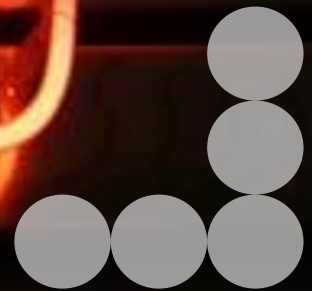




Transformational System



**OLW Impact Extension Project Report -
Supporting farmers to develop
future ready farm systems.**

OUR LAND
AND WATER

Toitū te Whenua,
Tōiora te Wai

National
SCIENCE
Challenges

Leftfield
Innovation
Limited



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1.0 Executive Summary

A 2018 workshop for Canterbury farmers, who are also Central Plains Water Ltd irrigators, was hosted to identify any barriers to unlocking Next Generation Systems (NGS) and to identify opportunities to work with the farmer group to research priority barriers and provide new knowledge to 'de-risk' decision making.

We explored whether these barriers were science based, market based or challenges with the linear value chain disconnecting the farmer and the consumer?

The Canterbury workshop generated very strong interest and commitment from farmers to consider new land use futures. The team recognised the potential for a second and similar workshop in another region to extend the discussion, learnings and to identify differences and/or similarities between farmers from different regions. Wairarapa was selected due to the opportunities to support and extend existing networks via the work LFI are currently doing in relation to sustainable land use diversification opportunities associated with reliable water via the proposed Wakamoekau Community Water Storage Scheme.

Pulses and ancient grains were trialled by our Canterbury farmers and processors in 2019-20. Scale-up and scale out is next step

The objective of the Wairarapa Workshop

To support Wairarapa farmers by exploring what it takes to develop future ready farm systems – not only what they farm but how they farm.

Olives on dairy farms will be evaluated in Wairarapa (subject to funding availability).

The workshop discussion topics included:

- Developing next generation farm systems that are farmer led, values based, and market informed.
- Capturing value as one step within existing value chains/webs before creating new value.
- The importance of considering land use in relation to a wide range of drivers, including environment, regulation, land capability, community and market factors.
- Future opportunities require an open mind, a commitment to collaboration and value share outcomes and business models
- Next generation farming systems are aligned with Te Taiao and the Primary Sector Council concept for the Agriculture, Food and Fibre sector of Aotearoa – Fit for a Better World.

The project phases included a workshop for farmers / rural professionals and a follow-up phone survey/interview of some participants to explore some of the key issues and opportunities from an individual perspective.

The day of the Workshop coincided with the reopening of Taratahi Agricultural Training Centre, and thus representatives invited from both Rangitane and Ngati Kahangunu unfortunately could not attend.

The 18 workshop participants and 9 interviewed farmers represented a range of farming systems including arable, dairy, sheep and beef and horticulture. Many of the farmers farm mixed systems which included forestry for carbon credits, and a range of environmental features including wetland, streams, and biodiversity plantings.

The workshop discussion framework

The workshop was structured around three questions.

1. Why are you interested in thinking about change on your farm?

2. What do you need to look at changing?
3. How will you do it?

Feedback and findings

- **Values based drivers:-**

The workshop and follow-up interviews included many discussions relating to value drivers when discussing future focused outcomes. Understanding values – knowing yourself, your strengths, your drivers and being able to effectively relate to others was identified as crucial if farmers are to work with other farmers to achieve mutually beneficial outcomes, including economic and environmental. It was also noted that a number of farmers recognised that while many farmers know the processes and technical aspects of farming through their formal training and hands on experience, understanding the psychology¹ of farmers and farming was missing. Some farmers have been curious and have developed their knowledge in this area and are seeing multiple benefits personally to their business, their community, and the environment.

- **Sector groups:**

There were sector differences when it came to the responses from the farmers. Dairy farmers were less open to change, or more specifically the need to change than Arable and Sheep and Beef farmers.

Mixed cropping in both regional groups tended to have the strongest views about the need for a future focused mindset and willingness to collaborate with other farmers and parties in the value and supply chain, to meet their future business goals. Sheep and beef farmers were already heavily invested in capturing more value from their outputs as many were members of co-operatives. However, a number of the Wairarapa farmers, via the one-on-one interviews, indicated their desire to look at new consumer-led opportunities and ways of working with farmers to both capture and create value from what they currently produce on their land beyond these existing relationships.

Several Wairarapa dairy farmers indicated they did not need to change to remain viable. Based on our understanding of the Canterbury dairy farmers, and their appetite for considering introducing other complementary land uses into their system to enable them to meet the environmental limits, changes to the Wairarapa dairy farmers views may occur in the future as environmental regulations and compliance requirements become clearer. There were some dairy farmers present that could see the importance of diversification of land use in the future to meet environmental limits, and therefore were interested in the 'What' and 'How' that would be required to make this work.

