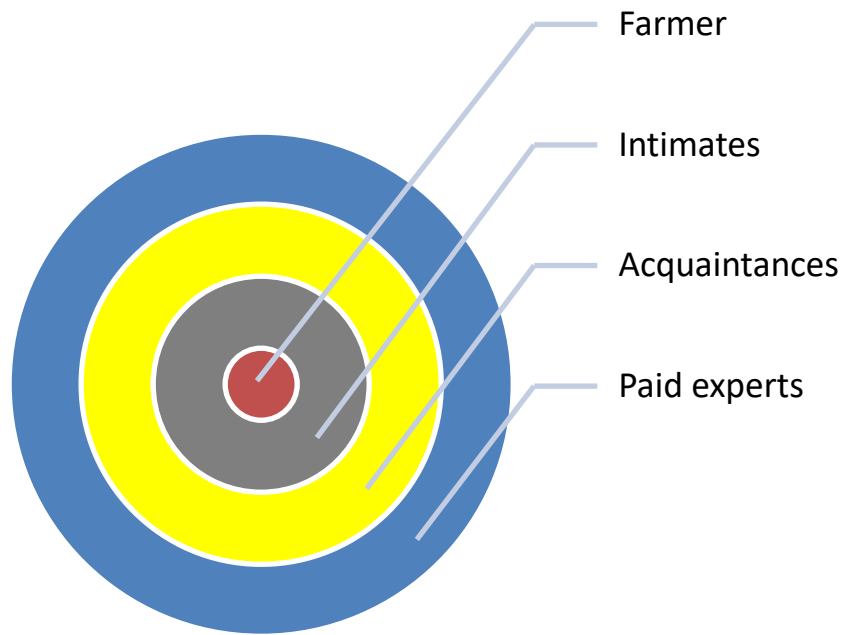
**Figure 10:** The Importance of Hearing it from a Farmer

Dave McEachren, an Ontario arable farmer, explained this to me. Hearing about the benefits of no till and cover crops from advisers, industry and researchers over the years did not make him change. It was when he attended the National No Till conference in America and heard other farmers that his attention was caught. For Dave 'it was the messenger not the message'.

It is not often as straightforward as Dave's experience; every farmer goes through an individual process when making a decision which can involve their own support network and circle of influence. It is not always possible to attribute a change to a particular event or individual.

Irish NSch, Roberta McDonald, explained this to me, having come across Tom Phillips work during her Nuffield. A farmer may speak to individuals in all the circles several times, interspersed with periods of reflection and this process could take a number of years





**Figure 11** Tom Phillips 1984 thesis: The relationships farmers have with multiple influencers:  
Obtained through: Roberta McDonald

A decision often involves informal networks which are hard to quantify but should not be underestimated. In Canada farmers have a culture of meeting every morning in their local coffee shop. This daily informal interaction provides an important social function but also enables knowledge exchange to take place on a regular basis - the same concept as the British pub but with beer replaced by caffeine!

Informal networks can include social media which have opened up opportunities to share knowledge across continents. It has provided people with a voice who may not attend groups due to time constraints or who avoid collective gatherings. This is not without its dangers as it is easy to create an echo chamber with like-minded people online who reinforce their own thinking which is not conducive to change; a disrupter is needed. Echo chambers can form in any group as explained by social scientist, Dr Jilly Hall. She explained groups tend to include individuals with similar levels of social resource and exclude those with fewer resources. Recognising this within a group and creating opportunities to diversify those involved is important to overcome this.

I heard about a number of different platforms used to exchange knowledge. See Appendix 1.

### 8.1 Specialist Online Platforms

I was keen to explore more specialist online platforms that have been created to enable knowledge exchange. The three I looked at are all UK based although WeFarm operates in Africa. (See Appendix 2).

#### Key Messages

- Decision making is a complex process involving multiple people
- Farmers listen to other farmers as they are 'someone like me'



- Online knowledge exchange through social media and discussion forums have enabled farmers to access a wider network. Rural connectivity is vital for this.
- Social media and groups can create an echo chamber of like-minded people. Disruption is needed to create change.



## Chapter 9: Lead Farmers

I met with Woody van Arkel, the farmer involved in setting up Ontario Soil Network, see Appendix 3. Woody has been interested in soil since high school and recognised the gap between research and practical applications. He is a 'go to' person for farmers interested in cover crops and soil, sharing his knowledge through social media and events. He feels it is important to share failures as well as success. He advises farmers to take little steps as there is no ideal prescription for soil management and cover crops. He described it as a Lego model where every farmer has the same bricks but needs to work out for themselves how to put them together to suit their farming system.



**Figure 12:** Author with Woody van Arkel: Photo: Authors own

Woody would be considered a 'lead farmer' and the importance of lead farmers in influencing was evident in all the countries I visited.

### 9.1 The Role of the Lead Farmer in India

V Ravichandran (known as Ravi) kindly hosted me during part of my Indian travels, introducing me to organisations and groups of farmers near his own farm in Tamil Nadu. In this area there are 48 small villages and lead farmers are key to communicating messages. A lead farmer is not appointed but is respected in the community and prepared to take a risk. The huge marketplace in India combined with the small size of farms means working collaboratively is essential.

Ravi is a lead farmer and has been instrumental in expanding the adoption of drip irrigation for rice.

Water to flood the paddy fields is often drawn from wells causing ground water levels in the Tiruvarur District to drop from 40ft to 175ft with salinity also a problem. Drip irrigation reduces



water use by two thirds, increases yield by about 700 – 800kg/ac and uses less electricity. 'Seeing is believing' and trial plots are often established near a road with a sign including phone numbers of the host farmer and adviser. Ravi explained that farmers will only adopt the technology if it is successfully used by another farmer. Not all farmers follow a technology simply because it is aggressively marketed by the corporates.

The qualities of the lead farmer are inquisitiveness, a trust in science, willingness to take a risk - financially and psychologically and to be able to communicate.



**Figure 13:** Ravi (second from left) with a sign explaining the drip irrigation which was supported by Jain Irrigation systems: Source V Ravichandran

Lead farmers in India are crucial not just to other farmers but to organisations or companies looking to introduce changes. The choice of lead farmer can make or break the introduction of something new.

I heard that farmers are better at understanding the difficulties of new ideas than researchers and that they will tweak research to make it more practical to implement.

The role of the lead farmer was apparent when I met a group of farmers in Bihar, north east India. One farmer did 90% of the talking backed up by three others. This farmer had been the first to adopt a new method of planting paddy which was now adopted.

I heard about the challenges they were facing particularly with changing weather patterns. Their normal three-crop rotation of paddy, wheat and corn was being threatened by later planting of wheat resulting in a late harvest and not being able to drill the corn. The financial impact of this was huge; most of them farmed an acre. These farmers did not have smart phones and had learnt about climate change from the TV. They wanted to make changes but did not know what to do and wanted help. Their hunger for knowledge was poignant. It highlighted the importance of knowledge before taking a risk as they could not afford failure.





These two areas in India highlighted the importance of connectivity and networks to access knowledge at times of change.



**Figure 14:** Author with my host; R R Kalyan talking to the Bihar farmers: Source R R Kalyan



**Figure 15:** Author with Bihar Farmers, the lead farmer is standing next to me: Source: R R Kalyan



**Figure 16:** Author with host R R Kalyan with reduced spacing paddy plants: Source: R R Kalyan

#### **Key Messages**

- Lead farmers can be instrumental in encouraging others to change
- Lead farmers have a certain mental outlook combined with the financial ability to take a risk
- Connectivity and networks impact accessibility to knowledge.



## Chapter 10: Farmer Groups

Face to face interactions are the predominant method used for knowledge exchange. These provide the ability to create relationships through social interactions. The importance from a mental health aspect as well as for the technical knowledge they provide cannot be over emphasised. Creating an atmosphere where people are willing to be open, share their knowledge and do something different is not always easy and can be even harder to measure. As I travelled, I learnt about different types of groups, how groups evolve, the role of lead farmers, the role of facilitators, who attends and how much knowledge farmers are willing to share.

### 10.1 Dairy Discussion Groups

The differences between the two dairy discussion groups I attended, (see Appendix 4) related to the social bonds between the members. The Dairy NZ event played a vital role in getting farmers off their farm to share experiences at a particularly difficult time of year. Awareness was raised about greenhouse gases, but my impression was that farmers would not do anything different. The Irish discussion group had incredibly strong social bonds and played an equally important role in getting farmers off farm. However, particularly for the host farmer, I felt that change would happen; they drove each other on and were able to have challenging conversations due to the strength of their bonds.

There are similarities with how a group forms and functions with Bruce Tuckman's group development model. According to Tuckman 'these phases are all necessary and inevitable for the team to grow, face up to challenges, tackle problems, find solutions, plan work, and deliver results.' There is a social process a group will go through to enable them to maximise their effectiveness.

#### BRUCE TUCKMAN'S GROUP DEVELOPMENT MODEL

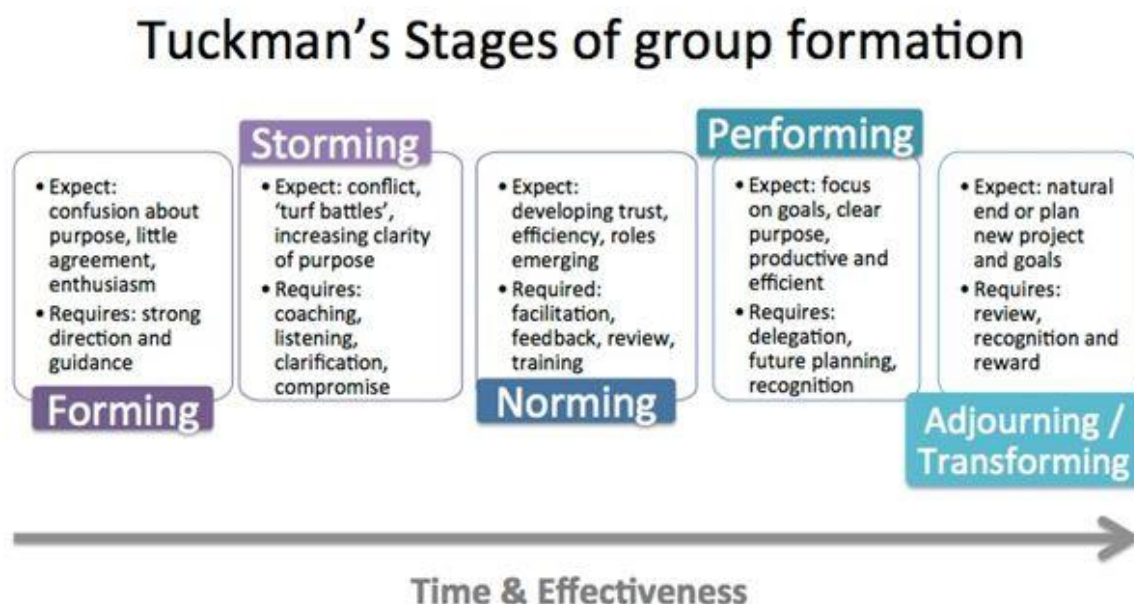


Figure 17: Taken from: <https://svitla.com/blog/group-dynamics-how-to-form-strong-software-development-team-from-new-hires>