Potential future farm system opportunities based on value capture

Several potential opportunities were raised during the workshop that fit with future focused farm system thinking centered around capturing more value from known land uses. Some of these opportunities are currently being developed (grains/pulses and strong wool) via other initiatives.

1. Innovative meat processing
2. Strong Wool
3. Olive/dairy land use integration for high value olive products
4. Hops – understand the opportunity for Wairarapa
5. Grains – grower groups producing grains with provenance

¹ Specific word used by a number of farmers interviewed

Eight Themes

The feedback captured during the workshop and follow up interviews was categorised under Why, What and How. From this grouping we established that there were eight key themes under which the responses could be organised.

• Mindset	• Business Models
• Market/Consumers	• Climate Change + Resilience
• Value Chain	• Trusted Data
• Collaboration	• Land Suitability

The relationships between each theme were mapped to establish any priority or dominant themes. Of note was the dominance of mindset and business models, which were identified by several farmers as the keys to enabling farmers to consider and participate in various opportunities. The mapping also illustrated trusted data was important to inform decision making and communicate an authentic provenance story to consumers.

Asking the 'Why', 'What' and 'How' questions enabled the group to see that they were generally aligned on 'Why' they needed to make changes to their farm system and business. A number of farmers also shared many similar views as to 'What' needed to change. The 'How' do they do this became the challenge, as the farmers recognised gaps in the answers, and in their thinking and knowledge as to 'How' they would activate the 'Why' and 'What'.

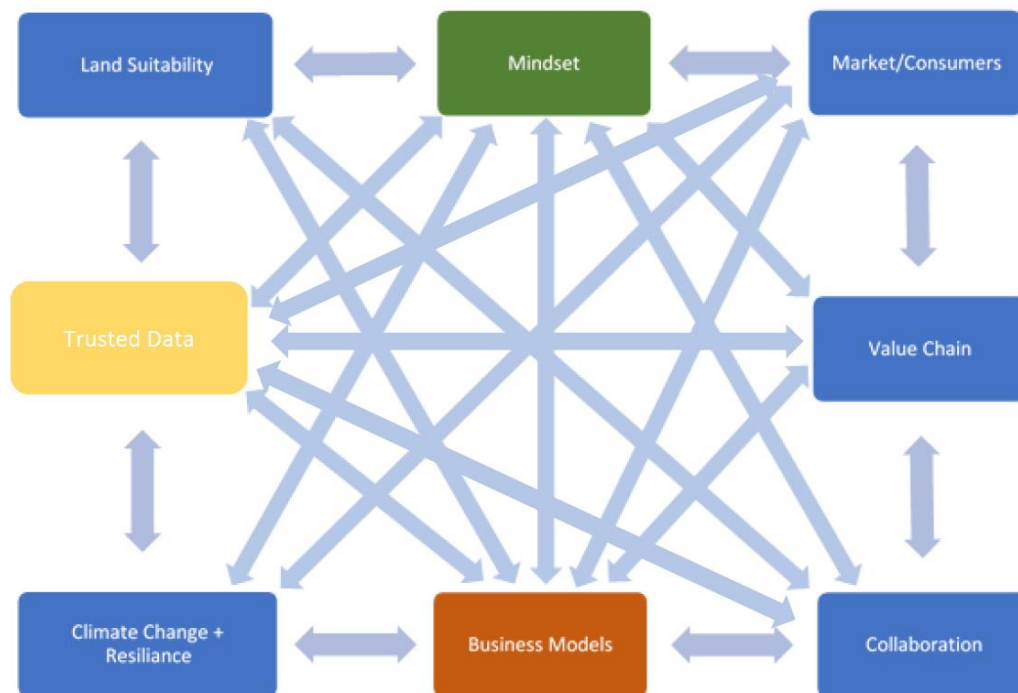


Diagram 1: Theme Web

Eight themes narrative

- Farmers identified that the step toward future ready farm systems requires both the right **mindset** – open, future focused; and understanding the opportunities for **new business models** to bring groups of farmers together that share similar values to enable them to **redesign value chains** to capture more value from what they produce.
- **Trusted data** from the market through to the environmental impacts of land use choices enables more transparent decision making to achieve outcomes for addressing for example **climate change**, it underpins

accountability to New Zealand and the consumer through an authentic provenance story. While trusted data had a number of linkages equivalent to mindset and business models, the importance of trusted data did not feature in the workshop discussions and interviews to the same extent as the need for a future focused mindset and business model opportunities.