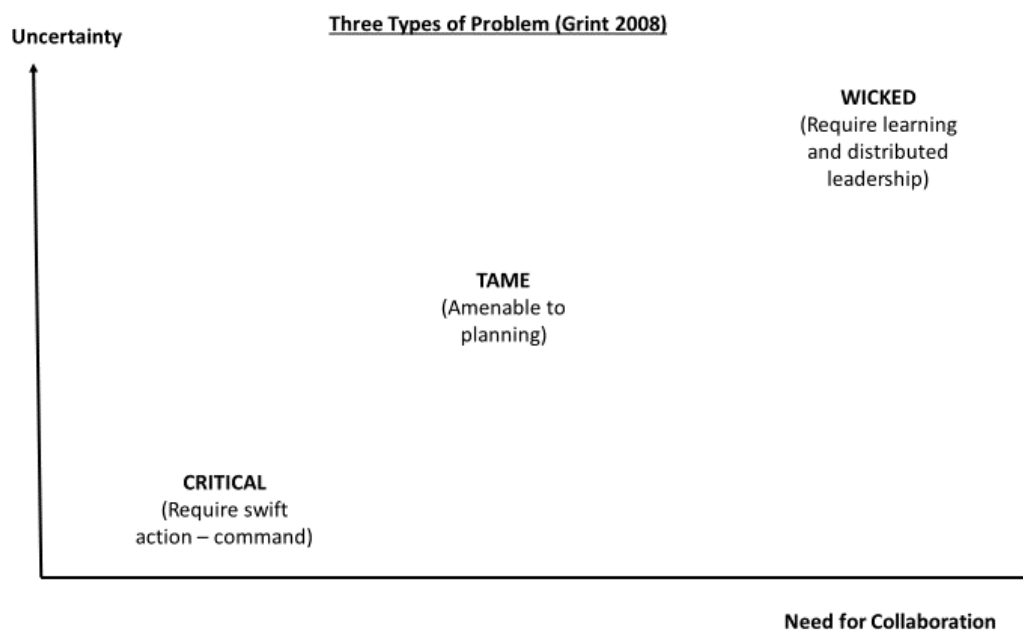


## 10.2 Participatory Action Learning

Another approach I observed focused on Participatory Action Learning. This approach is described extensively in the book 'Seeds for Change', given to me by Wyn Owen, NSch. There is no specific definition for Action Learning, but founder Reg Revans said,

*'There can be no learning without action and no (sober and deliberate) action without learning'.*

Action learning can be used to solve wicked problems which are complex and have no straightforward answer and often more questions are raised in trying to solve them. Farming is facing wicked problems.



**Figure 18:** Three Types of Problem: Source: Pearce D. and Williams E (2010) Seeds for Change,

'Seeds of Change' describes how wicked problems require a questioning approach, taking risks and learning from them. It also requires people to work together to exchange knowledge and collaborate and, in some instances, learning new ways of working to overcome the problem as illustrated in Figure 18.

During my trip to New Zealand I saw how Action Learning was applied in the red meat industry through the Red Meat Profit Partnership (RMPP) see Appendix 5.

I met with the one-year old Central Bay of Plenty RMPP Action group. This was a group of mixed ages, most of whom did not know each other before joining. Some members had been part of production focused groups before, but they felt the increasing emphasis on the environment and the impact on their business was something they needed to understand. The introduction of environmental regulations and the prospect of more had been a key factor in them joining the group. When subsidies were removed in the 1980s it drove efficiency, but the environmental changes are seen as an increased cost to business. Being part of a group has enabled them to share their fears and find out what other people are doing. It has provided reassurance that things are 'not





as bad as they thought'. If the group did not exist they would be on their own and worrying, being part of it has 'moved them all up a bit'.

The fact the group can choose topics was welcomed and has enabled them to 'drive their own destiny rather than wait to be told'. It has also allowed access to experts that as individuals they could not afford. They had particularly enjoyed visiting farms outside the group to stretch their thinking. One of the older members of the group told me that he had learnt something every meeting and done something different dispelling the oft held belief that only younger people are willing to change. The younger members appreciated the experiences of the older ones.

The small size of the group enabled greater interaction than a field day, resulting in discussion topics such as family matters, which would not have happened in a larger, less personal group. The ground rules established at the start were important to create this trusting environment.

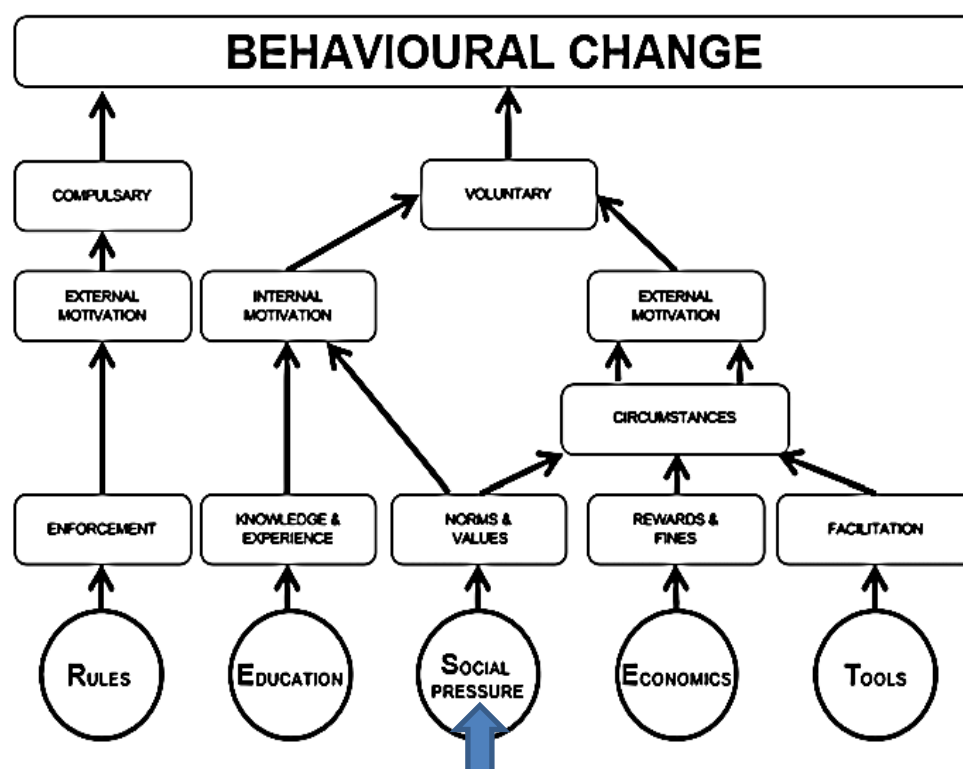


**Figure 19:** Central Bay of Plenty RMPP Action Group: Source: Authors own

John King who facilitates thirteen RMPP groups explained how he tries to get a mix of age, geography, enterprises and property size, so members can understand the range of different challenges, and avoid 'group think'. This has enabled people to see that they have more in common than their farms might suggest, to challenge their sense of normal and demonstrate how people's personal bias can prevent progression. The groups working best for John had good existing social bonds where 'all the learning happens over a beer'.

### 10.3 Social Pressure

Being part of a group or network to exchange knowledge can create peer pressure as described by the 'RESET' model. Social pressure is viewed to be the most important compared to the other four drivers in the model. The idea is to create enough interest and momentum behind something so that it is 'normalised'. This is also demonstrated in Rogers Adoption Curve which shows that once a few people, the innovators and early adopters, have tried something momentum gathers with the early and late majorities following on.



**Figure 20:** Reset Model: Source Irish Veterinary Journal (Lam, Jansen & Wessels 2017)

In farming there is an element of competition and this manifests itself in what knowledge someone is willing to share. I experienced this in Ontario where farmers were willing to share their practices in relation to cover crops, but the concept of benchmarking was not entertained. In Ontario land is a limiting factor and farmers are looking to expand, sharing figures with anyone local would be too much exposure. In Alberta, a farmer would not tell me the number of cattle on his farm as my host was his neighbour but he was happy to share the work he was doing with cover crops. This occurs in the UK too where farmers who benchmark are careful which groups they belong to and who they share knowledge with. I refer to these as 'red lines' for sharing. I was interested in whether there were sectoral differences and if so, what drove the differences. The main ones observed related to the beef and dairy sectors. Dairy farmers are often in producer led co-ops so there is a mentality of working together; dairy discussion groups are common in several countries and they have regular data that can be used to benchmark. Systems are more uniform so it is easier to compare data. Beef has a greater variety of systems with more infrequent data; the farmers are often in competition with each other at market so there is less desire to share.

#### 10.4 Women's Groups

How people see themselves in the group can have a bearing on their level of interaction and their perceived role. Beth Dooley is currently writing her PhD having studied farmer discussion groups. She observed that the occasional time women (who were not the primary farmer) would attend mixed groups they would introduce themselves in relation to their male counterpart which did not happen the other way round. In certain instances these women would ask questions relating to the family rather than more technical questions.



I discussed the merits of women's only groups in Western Australia. The Liebe group have a popular women's only group which is highly valued, the women feel they can speak more freely than when men are present. There are women's only groups in the Agrisgôp programme in Wales where facilitator Wyn Owen observed that early in the Agrisgôp programme women were more open to the concept and contributed more proactively to the efficacy and synergy of the group. Their approach was to make the group work rather than the men who had a 'what's in it for me' attitude although this did change; it just took them longer to get there! Agrisgôp now have women only groups as a project target.