- The theme web is not sector constrained and could encourage activity across the food and fibre industry. Sector groups tend to operate in silos. However, most farm systems are 'mixed' and those farmers generally belong to more than one 'sector' group. Future farm systems have the potential to be more integrated / mixed if there is a **market/consumer led** focus overlaid with an assessment of **land suitability**, and a focus on **business models** that enable **collaboration** between farmers to meet a market demand.

Alignment with Te Taiao – Fit for a better world Aotearoa New Zealand Report

How do the 8 themes identified by the farmer workshops relate to the Success Indicators identified in the Primary Sector Council's *Te Taiao – Fit for a better world Aotearoa New Zealand Report*? This report identifies that to be successful in the future the food and fibre industry in New Zealand needs to change and adapt in many things it does. This workshop reinforced many of the key principles of the report. Of note, the high-level vision for Te Taiao was seen by some farmers in the workshop as out of touch with excellence in practice of many land managers and 'condescending'. It was also interesting to note that two of the key themes identified here, collaboration and business models, were not specifically mentioned in the Success Indicators of *Te Taiao*.

Canterbury and Wairarapa workshop comparison

There were several key messages and themes common between both Canterbury and Wairarapa farmer groups. The most obvious difference between the two groups was the extent to which the Wairarapa farmers were already focused on participating beyond the farm gate and the level of current participation /or understanding of the need to be involved to capture more value back to the farm. Both groups were, to varying extents, aware of why they need to change, however the Canterbury group were more strongly focused within the farm gate due to environmental limits which they already face through regional regulation and addressing profitability with the overhead cost of their investment in irrigation. Both groups could describe what some of the things that need to change are, but the biggest challenge was how to activate these changes. There were several barriers and issues including skills, lack of clarity of the market opportunity, lack of ability and/or time to do it on their own – and thinking that they had to do it on their own to capture the most value.

Outcomes and recommended next steps

To begin to address the question of 'How will you make changes in relation to future ready farm systems?' some key next steps were identified.

1. **Mindset** – supporting farmers with a tool to help identify their individual values and drivers was seen to be a very positive starting point to help them as they look to the future and the various environmental, economic, social and cultural challenges and opportunities ahead.

Action: Support the NGS-Multi Criteria Decision Making Assessment for the 8 farmer participants who confirmed this would be of value to them and their business. The assessment is outside the scope of the project, but Prof Renwick is investigating opportunities to complete this activity and is exploring opportunities to fund this work.

- 2. Business Models** – support to identify models that can bring groups of farmers with aligned values together to capture and/or create more value from their farm, and the collective land area farmed, both at a catchment level and crossing farm boundaries.

Action: Focus groups on business models to identify and explore a range of options, characteristics, effectiveness, and any barriers to enablement.

3. Future farm system exemplar

Based on the outcomes of the workshop develop a future farm system exemplar of how a market- led future farm system land use opportunity can be created. It is recommended that the Olive/Dairy opportunity is activated based on the interest from a number of dairy farmers, and the olive processor participating in the workshop. Having both farmer and processor engaged at this early stage reduces many barriers that could exist, for example market insights, supply chain and market access.

Action:

- Utilise the MCDM assessment tool for participant farmers and processor
- Identify benefits from an integrated dairy-olives farming system (environmental, social, economic, animal welfare etc)
- Identify gaps in knowledge in:
 - o 'science' (may include integration, systems design, nutrient management, effluent management, irrigation etc)
 - o Supply chain
 - o Markets
- Develop a collaborative value-share business model

2.0 Background

The Wairarapa Workshop was developed based on a farmer workshop held in December 2018 with 17 Canterbury farmers who were also Central Plains Water Ltd irrigators.

The 2018 workshop was to identify any barriers to unlocking Next Generation Systems (NGS) and to identify opportunities to work with the farmer group to research priority barriers and provide new knowledge to 'de-risk' decision making.

We explored whether these barriers were science based, market based or challenges with the linear value chain disconnecting the farmer and the consumer?

Leftfield Innovation Ltd (LFI) presented their two phased land use transformation strategy based on a Value Capture and Value Creation approach and a range of market insight 'snapshots' relating to grains, pulses and vegetables which had potential for near-term value capture.

Following the Canterbury workshop, many of the farmers completed a values assessment framework, based on the concept of multi-criteria decision making (MCDM). This enabled farmers to understand how they rank and prioritise different values when decision making and how different land uses may deliver to their key values. This approach provided the ability to simultaneously consider multiple domains (for example, financial, social, and environmental) when making decisions relating to land use change. This approach also acknowledged that not all factors can be expressed in monetary terms.

The Canterbury workshop format enabled the farmer group to explore opportunities and determine priorities for next steps which were both relevant and practical to their group considering transformational futures. Farmer feedback indicated a preferred focus on capturing more value from what they know can be produced sustainably within their region, and looking at ways to redesign the value chain to create win-win outcomes for the farmer the processor and a greater win for the environment.

As a result of the 2018 workshop, the speciality grains and pulses research project was undertaken, to determine the value-add opportunities for products. This project included the assessment of a long list of ancient/specialty grains and pulses and looked at the market to determine which grains and pulses were increasing in demand, had attributes consumers desired and what other aspects of the foods consumers cared about.

The Speciality Grains and Pulses project enabled LFI to connect with food companies wanting speciality grains and pulses. As a result, a range of pulse lines were imported and trialled over summer 2019/2020. There are multiple next steps for this work which is ongoing. As the project moves to the next phase, the aim is to 'scale up and scale out' via both South Island and North Island grower groups producing selected grains and pulses to meet the growing market demand for New Zealand grown grains and pulses by food companies and manufacturers that have New Zealand deeply embedded into their ethos.

The Canterbury workshop generated very strong interest and commitment from farmers to consider new land use futures. The team recognised the potential for a second and similar workshop in another region to extend the discussion, learnings and to identify differences and/or similarities between farmers from different regions. Wairarapa was selected due to the opportunities to support and extend existing networks via the work LFI are currently doing in relation to sustainable land use diversification opportunities associated with reliable water via the proposed Wakamoekau Community Water Storage Scheme.

3.0 Workshop introduction

3.1 Impact project team

The project team consists of those involved in the Canterbury Workshop. Alan Renwick was not involved on the day but has indicated his availability should follow up MCDM assessments be agreed as a next step to this project.

- Paul Johnstone and Robyn Dynes – Plant & Food Research and AgResearch (NGS)
- Nick Pyke and Susan Goodfellow - Leftfield Innovation Ltd (Market insights, redesigning value chains; Farmer values assessment, and the value capture – value creation concept, values framework).

The presentation delivered by the impact project team to set the workshop framework and direction is not included in this report but is available upon request.

3.2 The objective of this workshop

1. Understand the views and drivers of land use in the Wairarapa, the impact of current and future pressures, and to determine the opportunities and barriers to next generation/future farm systems.
2. Understand the involvement of farmers / rural professionals in the value chain and the importance of a market pull rather than a producer push.
3. Investigate the values and mindsets of farmers / rural professionals in the Wairarapa to determine their willingness to collaborate with other farmers/parties in the value chain and or participate in business models to assist them in capturing more value.
4. Alignment with Te Taiao and the Primary Sector Council concept for the Agriculture, Food and Fibre sector of Aotearoa - Fit for a Better World
5. Based on the workshop and interview feedback, develop an exemplar of how a market- led future farm system land use opportunity can be created.
6. Compare the outcomes of the Wairarapa Workshop with the similar workshop conducted by the OLV Next Generation Systems (NGS) and LFI team with the Central Plains Water Ltd Canterbury Farmers in 2018.

3.3 The project phases

1. A workshop for farmers / rural professionals
2. A follow-up phone survey/interview of some participants to explore some of the key issues and opportunities from an individual perspective

3.4 Impact workshop participants

The learnings from the 2018 Canterbury workshop highlighted that there was potential for other farmers across New Zealand to benefit from bringing a group together and discussing future farm system requirements from a market and values perspective.

The group involved in this workshop, and follow up interviews, represented each of our key sectors (workshop n=18, and interviews n=9) and was relatively well balanced for both age and gender.

The participants represented a range of farming systems including arable, dairy, sheep and beef and horticulture. Many of these farmers farm mixed systems which included forestry for carbon credits, and a range of environmental features including wetland, streams, and biodiversity plantings.

Multiple people within this group have or are representing their sectors such as Federated farmers, Fonterra Farmer Council, Horticulture NZ, Arable Food Industry Council and Beef & Lamb NZ.

Rural Professional participants included the farmer liaison staff from Wairarapa Water Ltd, an Agri-consultant, HortNZ deputy CEO and a farmer liaison officer for Beef & Lamb NZ