In the countries I visited women were often responsible for doing the books and therefore had an awareness of how well the farm business was doing. They are often the ones to realise that change is needed whereas men will continue to do the same thing but work harder. John King penned an article 'Behind every great man is a woman rolling her eyes'. John is passionate about and teaches regenerative agriculture and when he wrote this article in 2017 90% of his students were women and the discussion groups he ran had more women attending than men. His view being that it is women who are keen to challenge the status quo and find the types of holistic management practices John is teaching fits with their vision for the bigger picture. John feels this is due to the way women learn in a more social and diverse way and their egos are less attached to continuing with the traditional ways. This combined with their knowledge of the business means they are working within their families to make changes. John goes on to quote Margaret Thatcher,

'Want something said get a man; want something done get a woman'.

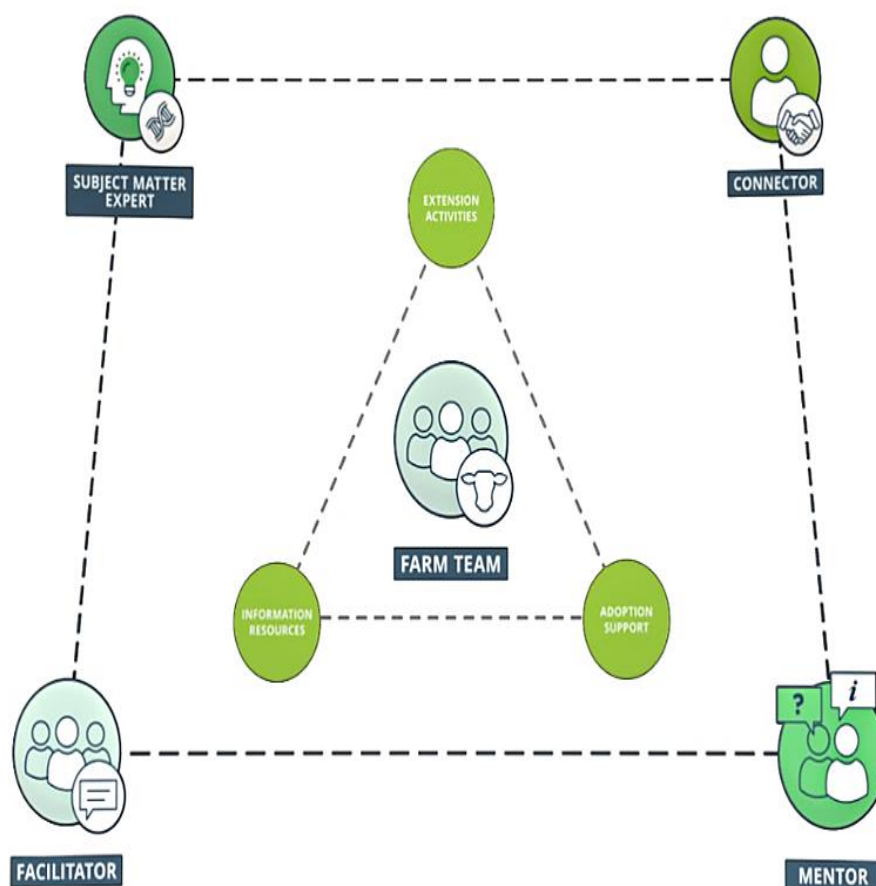
### Key Messages

- Strong social bonds facilitate more effective knowledge exchange
- The entire farming team needs to be involved in discussion groups
- Written ground rules can help create confidentiality and trust
- How an individual sees their role in a group can impact on the knowledge they share
- Women are often the ones to identify change is needed



## Chapter 11: The Role of Facilitator

The role of the facilitator in the RMPP project is slightly different from other discussion groups I visited. They are there purely to facilitate and encourage those present in the group to find the solutions. If it is felt an expert is needed they will be brought in as an additional person for a particular meeting leaving the facilitator free to focus on their role.



**Figure 21:** The Extension System Model for RMPP: Source Collins and Bewsell (2019)

To become an RMPP Action Group facilitator a training programme must be completed as explained in Collins and Bewsell RMPP Action Network paper (See Appendix 6). This is considered critical.

How much technical knowledge does a facilitator need? The consensus was a level of knowledge is needed to ask the right questions and follow conversations. This led onto questions about the character of an individual and whether anyone can facilitate. Views were mixed on this but good communication was a key requirement. Simon Sankey, from Dairy NZ, described three elements; facilitation, technical knowledge and the ability to engage to create trust; if one of the three is missing people do not engage.

With the need to have some technical knowledge, a facilitator must be careful they do not assume the role of an expert. As soon as this happens the dynamics of the group change from one of knowledge exchange between farmers to knowledge transfer from the facilitator. The facilitator's



role is to draw knowledge out so the expert should only come in once the group's knowledge is exhausted.

### 11.1 Creating the Right Environment

As well as providing an important organising role a facilitator can be key to creating the right environment to enable knowledge exchange to take place. Experienced Australian facilitator Dr Chris McDonough shared his top tips with me. The most important were how people need to feel to participate and share knowledge:

- Valued
- Engaged
- Sense of purpose
- Ownership of outcomes
- Sense of achievement

Chris ensures the room is laid out, so chairs are in an arc, avoiding rows of people. The first question is key and needs to be inclusive, not exposing people's point of view to ensure that everyone in the room can speak. Once someone has spoken, it is easier to speak again. It is important to take time at the end to go through the outcomes and next steps.

A facilitator needs to use open questions, 'how – why – when' and actively listen. They need to recognise different personalities and learning styles, encouraging quieter people to speak and control those who may dominate a meeting.

### 11.2 The Role of Third Parties

Despite my study looking at farmer to farmer knowledge exchange, the role of a trusted third party acting as a conduit between farmers became apparent. As explained to me by Richard Wakelin in New Zealand these are often the people that a farmer will turn to for help when they are at their most stressed e.g. a vet. An agronomist, Luke Marquis from Western Australia, enables knowledge exchange by putting clients in touch. Knowing his client's strengths ensures that it is not always the most vocal whose opinions are held.

Trusted third parties play an important part in the knowledge exchange landscape. This means that they are also an important group to include during change as they will also have their own personal views and their mind-set impacts on what knowledge they may share with their clients.

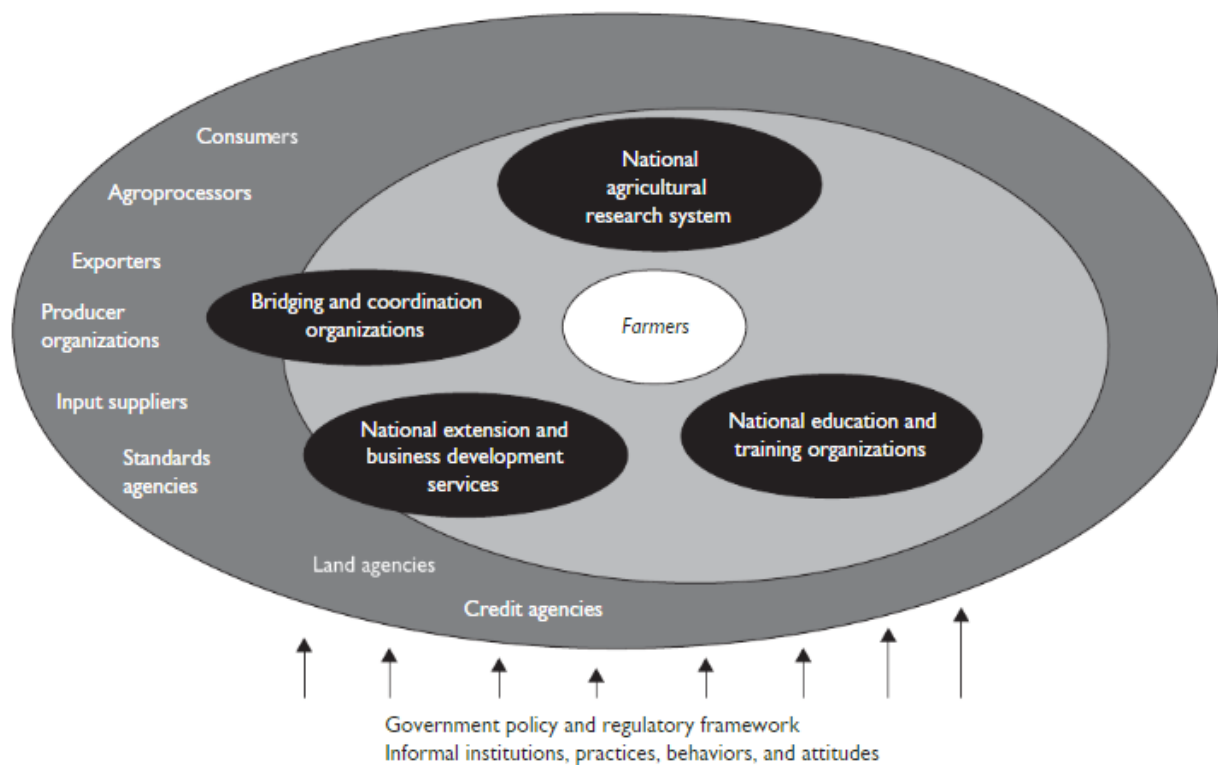
### 11.3 The Landscape

RMPP has recognised there is a wider landscape that the Action Groups sit within and they have created six Rural Professional Action Groups to encourage knowledge exchange between Rural Professionals (advisers).

This wider landscape of knowledge exchange was explained to me by Dr Chris McDonough during my Australian travels. Extension models have evolved over the years from top down technology transfer to a bottom up participatory approach giving the power back to farmers rather than organisations. Called Agriculture Knowledge and Information System (AKIS), it recognises there are several different people or organisations involved and it encompasses all these organisations, individuals and processes in both the generation of and exchange of both knowledge and information. This approach also recognises the many factors impacting on what decision an



individual may make. This evolved further as it was realised that the other stakeholders within the supply chain influenced a farming business e.g. finance, labour, and were critical to innovation. This is known as the Agricultural Innovation Systems (AIS).



**Figure 22:** Agricultural Innovation Systems. Source: World Bank

Given the many players in the AIS landscape there is a need for collaboration to encourage the spread of knowledge and information and ensure all factors impacting a business are understood and considered.

Connecting networks within this landscape breaks down silos that can appear between sectors within and outside the industry. This is particularly important to ensure farmers are considered as equals when sharing knowledge in some of the wider ranging debates such as climate change and the environment.