Group Numbers 1,2,3 and 4		
Sheep & Beef	Horticulture	Dairy
Willie Falloon (2) + Interview	Rod Lingard (3) + Interview	John Stevenson (1)
William Beetham (4) + Interview	Leanne Stewart – Deputy CEO HortNZ (2)	Aidan Bichan (3) + Interview
Anders Crowfoot (3)		Clarence Stolte (4)
Jamie Falloon (1)		
Patti & Tony O’Boyle (interview only)		
Arable (includes processed vegetables and B&L finishing)	Whaitau Implementation Plan Committee	Rural Professionals
Mick Williams (1) + Interview	Aidan Bichan (Farmer and agri consultant) (3)	Lisa Stevenson (Dairy farmer, and Farmer Liaison Wairarapa Water Ltd) (4)
Karen Williams (4)	Esther Dijkstra (also Farmer Liaison for Beef and LambNZ) (2)	Natasha Kyd (Farmer Liaison Wairarapa Water Ltd) (2)
Mark Guscott (4)		Geoff Copps – Agri Consultant (3)
Henry Reynolds (3) + Interview		
Pascoe Reynolds (2)		
Richard Kershaw (interview only)		
Nathan Williams (interview only)		

Table 1 – Workshop and Interview Participants



Photo 1: Group 1 and 2



Photo 2: Group 3 and 4

3.5 Rangitane and Ngati Kahangunu representation

The day of the Workshop coincided with the reopening of Taratahi Agricultural Training Centre. The representatives we had invited from both Rangitane and Ngati Kahangunu unfortunately could not attend the workshop. However, via

the work that LFI has been involved in with the Wakamoekau Community Water Storage Scheme, we have engaged with both Rangitane and Ngati Kahangunu through meetings and one-on-one discussions. Members raised Maturanga Maori, a cultural system of knowledge about everything that is important in the lives of the people (Mead 2012, p13, <https://www.nzqa.govt.nz/assets/Maori/ConversationsMMv6AW-web.pdf>), which has helped us to start to understand their values, specific to the context of sustainable farming and water usage in the Wairarapa. This work is ongoing and is led by Wairarapa Water Ltd.

4.0 Workshop Format – Why, What and How of Future Ready Farm Systems

The workshop was structured around three questions.

4. Why are you interested in thinking about change on your farm?
5. What do you need to look at changing?
6. How will you do it?

Material presented to provide context and stimulate discussion in relation to these three questions included: -

- A value capture and value creation strategy to supporting sustainable land use diversification.
- What does the future farm look like, how does it fit within the landscape, the best and worst of your farm – the 10%, barriers and opportunities and what is the off-farm infrastructure needed?
- Te Taiao – Fit for a better world – Primary Sector Vision – how does this align with your values and aspirations?
- What is changing on a local, national, and international scale now and what is likely to change and affect our farms?
- What do we need to look at changing – market led, value capture, farm systems, land capability and suitability, value chain, business models and value creation.
- Multi criteria decision making framework Domains – financial, market, environment, regulation, social well-being, knowledge base.
- Multi criteria decision making tool and how it works.
- LFI – examples of value capture – Canterbury Future Grains Grower Group and Champion Flour Milling Ltd opportunity.

For each question, we ran 4 break-out groups. We consolidated the groups responses in the format of a white board summary.

The consolidation of the What and How was in a poster format of a value chain representing various stages, onto which the feedback from each group was marked at the appropriate place on the value chain.



Photo 3: Capturing the How – actions across the value chain.

4.1 WHY are you interested in thinking about change?

The workshop and follow up interviews included many discussions relating to value drivers when discussing future focused outcomes. It became clear that an enabler/prerequisite of future focused solutions and opportunities was mindset.

Understanding values – knowing yourself, your strengths, your drivers and being able to effectively relate to others was identified as crucial if farmers were able to work with other farmers to achieve mutually beneficial outcomes including economic and environmental. An example of this was being part of a producer/grower group as it de-risked business and provided scale to meet the market. However, everyone in the group needs to be on the same page and share the same 'co-operative' values. Another example was the participation of most of the farmers in some sort of environmental group at a sub catchment or catchment level to achieve outcomes for the likes of biodiversity enhancement, water quality and sediment control.

It was noted that a number of farmers recognised that while many farmers know the processes and technical aspects of farming through their formal training and hands on experience, understanding the psychology² of farmers and farming was missing. Some farmers have been curious and have developed their knowledge in this area and are seeing multiple benefits personally, to their business, their community, and the environment.

Understanding the interrelationship between these ideas is useful when it comes to understanding what future ready farm systems may look like and/or need to enable and/or support them.

Individual farmers discussed a number of approaches which they were taking to transformation within their businesses, with potential to add value, but not necessarily change environmental outcomes. However, their working definition of business transformation were diverse and included: supplier groups who were negotiating payment schedules through cooperating in supply of products, trialling of mid-micron ewe lambs within an existing breeding and finishing operation.

There were sector differences when it came to the responses from the farmers. Dairy farmers were less open to change, or more specifically the need to change than Arable and Sheep and Beef farmers.