### Key Messages

- A facilitator assists in creating the right environment for knowledge exchange
- Facilitation is a skill that requires training in both technical and social aspects
- Third parties are important conduits for sharing knowledge but have their own bias
- There is a wider knowledge exchange landscape which needs to be factored in during change.

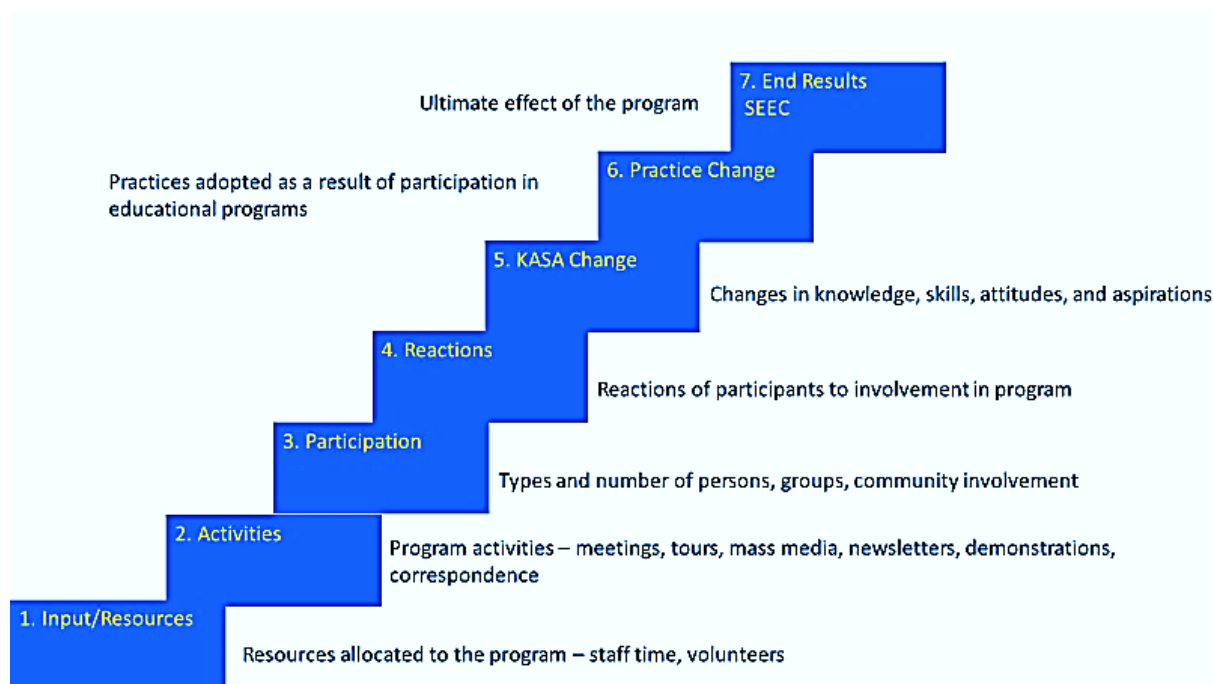




## Chapter 12: Evaluating Knowledge Exchange

Given the many human aspects in driving change, trying to attribute a change to a particular occasion is difficult. Evaluation is often quantitative e.g. x number of people attended. This provides no reflection of whether the event was effective and created change. Even the use of 'happy sheets' which record intent do not give an accurate view as intent does not always lead to action.

Bennetts Hierarchy is being used by RMPP for evaluation recognising that it is harder to measure the further you move up the scale. Feedback is collected through a range of qualitative and quantitative data. Bennetts Hierarchy focuses on process for Levels 1 – 4 and outcomes for Levels 5 – 7



**Figure 23:** Bennetts Hierarchy. Source: <https://www.joe.org/joe/2010december/tt1.php>

This does not measure areas such as resilience and empowerment. Part of the evaluation could measure the benefits to others involved such as advisers. Evaluation was discussed in a session at the 24<sup>th</sup> European Seminar on Extension and Education led by Lisa van Dijk from the Royal Agricultural University. The conclusion was that evaluation must start early to capture the learning process and some of the harder-to-measure social aspects of knowledge exchange.

### 12.1 Payment

I heard mixed views on whether attending an event, face to face or online discussion should attract a fee, or at the other end of the spectrum, that an individual should be paid to attend. The overall view was people value what they pay for, creating a different mind-set, (See Appendix 7).

#### Key messages:

- Quantitative evaluation is easy but does not prove effectiveness
- Evaluation must start at the beginning
- People value what they pay for



## Chapter 13: Kicking the Dirt

A farmer's natural environment is the farm and that is where many will feel most comfortable. This combined with the need to 'see to believe' and 'kick the dirt', means that many events or groups are hosted on farm or at market. On-farm attendees can see what is being discussed as I witnessed at the Navan Dairy Discussion group in Ireland.

The importance of on-farm demonstration has been recognised by the European Union and funding has been provided for three projects to research how to successfully deliver on farm demonstration. At the Farm Demo conference in Brussels representatives from the EU's Directorate of Agriculture explained how knowledge and innovation is key to meeting the challenges of today and tomorrow. Demonstration on farm increases the speed of uptake and leads to innovation as farmers learn from other farmers.

Field Days are another of demonstrating ideas and encouraging knowledge exchange. In Australia Field Days are common across the country and provide an opportunity for farmers to get together socially whilst seeing trials on farm, (See Appendix 8).

### 13.1 Social Aspects; Food and Drink.

The importance of the social aspect of meetings cannot be over emphasised. This is when the real knowledge exchange takes place and social bonds form - 'hallway sessions', as they were described to me by Woody van Arkel. Food has played an important role in human evolution from the days of hunter/gathering where meals were communal through to modern celebrations. It acts as an enabler so individuals can relax and discuss topics and share experiences. This view was shared with me by Matt Gardner from Agricultural Marketing and Production Systems (AMPS) in New South Wales. AMPS field days are always followed by a beer and barbeque giving attendees the opportunity to discuss what they have seen and the opportunity to embed this within their thinking.

Food was central to the Dairy NZ 'Have a Lunch on Us' programme, the aim being to get farmers off their farms and into a social environment to address the stress and pressures that the drought was causing.

#### Key Messages

- Being on farm creates an environment for more effective knowledge exchange.
- Recognising that people learn in different ways and with farmers the ability to 'kick the dirt' is an important aspect
- Food and drink enable social interaction





## Chapter 14: 'The Language that Motivates the Innovator Doesn't Motivate the Middle Adopters'

Dave McEachren explained that for knowledge to be successfully shared the message and language around it must be 'normal'. As soon as someone starts talking about new practices this flags a risk. For consultant Mel Luymes who jointly set up the Ontario Soil Network the language that is used when talking to a group of innovators would be totally different from that used for later adopters.

When Dave hosts farmers he explains that cover crops are not new, that they have been around for 200 years. He used to suggest that the farmers go and try them in a small area but recognised that the word 'try' or 'experiment' immediately raised a risk. The use of the word 'research' has a similar impact. Now Dave finds out what practices are being followed and uses this to shape the conversation. He explains what he did and why and the benefits he has experienced so the farmers can form their own views. He shares his failures as well as his successes.

In Wales Brian Rees, a facilitator and mentor for Farming Connect, explained that the word 'training' can immediately be a barrier to farmers. Firstly, this is because for a generation of farmers who came back to the farm straight from school the need for more education was a bad thing. Secondly for someone who has been doing something for 30 years to be told they need 'training' or 'educating' is perceived negatively.

Chris McDonough has suggestions relating to language. People often come up with reasons why they cannot change. How this is responded to can create further discussion. Examples are:

1. Clarification response: The response to 'It's too expensive' would be 'Compared to what?'
2. Exploring options response: The response to 'You can't do that around here' would be 'What would happen if we did?'
3. A re-directional approach response: 'It will never work' invokes a response of 'What would make it work?'

The term 'hard to reach' is often used to refer to those people who do not or will not engage. I was challenged for using this 'insulting' term in Ireland. Someone is not 'hard to reach' they simply are not interested in your idea. It is important to recognise that just because someone strongly believes their view or idea is important does not mean others will feel the same.

### Key Messages

- Careful use of language/words is needed to encourage engagement
- Sharing failures as well as success is important.
- Careful questioning can help overcome resistance.



## Chapter 15: 'You need to be Optimistic to Learn Something New'

In Rain, Western Australia, the farming discussion group has taken on an important role in the social infrastructure of the community as the number of farmers has declined. No government agencies operate in the area so it covers a diverse range of issues. The four to five meetings a year are structured around a 'what's keeping you up at night' session. This makes everyone realise they are in the same boat and the mental health value is enormous. Social bonds have been formed since childhood, so these sessions are real, honest, transparent, relaxed and relevant. All the farmers are dealing with the same climate, soil and rainfall so have the local knowledge to share their knowledge and the informal network is where the most important knowledge exchange takes place.

Good mental health is vital through times of change. In Alfred Grande's words,

'You need to be optimistic to learn something new'

Farmers are feeling increasingly socially isolated despite having more ways to communicate than ever before. This is often coupled with farms getting larger so there are less people. In Ireland, the value of the discussion groups in getting people off farm was clear and the network these groups provide had been especially important during the dry summer of 2018.

The longer someone does not leave a farm the harder it is to face people again and have a face to face conversation. Regular discussion groups help prevent this happening.

The Farming Network in Cumbria raised the question about older farmers exiting the industry, particularly tenant farmers who have nowhere to go. The term 'honourable exit' was used by James Parsons in New Zealand and how the opportunity for this must be created.

Mental health impacts other aspects of farming; the recent report by the UK Farm Safety Foundation found a link between poor mental health and farm safety. 84% of farmers under 40 felt that mental ill health was the biggest danger facing the industry.

### 15.1 Rural Resilience

The importance of a sense of place and how a social infrastructure can be undermined was highlighted when I visited Rathcroghan in Ireland and met with local farmer Gerard Healy, (See Appendix 9).

In Australia rural communities in some areas are declining due to increasing farm size and people moving out of rural towns and villages. This has impacts on other aspects of community life such as sports teams, another important social connector. Birchip Cropping Group was set up by a group of dynamic farmers in the Mallee and Wimmera area of South Australia in 1992 as a research and extension organisation. Its role now includes supporting members to build rural resilience to enable the area to adapt to change, thereby maintaining the community. It does this through balancing the three areas of environment, profitability and community, (See Appendix 10).

Wikipedia defines social capital as 'the effective functioning of social groups through interpersonal relationships, a shared sense of identity, a shared understanding, shared norms, shared values, trust, cooperation, and reciprocity,' or simply, it is the resources you get from the people you know and respect. The importance of groups in building social capital was also apparent when discussing



Farmer Field Schools (FFS) at the UN. Discussion groups have grown out of FFS to discuss social and political issues especially in post conflict areas. These groups build a social contract between people with the value being in rebuilding their ties and trust. The building of social capital is important for transformation.

### **Key Messages**

- Good mental health is vital to being open minded to change.
- The process of exchanging knowledge benefits mental health.
- Farming is an isolated industry which is increasing as farm sizes get bigger.
- There can be unintended consequences of policy decisions on the social structure of a community.
- The social fabric of a community is vital to creating rural resilience



## Chapter 16: Discussion

We have a wicked problem on our hands. The changes facing our industry, with policy change alongside shifting consumer demands, new trade agreements and weather patterns, are creating a perfect storm of uncertainty. We need to see this as an opportunity not a threat and take ownership of the situation rather than expect a top down policy solution. Businesses with a heavy reliance on CAP payments will not survive if they do not change.

It is all too easy to rush straight into action at times of change to make us feel as though we are confronting the problem. Standing back and taking stock requires headspace and good mental health and is vital for understanding our individual 'why'. The treadmill of everyday life and the difficulties in asking ourselves challenging questions are not easy, but they are crucial.

Knowledge and its building blocks of information can come from a variety of sources, but wherever it comes from we need to be emotionally bought in so ideas are adopted for the right reasons. However technical a concept is, the focus still has to be on the people. The concept of co-creation is now widely recognised but there is still a top down approach in some areas, resulting in knowledge transfer rather than building on existing knowledge through knowledge exchange.

One-way knowledge transfer works well in simple situations when there is correlation between an action and the result. Knowledge exchange is a more complex, interactive process often with no clear end point. We do not know the value of our 'silent' tacit knowledge to others unless it is shared; we need confidence to share what we know and confidence to be curious and ask questions. Keep knowledge to yourself and you will benefit no one; share knowledge with others and you will benefit our industry.

Taking a risk when the outcome is unknown is not easy at any time but particularly difficult if under duress. Knowledge exchange collectively mitigates risk, communicating with others in the same situation creates confidence, builds capacity and resilience; hearing something from 'someone like me' makes a huge difference to how a message is received; 'it is the messenger not the message'.

As I discovered, this is all easier said than done because we are complex individuals with our own biases, values and networks. We need to recognise the values and culture that we are born into shapes our view on the world. This also needs to be recognised by organisations and governments when introducing policies or initiatives. One size won't fit all; the existence of a variety of organisations in the UK is a strength but can also create comfortable 'echo chambers' which need to be disrupted. A sectoral approach exacerbates this, cross sectoral knowledge needs to be exchanged.

Social media has opened-up opportunities at international level connecting individuals in a way not possible before. This has created virtual communities where people have found like-minded people to share their knowledge, creating momentum to normalise practices and accelerate change. However, the echo chambers and group think that are created can lull people into thinking everyone has the same views and takes the same actions as they do.

The importance of developing trusted relationships whether virtually or face to face cannot be under-estimated and is imperative for effective knowledge exchange. Relationships are dynamic,



managing them is hard. The skills of a facilitator to develop relationships in a group situation can make or break its success. Allowing time for social interaction during meetings, recognising that this is as important as any technical content was reflected in many of the events I attended. Being on farm, a familiar environment, to be able to touch and contextualise what is being discussed was also important.

Facilitators, experts, advisers and researchers all have a part to play in knowledge exchange. For transformative change to take place the 'whole landscape' needs to be considered. We can focus on what we can change within our business, but we are one piece of a supply chain and success depends on change throughout its breadth. We need to make this happen by taking control of the situation and, like the RMPP farmers, 'drive our own destiny and don't wait to be told'. We need to look outside our industry and recognise where others can add knowledge, bring a different perspective and create institutional change.

Covid-19, (March 2020 onward) has created change although the long-term impact is unknown. With communication moving to a virtual format, it has enabled people to access knowledge to fit their own time commitments. No one is missing out because they cannot make an event. What is missing is the ability to create strong social bonds, exchange knowledge in the 'hallway sessions' and 'kick the dirt'. It has, however, demonstrated that it is possible to carry on exchanging knowledge even if people cannot get together and the ability to do this and share experiences has been incredibly important during such unprecedented times. The mental health aspects of knowledge exchange at times such as these cannot be emphasised enough.

We need independent leadership in our industry to create institutional change, not overly relying on our industry bodies whose role it is to represent their member's views. That leadership sits with us. My travels have shown me that it is the people who move away from the 'pack' and are uninhibited by organisational politics that can really make the difference and drive change.





## Chapter 17: Conclusions

When I set out I had a list of questions that grew as I travelled, highlighting the breadth and depth of my topic and the complexities of people. If I only had one sentence for my conclusion it would be that:

**‘Everything is about people, no matter what the subject matter’**

The people aspect must be considered when developing policy, strategy or new technical solutions. Without strong social capital throughout the industry we will not change to meet the challenges of now and the future.

The benefits of the fragmented knowledge exchange landscape in the UK in providing a wide range of options to the industry is to be welcomed, but the weakness of this model in creating comfortable echo chambers needs to be recognised. This is a challenge for effective knowledge exchange and collaboration is required; the sum has to be greater than the parts. This means the structure of industry organisations needs to be considered to enable cross sectoral knowledge exchange to address the cross-cutting challenges. This will also create the cohesion that is needed at local level to address the environmental challenges that need landscape scale solutions.

Collaboration must happen between all those involved in the industry - farmers, organisations, the supply chain and government - to create a joint sense of ownership and a culture of trust recognising we all have a role to play, albeit different, in meeting the challenges we face. Communication through trusted relationships is the only way to join the pieces of the puzzle together and this has to happen to give us the strength to face the inevitable changes that are required. Reaching out to those who do not engage has to be done through trusted relationships and we all have a role in looking out for each other.

The high relevance of farmer to farmer knowledge exchange during change goes without question. The biggest challenge in the UK is not the provision of opportunities for knowledge exchange; it is mind-set. Our own mind-set impacts on who we share knowledge with, what knowledge we share and how receptive we are to accepting knowledge from others, particularly if our personal values are challenged. We all need to reflect on our own mind-set and consider if we are open-minded enough. For those who provide information there is a need to understand that until it has been understood and experienced, it does not become knowledge and for knowledge exchange to be effective everyone's knowledge is valuable.

Given the impact on all businesses of the expected post-Brexit policy and trade changes, everyone needs to consider their own mind-set and how it impacts on their long-term ambitions. What does success look like? What is the journey required to achieve this success? All possibilities, including looking outside the industry for innovation or welcoming new entrants with different skill sets, who are not constrained by their forebears' actions and who can approach issues from different angles, need consideration. We hold the solution and need to recognise this, take control and lead, standing out from the crowd when required. It is within our gift to share our knowledge for the benefit of others, to drive the changes that are necessary and to have a thriving rather than surviving industry.



## Chapter 18: Recommendations

### To Farmers

**We need to challenge our industry,** taking ownership to solve our own problems. We hold the solution; our destiny is in our hands,

**Recognise the value of our knowledge;** be confident in sharing it and be open minded in receiving it

**Recognise the importance of good mental health to create resilience during change.**

### To Industry Organisations

**Organisational 'politics' needs to be set aside for the benefit of the farming industry.** Sectoral approaches exacerbate siloes of knowledge. Collaboration is needed between organisations and across sectors.

**We need to drive change through the whole supply chain** encouraging people from outside our industry to bring a fresh perspective.

**A variety of methods of knowledge exchange is required.** People are complex with different values, biases and learning criteria. Taking time to build trust is vital for this.

### To Government

**Recognise the importance of social capital with and in the farming industry and the wider rural community.** Without social capital, delivery of natural capital will not be realised.

**Co-creation:** End users must be incorporated into policy development and research, building on existing knowledge and creating space for innovation.

**Rural connectivity:** To enable all opportunities for knowledge exchange to be realised rural connectivity is essential.



## Chapter 19: After My Nuffield

When asked what success looked like in my Nuffield interview, I answered that I wanted to bring back something that would be of benefit to the industry during the turbulent times ahead. I envisaged finding the ideal method of enabling knowledge exchange. As I travelled my views changed to focus on the people, including reflecting on my own experiences and values.

Having limited travel experience and even more limited experience in travelling alone, the Nuffield Farming experience has challenged me in many ways. The opportunity to immerse myself in the agricultural industry in the countries I visited as well as the UK, to discuss and debate with individuals who think differently has at times blown my mind. It has been exciting and sometimes daunting.

Through the many, but small, personal challenges that I have set myself I have grown in confidence. Where previously I viewed a room of people with apprehension I now see it as a room of opportunity, you never know who you will meet, what conversations will be had or what doors will be opened.

In the short term I want to share the knowledge I have gained widely within the industry so that in my own way I am making a difference. My Nuffield has already seen me being invited to be a panel member for UK Research Institute, to speak at a local farming group, be involved in working groups for the Pasture Fed Livestock Association, speak at a national conference for soil scientists as well as share what I have learnt within Natural England and Defra. I also have the honour of representing my year group as the returning Scholar on the Nuffield Board of Trustees.



## Acknowledgements and Thanks

To quote Heather Collins, one of four people who kindly read my draft report, 'It is like a quilt, you have taken bits and pieces from all over the world and woven them together'. My 'quilt' would not have been created without the kindness of so many people:

I am thankful for the generosity of my main sponsors, the Central Region Farmers Trust and my additional sponsors: Ian and Fiona Waller from Hampden Bottom Farm, the East of England Agricultural Society and Land Family Business, all of whom have been a huge support throughout.

Thank you to my employers, Natural England, who provided me with time to travel and to those individuals who covered my work and for understanding I was not simply on holiday!

A 'Thank you' is also due to:

- My many hosts who put me up as I stayed sometimes for one night, sometimes for a few. An absolute highlight for me was involving myself in family lives around the world and I have many happy memories.
- All those who I met and who took time out of their busy lives to speak to me and share their stories. I have not been able to include them all by name, but they will always be with me.
- My mentor, Tanya Robbins for putting up with my wobbly moments and for listening whilst being talked at as I grappled with my topic.
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And finally, thank you to my family; husband, children, parents, brother and in-laws without whose support I could not have embarked on this adventure. I will not pretend it has always been easy, but I will be eternally grateful for having had this opportunity.