Mixed cropping in both regional groups tended to have the strongest views about the need for a future focused mindset and willingness to collaborate with other farmers and parties in the value and supply chain, to meet their future business goals. Sheep and beef farmers were already heavily invested in capturing more value from their outputs as many were members of co-operatives. However, a number of the Wairarapa farmers via the one-on-one interviews indicated their desire to look at new consumer-led opportunities and ways of working with farmers to both capture and create value from what they currently produce on their land beyond these existing relationships.

Several Wairarapa dairy farmers indicated they did not need to change to remain viable, and they saw a strong and viable future. However, currently there are no environmental limits in place that directly affect farming in the Wairarapa - a key difference between the Wairarapa dairy farmers and the Canterbury dairy farmers. Based on our understanding of the Canterbury dairy farmers and their appetite for considering introducing other complementary land uses into their system to enable them to meet the environmental limits, changes to the Wairarapa dairy farmers views may occur in the future as environmental regulations and compliance requirements become clearer. However, some dairy farmers present could see the importance of diversification of land use in the future to meet environmental limits, and therefore were interested in the What and How that would be required to make this work.

Based on the insights captured at the workshop and 9 follow up farmer interviews, eight key themes were identified (not listed in any particular order), under which the key points raised were presented.

² Specific word used by a number of farmers interviewed

Theme	Summary of key points for each theme.
Mindset	Future focused, open to change/growth, to sharing knowledge to grow knowledge and capability of others, create win-win outcomes, understand the psychology of farming and your own values to enable effective collaboration.
Market/Consumers	The market/consumers who care and are willing to pay a premium 'rule', thus there is a need to understand the market and work backwards to identify opportunities and how you can adjust what you do to respond. Need to tell their provenance story.
Supply and Value Chain	Redesign to remove ticket clippers, partner with in-market experts to get closer to the end consumer and de-risk business, farmers take more ownership of parts of the supply chain (i.e. investment in processing infrastructure).
Collaboration	Via grower/producer groups is key to achieving scale to meet the market and de-risk supply; to share knowledge and capability, cross sector to more accurately reflect the mixed model farm system most farmers operate within.
Business Models	<p>To bring groups of farmers together that share similar values to enable them to capture more value from what they produce.</p> <p>The business models could include a range of options to enable land use transformation to higher value futures, enable the next generation of farmers, enable farmers to achieve mixed businesses within the same farm boundaries, enable scale up to meet the market – producer and grower groups to ensure value is shared and more flows back to the farm, enable the best 10% of a farm to be farmed for the highest value option and the worst 10% to be converted to conservation or forestry, thus securing other benefits.</p> <p>Business models to support toll processing of varying scales from niche producers to higher volume producer groups.</p>
Climate Change + Resilience	On farm management to continually improve performance and create a resilient system is the norm with the good farmers, need to bring up the bottom 20%, careful use and re-use of resources (i.e. drainage capture and re-use for irrigation). Measuring and monitoring underway – but are they measuring and monitoring the right things?
Trusted Data	Science to support climate change, water quality, GHG and carbon footprint of various land uses including the likes of Olives.
Land Suitability	At a catchment level, and at a farm level. If market indicates opportunities, need understand if they can be farmed sustainably – soils, water availability, nutrient requirements, agri chemical use, environmental risk areas on farm/catchment etc.

Table 2 – Key Themes

5.0 Why, What and How Summarised under eight Themes

We have collated the Why, What and How responses into the table below, within the framework of the 8 themes illustrated above.

WHY	WHAT	HOW
Mindset		
Self-awareness	Understand your values and drivers and make sure there is alignment with future farm system changes	MCDM assessment to identify personal and business goals and values and how they align to your future farming priorities and land-use opportunities.
Change in thinking - need to have a more future focused view.	Growth mindset do not be threatened by change. Are you prepared to be part of the provenance story?	Rebranding as food producers, not 'just' famers.
Collaboration		
Knowledge sharing and capability building	Farmer to farmer knowledge sharing for land use diversification - need to take down the barriers (fear of missing out) Start regional and focus on existing strengths. Have pride, need to back ourselves and what we can do. Farmers need to come together, we need to act and move as one to enable us to take up the opportunities – share skills and expertise, collaborate in producer groups within a region to optimise capability and existing supply chain infrastructure. Encourage mentoring of champion farmers with young farmers to increase capability and establish equity partnerships. Have skills and career pathways for young people to enter the industry Awareness of career pathways. Have access to research on best practices to inform decision making eg from CRI/University/industry orgs	Knowledge sharing and capability building MCDM assessment will identify values which align with collaborative models