Thank you to you all.





## Appendices

### Appendix 1: Social Media Platforms

#### WhatsApp in India

WhatsApp was important to a group of Tamil Nadu farmers. They use it daily to access a number of different organisations groups. Some are commercial e.g. Bayer or Syngenta and others are charities such as M S Swaminathan Research Foundation (MSSRF). Each WhatsApp group has a moderator and up to 256 farmers. The farmers ask questions which the moderator answers for the entire group to see. Larger organisations have more than one group and the moderator can choose if they want to share the question and response across groups.



**Figure 24:** Author with Tamil Nadu Farmers: Source: Authors own

In India, the use of smart phones has enabled the development of apps to support farmers. I was shown Plantix, which makes use of image recognition technology. A farmer selects the crop type and uploads a photo of a leaf which may have a fungal problem or insect infestation. The app identifies the problem or counts the number of insects. This provides the farmer with detail on whether a threshold for spraying has been reached which the farmers felt was more reliable than counting themselves. For cotton pests a pheromone trap is used and farmers can empty the contents, take a photo and the app identifies what the insects are and their threshold level using a red, amber, green colour to indicate whether to spray.

#### Twitter

Of the countries I visited Twitter is predominately used in the UK, Ireland, Australia and Canada and seems particularly popular with a wide age range of arable farmers. The advantages are that messages are short and visual. It has enabled farmers to connect across continents and it was





mentioned a lot in relation to farmers embracing no till and cover crops. It has provided them with a community of like-minded people they otherwise would not have known existed.

The disadvantages are that it is easy to create an 'echo chamber' through the algorithms which suggest potential contacts. Tweets are usually the opinion of an individual and it is important to apply filters to what is posted.

### Facebook

Facebook use was more limited than Twitter. It was the predominate social-media platform in Austria and cattle farmers in Canada's Peace Valley. It has a reputation for being used by older farmers and has the advantage of being able to create private groups. Similar to Twitter, the disadvantages are the danger of creating an echo chamber following people with similar views and needing to apply a filter.

### WhatsApp

WhatsApp is widely used by groups around the world to enable communications to continue outside meetings. However, the number of groups can become overwhelming to the point it loses its effectiveness. In India it is widely used as I heard in Tamil Nadu.

The advantages of WhatsApp are the closed nature of the groups enabling private discussions to take place and the ability to reach multiple people at the same time.

The disadvantages are that again an 'echo chamber' is created and the only opinions seen are those of the group or in India the moderator, who may have a particular angle especially if there is a commercial interest.

Other methods of transferring knowledge such as You Tube and podcasts are increasingly being used. Podcasts have particular appeal as they can be listened to whilst in a tractor.

## Appendix 2: Online Discussion Forums

### Pasture Fed Livestock Association (PFLA)

The PFLA is an organisation with over 500 members. It has a role in accrediting farmers who produce 100% pasture fed products – meat, dairy, cheese but also a strong focus on knowledge exchange through its online forum.

The PFLA online forum is a private discussion group for members; it is not moderated but has a written set of guidelines. Topics range from practical farming questions, such as how to deal with moles, to wider 'think pieces', such as how to address climate change challenges from meat production. Speaking to a number of PFLA members, common attributes emerged of open mindedness and sense of purpose, a questioning attitude and thirst for knowledge. The group gives them an identity and the broad spectrum of topics enables the wide range of different farming systems to cherry pick the bits that are relevant. Although there is disagreement at times there is a shared vision of regenerative farming and a camaraderie that goes with it, a sense of belonging.

The diversity of the group (farmers, academics, processors, butchers, policy) provides an amazing resource and a 'dream team', it is a network that 'if you went into the marketplace to get the same information it would take three months and cost thousands of pounds'.



## The Farming Forum (TFF)

The UK based Farming Forum was started in 2012 by farmers Clive Bailye and Chris Fellows and now has over 43 000 members. It is run by farmers for farmers. Clive recognised the value of talking to other farmers when he changed his farming system to direct drilling and feels that ‘farmers learn best from other farmers’.

The principles behind it are to have little moderation, be easy to use and no barriers to knowledge exchange. There is no membership.

The ability to ‘like’ posts allows discussion and members can reinforce their opinion without getting involved in discussions. Those on the forum can moderate posts themselves through the discussions although there is a balance to be had with keeping it credible, so errant content can be reported.

An online platform allows a greater variety of people to share their views especially those who struggle in social environments and allows ‘the quiet guy’ to have a say. Everyone has an equal value. Often members will register anonymously and then as their confidence grows change their name to something more meaningful. TFF uses its Facebook and Instagram accounts to ‘push’ content out rather than relying on people to find a website, the ‘pull’ principle.

Another advantage is access to a wealth of knowledge without taking time out to attend a meeting, something which can be a challenge at peak times of year.

There is an important social aspect to TFF; farmers like to talk and farming can be socially isolating with antisocial hours. TFF provides the ability for people to talk to other like-minded people at all times of day or night.



**Figure 25:** TFF’s Clive Bailye and Chris Fellows: Photo Authors own



## Wefarm

The idea for Wefarm was inspired by CEO Kenny Ewan's experiences in South America where he saw first-hand how local people were better at solving their own problems rather than someone coming in and providing solutions. The people were innovative and understood the context of the problem.

Working with African farmers it became apparent that climate change was creating challenges. New diseases were appearing in coffee plantations which farmers elsewhere were experiencing; what farmers valued was speaking to those farmers who may be some distance away but had 10 years' experience addressing the disease. This was a sharp contrast compared to the top down approach that farmers 'just need to be told what to do.'

The concept behind Wefarm was to link farmers together to facilitate knowledge exchange. Farmers were involved in co-creating the product before it was piloted in Tanzania and Kenya and launched in 2015.

Wefarm works as follows: A farmer asks a question on anything in any language and machine learning is used to understand what is being asked. The machine decides how many people to send the question to and they respond. There is no vetting of the answer although inappropriate words or political aspects are removed.

Wefarm now reaches 25%–30% of farmers in Uganda and Kenya and 200 000 farmers in Tanzania with a further 200 signing up daily. Connectivity is not a limiting factor.

SMS was the chosen method of communication as the majority of farmers were texting. Smart phone adoption is increasing, however, 30% of the population may have a smartphone but only 5% are used as such. The constraints of SMS do mean a question cannot be shared more widely, but this is expected to change as smartphone usage increases.

Trust is the most important aspect; Wefarm wants to ensure farmers get value out of it. This builds trust. Measuring its impact is harder to do. Random sampling is used to check if the person liked the answer and data is looked at, for example, average yields being discussed vs FAO national averages. There is confidence that the yields of Wefarm farmers are higher, recognising there may be a natural bias of more progressive farmers signed up. The Wefarm website states that 70% of Wefarm users have improved their farms and livelihoods as a result of using the service.

The value of farmer to farmer is the personal opinion from someone who understands the context and there is peer validation as another farmer has tried it.



**Figure 26:** We Farm CEO Kenny Ewan and Author: Photo: Authors own

### Appendix 3: Farmer Groups

#### Ontario Soil Network (OSN)

The challenge in Ontario is eutrophication in Lake Erie of which agriculture is a contributing factor.

OSN grew out of Cover Crops Anonymous (CCA) which was created by a group of farmers including Woody van Arkel, a soil scientist, Anne Verhallen and a facilitator, Mel Luymes. CCA would hold an informal two-hour meeting over a cup of coffee to discuss queries and provide support to each other; for Anne Verhallen it enabled her to hear what farmers were doing. The practices led to better soil health and reduced run off over winter. The Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) already provided Best Management Practices (BMP) for soil via their website but relied on farmers finding and reading them. OMAFRA recognised that this method of extension was not working effectively and wanted to pilot a programme to explore the social aspects of management practice change/adoption which included turning innovative farmers into influencers. As a result, they provided funding in 2017 to start OSN.

The aims of OSN are to provide leadership skills, presentation skills and ‘how to tell a story’ coupled with creating a support network to enable farmer to farmer knowledge exchange.

30 farmers were selected from those who put themselves forward. A deliberate mix of farm types, locations and existing levels of engagement with cover crops were chosen with farmers whose paths would not normally cross, the aim being to bring together those who were already experienced in carrying out min/no till/cover crops with those who were thinking about it and the various stages in between to create a ‘nudge’ effect. The group was ‘socially engineered’.

The 30 farmers came together for a two-day workshop to discuss a range of subjects including field trial design, soil, how to manage change, talking to the media. On their return home the farmers



hosted a coffee and doughnut session. Local farmers were invited to attend this informal meeting bringing four or five photos of their farm which created discussion and ensured everyone was involved.

Another round of funding in 2019 is enabling a second cohort to become involved coupled with additional activities such as a soil roadshow in which OSN farmers share and showcase their knowledge on farm with other farmers.

## Appendix 4: Dairy Discussion Groups

I attended dairy discussion groups in Ireland and New Zealand which provided me with the opportunity to compare different approaches.

### Ireland

Ireland has a strong history of discussion groups many of which are run by the extension service Teagasc. Groups are used as a forum for extension of the research that Teagasc carries out. When dairy quotas were removed in 2015 they provided a method to share best practice to maximise production and drive down costs.

The government recognised the value of these groups and introduced a payment for farmers to attend. Although this has increased attendance there was a strong view that people were not attending for the right reasons and it has become a tick box exercise to access the payment. The use of the word 'transfer' should be noted and the concept of a one-way dissemination of information. Groups are based on geography, so the dynamics are not always right to create the right environment for effective knowledge exchange. To be in a knowledge-transfer group there is a requirement to use Profit Monitor (a farm data recording tool) which is a barrier for some farmers who don't want their data recorded and shared even though it is anonymised. The programme creates a lot of paperwork and groups have taken a while to form. The government funded initiative was described to me as 'too regimental'.

In contrast to this the Navan group was established 25 years ago and is a closed, invite-only group for dairy farmers north of Dublin. The 15 members pay an annual fee which is used to fund the facilitator, Matt Ryan. Governance is important and in addition to the facilitator there is a chair, vice chair and past chair as well as finance and social committees. The group meets once a month for a day with each member hosting on rotation. The host farmer discusses what topics he would like to cover with Matt. All the farmers share their figures which are circulated, data is accurate and focuses discussion and there is no way to hide behind the figures.

Matt's role is key, as an experienced facilitator who does not answer the questions but creates discussion. When I asked the group about Matt's role it was pivotal to the group working.

I heard from Owen Brodie NSch, who has been a member for 15 years, about the importance of dynamics within the group and the value he gets out of being surrounded by progressive farmers. The trust that has built through knowing each other enables discussions to take place with honest opinions shared without causing offence. This gives confidence to succeed and address change and within the group people are trying different things so a farmer can draw on this experience rather than trying everything himself.





Another member, Joe Leonard NSch, explained that following an overseas trip to Wales the group worked much better as the social bonds formed. This was key; prior to this the group had been about to stop. This coincided with the realisation that a structure with rules was needed, which was important for any new members joining.

On the day I attended the host farmer, Paul, wanted to discuss concerns with his somatic cell count. The value of being on farm became clear when the group asked Paul to walk through his milking routine. Views were aired and to me as an observer, it came across as a bruising experience! Paul's view was that there is no point being part of the group if you are not going to learn. What really resonated with me was at the end of the day when the group enquired how Paul was doing and focused on his wellbeing. The balance between the technical and social aspects of being in a group was clear.

What struck me about this group was the open mind-set of the farmers, the camaraderie between them which enabled open frank discussions, encouragement and support through change. The make-up of the group creates an environment of constant disruption as they challenge each other so this is the norm. It has created an environment of 'fear of missing out' if they do not attend a meeting.



**Figure 27:** Author facilitating a discussion with the Navan group on the value they get from being part of a group: Source: Owen Brodie

## Dairy NZ

The New Zealand dairy industry is undergoing a period of change with an increasing focus on the environment through the introduction in 1991 of the Resource Management Act, the National Policy on Freshwater in 2011 and a recent focus on greenhouse gas emissions. Agriculture, particularly dairy, is impacted with farmers concerned about the changes that might be required.

Dairy NZ is the industry levy body for all New Zealand dairy farmers, providing research, development and extension alongside advocating for the industry. They have a history of facilitating dairy discussion groups.



The focus over recent years for the discussion groups has moved from production to areas such as nitrogen management. The groups are also important for providing a community network; Dairy NZ evolved their structure from geographical to a themed focus but received feedback about the value of the groups to communities so changed back. The relationship of the local Dairy NZ Consulting Officers (COs) with their communities can influence the success of discussion groups.

The importance of data was highlighted as it is needed to back up stories which are an important part of farmer to farmer knowledge exchange.

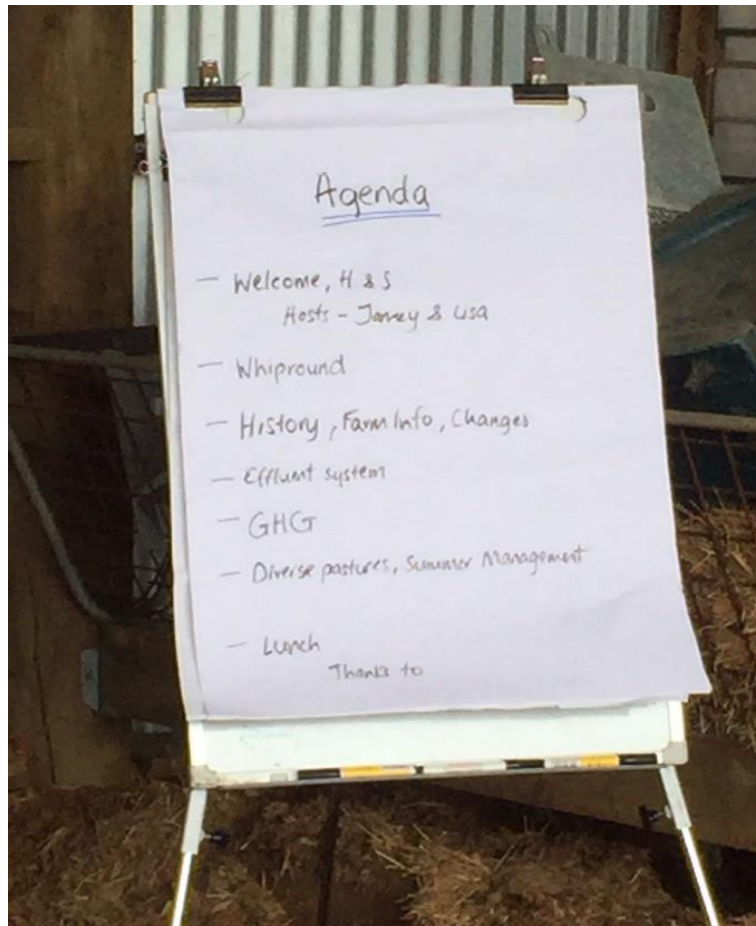
The Dairy NZ discussion meeting I attended was different in approach to the group in Ireland. Meetings are held monthly on a host farm and this is rotated with farmers volunteering to host either at the beginning of the year or on an ad hoc basis. It is not known who will turn up beforehand, so farmers are asked to record information on a flip chat. Given the concerns about the dry weather the focus was on availability of feed, what was being fed and what was being bought in. This was used for a 'whip round' when each farmer was asked about his or her situation. The farmers told me that the value they get from attending is having the ability to share their experiences with other farmers in similar situations, especially when times are tough. For some farmers this was the first time they had been off the farm for weeks. So, the importance of these meetings from a mental health aspect was clear.

As well as hearing about the host's farming system, Dairy NZ uses these sessions to introduce topics that it is keen to raise awareness of within the industry. Greenhouse gas emissions were on the agenda which had a mixed response from the farmers; there was a heated discussion with an expectation on Dairy NZ as experts, to provide answers.



**Figure 28:** Dairy NZ Discussion Group, Waikato Region: Source Authors own





**Figure 29:** Dairy NZ Discussion Group; Waikato Region; Agenda: Source: Authors own



**Figure 30:** Dairy NZ Discussion Group Waikato Region; post meeting lunch: Source: Authors own



## Appendix 5: Red Meat Profit Partnership

This seven-year programme is a partnership between the New Zealand government and nine industry organisations including six meat companies and two banks. The aim of the programme is to drive profitability and productivity in the red meat sector through improving on farm productivity, business skills and developing farm systems to build resilience in the industry. The gap between the sectors top and middle performers is growing reflecting the top farmers' greater understanding of costs and how these impact on farm. RMPP grew out of the demise of Target (monitor) farms in the red meat sector. The diverse range of systems in this sector meant a Target farm was not always relevant to others. It was found that the Target farmer was focusing so much on what they had to do to be a Target farm that they didn't engage with the associated farmers and by the time they were ready to, the associated farmers had disengaged. Farmers got tired of going to the same farm for three years and the focus was on production rather than quality of life.

As a precursor to the project, research was carried out to identify barriers and motivations to change for beef and sheep farmers in parallel to a study to look at the characteristics and drivers of the top performing sheep and beef farmers. This identified timely informed decisions as the main difference between these top performers and others. A review of successful extension projects was carried out to answer questions around who should be involved, what roles they take and what activities are best. A three-year pilot with more than 70 farm businesses followed which concluded that farmers who are confident are willing to try new things and they have the support structures in place. It found that a facilitated approach for the farmer and their support structure was more effective for building knowledge leading to change.

The result was to create funding for small farmer-led Action Groups who would choose a facilitator and work together within a group to drive change through their interactions. Working in small groups enables social bonds to build and provides support to encourage people through change. The group decides what topics they would like to focus on and all have to provide KPIs for their business. A fundamental aspect of the programme was that all members of the farming team should be involved including family members and staff. Figure 31 is taken from the RMPP handbook:



What makes RMPP Action Network different?

- **Farmer led** - they determine the structure and rules of their group and how they spend their funds
- Farm businesses form into **small groups** (seven to nine farm businesses per group)
- Operate with a **shared vision/focus**
- **Planned** and have some base **structure** - ground rules, Extension Plan, individual Farm Action Plans
- **Well facilitated** - encouraging, focusing and supporting the exploration and adoption of new ideas
- Drawing on **expertise** - relevant experts and information at the right time, that suits the needs determined by the group
- **Supported** - by people and information
- Building the **confidence** in individual group members to take knowledge and turn it into **action on their farm** in a way that is relevant for them. This will continually increase confidence in bringing new knowledge and learning back into a group setting and at an industry level, provide continuous improvement and growth.

Groups must be farmer led

**Figure 31:** RMPP Action Network group setup. Source: Red Meat Profit Partnership handbook

## Appendix 6: RMPP Facilitator Training Programme

The training for an RMPP facilitator involves attending two courses. One focuses on the 'Lead Facilitator' covering how farmers learn and how to facilitate a positive outlook for change. The second looks at 'Action Network Fundamentals and Extension Design' and covers how to design and manage an extension programme to encourage farmers to lead their own learning. Facilitators are then observed against set criteria before being accredited. They can also be assigned a mentor to support them. The training has been useful even for those who have previously worked as facilitators.





## Appendix 7: Payment

Type	Examples	Pro	Con
Pay directly	Navan Dairy Discussion Group PFLA	<p>Farmers committed and engaged with the group.</p> <p>Farmers want to get the maximum out of the group, impacting their mind-set.</p> <p>People value what they pay for.</p> <p>Knowledge is shared amongst a discrete group of like-minded people creating trust and focus.</p>	<p>Could be viewed as costly therefore need to ensure value for money. A challenge for areas that are market failures.</p> <p>Restricts the number/range of people who could be involved.</p>
Indirectly paid for e.g. through levy	Dairy Discussion Group RMPP	<p>Could be viewed as free if levy is compulsory</p> <p>Access to advisers/experts an individual farmer could not otherwise afford</p>	<p>Lower commitment to attending events/groups so social bonds may not form as quickly/strongly</p> <p>May not approach with the same mind-set as something that is directly paid for.</p>
Free	OSN TFF	<p>Can cover areas that would be considered market failure</p> <p>Removes some barriers to involvement</p>	<p>Lower commitment to attending</p> <p>May not approach with the same mind-set as something that is directly being paid for.</p> <p>Funding has to be sought to cover running costs which could add bias to an event or branding could act as a barrier or change attitudes towards the event</p>
Paid to attend	Ireland groups KT	<p>Act as a carrot to those who would not normally attend and may make them realise the value.</p> <p>Potential to raise awareness.</p>	<p>People attend for funding rather than with a mind-set to learn.</p> <p>Social bonds and trust may struggle to form as mind-set focuses on collecting funding</p>

## Appendix 8: Field Days

Agricultural Marketing and Production Systems (AMPS) was formed in 1999 by a group of farmers in the Liverpool Plains area of New South Wales. With the reduction in the government funded



extension service the farmers were keen to see research continue and felt what was being done through levy bodies was not relevant to their farms. Climate and soils vary greatly and research done even a few miles away was not relatable to their own situation. They decided to do something and set up AMPS. The company has a commercial arm which funds the research and development. It is important that trials are carried out on farm and they run two field days and two smaller member only review days each year to share the outcomes of the research. Seeing something in their own backyard removes any concerns farmers may have that a concept will not work on their farm due to different conditions.