	Accreditation of best practice users for consumers information (provenance) = market advantage	
Market/Consumer		
The Consumer Rules , the consumer sets the bar for environmental performance	Understand the market – what do consumers want? Understand the size of the opportunity, then look to see how farmers can respond to create sustainably produced fit for purpose products.	Market insights
Connect with consumers who will pay a premium; To meet consumer demand; Risk if we don't connect with the market/consumers preference	COO labelling – farmers are missing out along the supply chain NZ Story – championed overseas but who is championing farmers at home in NZ. Ultimately there needs to be a commitment to understanding the market and not 'telling the market'. Stop thinking we need to 'educate customers' about our products and start to ask what customers want and work back from that to see how we can produce products to meet the market. We need to put the customer first, and seek insights and feedback – what do they want and what can the farmer do to meet and/or create fit for purpose product.	If we do it well people can experience the value and the story. This forms a strong basis for branding and export products. Value chain design
Social practice/licence Connect with locals first.	Connect with the locals – do this well and it forms part of the experience, the story, and the value In NZ there is very low visibility of NZ produce and many consumers are price driven – need to raise awareness 'at home' of NZ grown and produced products to improve visibility and branding. There is often no demand because we have not told the story.	

Climate change+ Resilience		
Climate change, Sustainability Compliance – national, regional, demand from consumers Environmental Integrity	Sustainability, fresh water, climate, minimum inputs, precision farming, proof of placement	
Trusted Data		
Accurate data to support decision making at a regional, catchment and farm level.	Protection and enhancement of water quality, soil health, biodiversity, wetlands, reducing carbon footprint. Accreditation of best practice users for consumers information (provenance) = market advantage UN Sustainable Development Goals	
Land Suitability		
Catchment focused Optimising the land resource – what is the land capable of/suitable for producing sustainably?	On-farm water storage, capture effluent / drainage for reuse, address drainage onto other properties Involvement in catchment groups to help identify and address water quality, sediment, and biodiversity issues.	
Value Chain/Supply Chain		
Redesign value chain to ensure money flows back to the farm; Consumer to producer map vertical integration; Market gain	Take a staged approach:- Value Capture Value Creation There is no vision in the supply chain There are plenty examples of the supply chain being broken Collaborate more effectively across the supply chain in grains and wool	Firstly, look for areas where we can collaborate and add value. Look at where there are steps where the ticket is being clipped that can be omitted. Strong wool example – look at the supply chain and see what is not working. There is no visibility across the wool value chain where a farmer’s wool goes. Wool is seen as expensive for use as home insulation – but if we were to use the low value parts of the fleece could it change this. Redesigning the supply chain will not be welcomed by some

	Horticulture - high value	<p>participants who have always done things a certain way. We need to challenge this, and they need to look at their business and how it will fit into the future wool value chain.</p> <p>An opportunity is a more innovative on-farm slaughter of animals</p> <p>A key barrier is knowledge of the system and how to do something outside of their skill area. Need to promote getting good hort grads to support them.</p>
Infrastructure availability	We need to optimise the infrastructure that exists	
New Business Models		
New business models to connect farmers to customers, Equity partnership opportunities	<p>Food producers often manage the whole supply chain – a skill set issue!</p> <p>Awareness of various models to support the next generation of farmers coming on, and/or to optimise current farm business structures – i.e. equity partnerships, lease, share farm etc.</p>	
Participate in 'value capture' and value creation/add Market gain	<p>Individual farmers need to understand the supply chain and decide as to how far you want to participate beyond the farm gate. If skills are a challenge, look at forming new business models/partnerships to bring on the right skills.</p> <p>Focus initially on the lowest value product and look at how you can capture more value as a first step.</p> <p>Eg. Create grower group for hops, assist with harvesting, picking and drying to offset costs of new fences, could look at different</p>	<p>Learn more about what the attributes they want are and why, learn more about the raw product, consumer, and what story they want that they are not currently getting as there is no visibility of the grower. There may be direct benefits of the provenance story, but also need to be aware that it may not result in a premium so the indirect benefit of raising the profile of the grower is a better understanding of NZ 'food producers'.</p>

	varieties of hops net that are easier to harvest Growing hardwoods for posts.	
Create diversity of income, Resilience; Spread risk; Reducing inputs; Productivity; Labour costs increasing		Lack of product development – need to do more with our raw materials here in NZ to capture the value

Table 3: Why, What and How

5.1 Value capture based future farm system opportunities identified

Several potential opportunities that fit with future focused farm system thinking centered around capturing more value from known land uses were discussed at the workshop. Some of these opportunities are currently being developed (grains/pulses and strong wool) via other initiatives.