The members that I spoke to, Fiona, Ed and Tom Simson, Hugh Simson and Gordon Brownhill explained why AMPS had been so successful

- The people involved want the research to benefit their farms
- The members all have a similar mind-set and are pulling in the same direction
- There is a culture of an open mind-set
- It is independent
- Trust and integrity
- Passion for what AMPS is doing

Most importantly those involved in setting AMPS up, which included the Simson's, were key to its success. They identified a problem then put their enthusiasm, heart and personality to work collaboratively to reach a solution.



**Figure 32:** AMPS Waverley Site. Source: Georgie Simson



**Figure 33:** Author with Fiona (President of National Farmer’s Federation) and Georgie Simson  
Source: Fiona Simson



**Figure 34:** AMPS Trials on the Liverpool Plains. Source: Authors Own





## Appendix 9: Rathcroghan

The Rathcroghan area in Roscommon, Ireland, is nationally important for its archaeology. Those living locally grew up learning about the mythology of the area creating a sense of belonging, attachment and a desire to care for it. In the 1980s this changed following an archaeological study that designated the historic area in a formal manner. A red line was drawn on a map covering 734ha and within this the landscape and its archaeology were protected. This has had a huge knock on impact to the social infrastructure of the community and changed the mind-set about the value of the archaeology to one of liability. Planning restrictions have meant that the next generation of farmers have been unable to build homes or convert buildings into houses; as a result the local school has shut as families who would have lived in the area have moved to local towns. Their children are not growing up with the same sense of attachment as their parents. With the breakdown in social structure farms are now being sold to farmers outside the area who do not have the same connection to the area. With the reduction in local farmers there is not the social interaction that there used to be. This is now changing with funding from the EU via a European Innovation Partnership (EIP) to reward farmers for managing the landscape and its archaeology turning a liability into an asset. Local farmer Gerard Healy was inspired whilst attending a Ministry of Agriculture meeting about EIPs when he heard other farmers talking about their experiences and thought 'if he can do it so can we'. Gerard is one of three farmers on the Rathcroghan EIP project board. Working with these farmers and exchanging knowledge has been invaluable as they all come up with different solutions and share their ideas with each other.



**Figure 35:** One of the many archaeological features in Rathcroghan. Source: Authors own

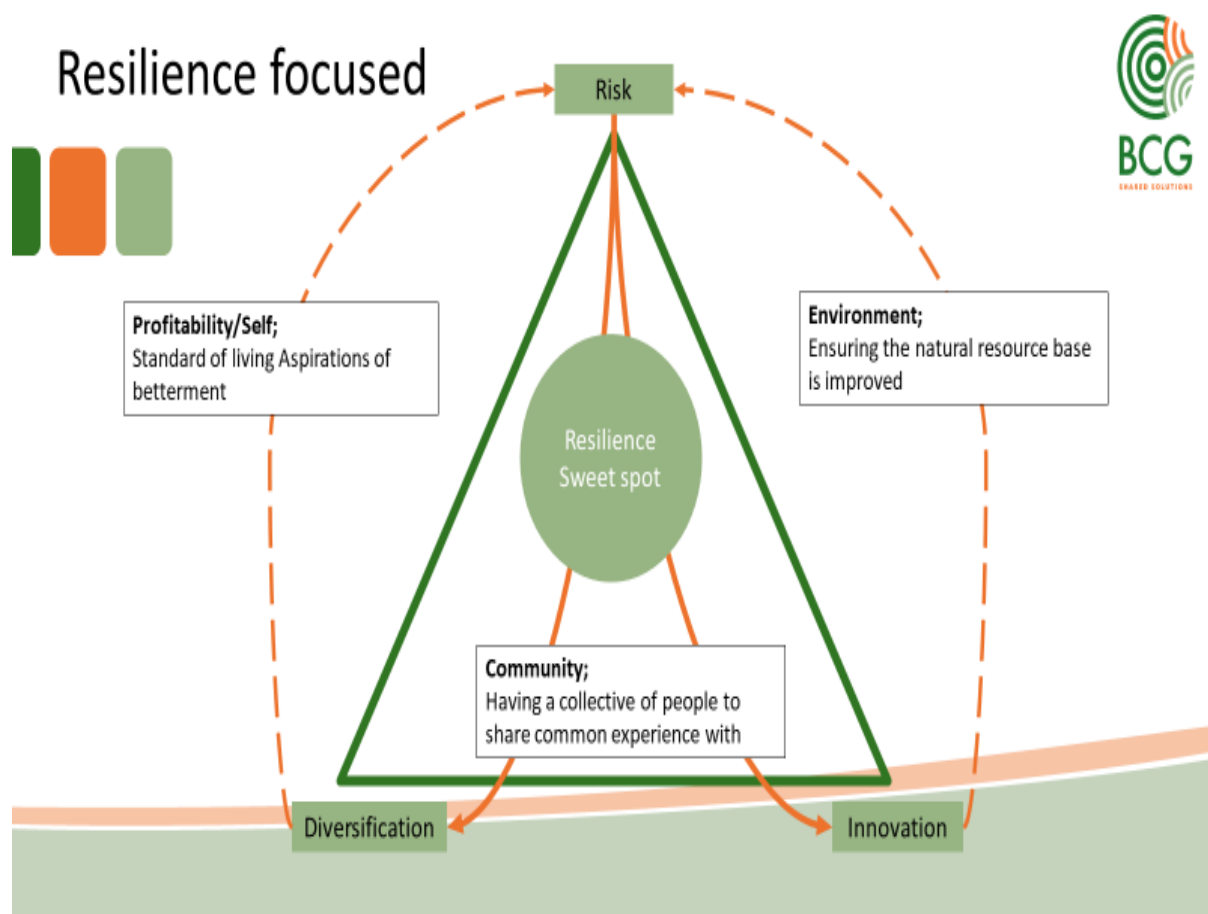


## Appendix 10: Birchip Cropping Group

Birchip Cropping Group was set up by a group of dynamic farmers in the Mallee and Wimmera area of South Australia in 1992 as a research and extension organisation. Its role now includes supporting members to build rural resilience so enabling the area to adapt to change and thereby maintain the community. It does this through balancing the three areas of environment, profitability and community.

Parts of the geographic area it covers is challenging to farm due to the fragile nature of the soils; more extreme weather is adding to this challenge. This is combined with farms becoming bigger resulting in less people on the land so lowering the social capital. Wikipedia defines social capital as ‘the effective functioning of social groups through interpersonal relationships, a shared sense of identity, a shared understanding, shared norms, shared values, trust, cooperation, and reciprocity’.

A report by Australia’s Department of Agriculture, Water and Environment and Ernst & Young’s on Agricultural Innovation recognised the role of trusted groups such as BCG in sharing knowledge to address problems, build capability and connect people thus building resilience amongst the farming and wider rural communities.



**Figure 36:** BCG’s Resilience Sweet Spot. Source: BCG



**Figure 37:** Author with Chris Sounness, CEO of Birchip Cropping Group. Source: Authors Own

### Appendix 11: The Extra Bits...

A Nuffield creates a huge variety of experiences which do not fit neatly into the main report, so I am including some extra photos to capture those moments.



**Figure 38:** Receiving my Nuffield from the Duke of Gloucester with Stephen Watkins on behalf of my main sponsors: The Central Region Farmers Trust. Source: Nuffield Farming Scholarships Trust





**Figure 39:** Visiting the House of Parliament during the pre-Contemporary Scholars Conference.  
Source: Reverberate PR



**Figure 40:** Exploring Mount Etna. Source: Authors Own



**Figure 41:** Loxton, South Australia; Tree of Knowledge – a river red gum showing the river levels at times of flood, you can just make out the 1956 level at the top of the photo. Source: Authors Own





**Figure 42:** With Nick the Koala (looking unimpressed!) at Cleland Conservation Park, South Australia.  
Source: Authors Own



**Figure 43:** The Beautiful Esperance Coastline (Similar to Cornwall but with Great White Sharks lurking!). Source: Authors own



**Figure 44:** Driving a Ute in Australia; (thank you for trusting me Chris Reichstein!). Source: Authors Own



**Figure 45:** With Larissa Taylor, CEO of Giwa (Grain Industry Association of Western Australia) in Perth's beautiful botanic gardens. Source: Authors Own





**Figure 46:** My bed for the night on a sleeper train in Tamil Nadu. Source: Authors Own



**Figure 47:** Having the honour of meeting M S Swaminathan, father of the Green Revolution in India who had such a huge impact on so many farmers lives. . Source: Authors Own





**Figure 48:** Talking to students at the Lovely Professional University, Punjab. Source: Mr Pangli



**Figure 49:** With fellow Canadian Scholar, Mark Brock and the stand out hire car from my travels .  
Source: Authors Own



**Figure 50:** Mile Zero, Alaska Highway, Dawson's Creek, British Colombia. Source: Authors Own





**Figure 51: (See below)**



**Figure 51 and 52: Taking to the skies above British Colombia in fellow Canadian Nuffield Scholar Christoph Weder's plane. Source: Authors Own**



**Figure 53:** (See below)



**Figure 53 and Figure 54:** At the UN FAO Committee for Food Security meeting. Source: Authors Own





**Figure 55:** CFS: Delighted to be part of ‘a powerhouse of women’ as described by @BlackFoxSpiritis on International Day of Rural Women. Source: @BlackFoxSpiritis



**Figure 56:** As Covid-19 started to impact my Nuffield, the new ‘handshake’ with fellow NZ Scholar Hamish Marr. Source: Authors Own





**Figure 57:** Amazing to gallop along a beach in New Zealand, thank you Rebecca Hyde!. Source: Authors Own



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