- Innovative meat processing
- Strong Wool
- Olive/dairy land use integration for high value olive products
- Hops – understand the opportunity for Wairarapa
- Grains – grower groups producing grains with provenance

6.0 WHAT do we need to look at changing?

Asking the 'Why', 'What' and 'How' questions enabled the group to see that they were generally aligned on 'Why' they needed to make changes to their farm system and business. A number of farmers also shared many similar views as to 'What' needed to change. The 'How' do they do this became the challenge, as there were many gaps in responses as to 'How' they would activate the 'Why' and 'What'.

The eight themes were mapped to examine the relationships between each theme. Of note was the dominance of mindset and business models, which were identified by several farmers as the keys to enabling farmers to consider and participate in various opportunities. The mapping also illustrated the multiple links between trusted data and the 7 other themes.

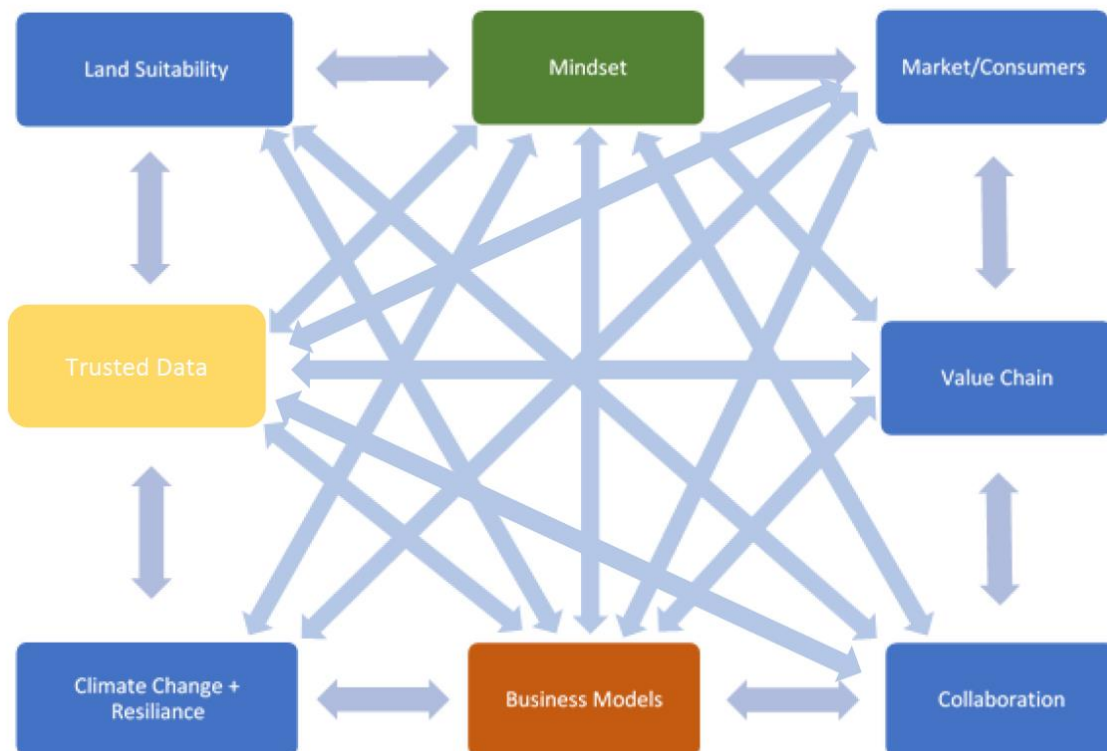


Diagram 2: Theme Web

6.1 What can we learn from this theme web?

- The step toward future ready farm systems requires both the right **mindset** – open, future focused; and understanding the opportunities for **new business models** to bring groups of farmers together that share similar values to enable them to **redesign value chains** to capture more value from what they produce.
- **Trusted data** from the market through to the environmental impacts of land use choices enables more transparent decision making to achieve outcomes for addressing for example **climate change**, it underpins accountability to New Zealand and the consumer through an authentic provenance story. While trusted data had a number of linkages equivalent to mindset and business models, the importance of trusted data did not feature in the workshop discussions and interviews to the same extent as the need for a future focused mindset and business model opportunities.

- The theme web is not sector constrained and could encourage activity across the food and fibre industry. Sector groups tend to operate in silos. However, many farm systems are 'mixed' and those farmers generally belong to more than one 'sector' group. Future farm systems have the potential to be more integrated / mixed if there is a **market/Consumer led** focus overlaid with an assessment of **land suitability**, and a focus on **business models** that enable **collaboration** between farmers to meet a market demand.

7.0 Why and What of Future Ready Farm Systems - Alignment with Te Taiao Success Indicators

The Primary Sector Council recently released a report Te Taiao – Fit for a better world Aotearoa New Zealand. This report identifies that to be successful in the future the food and fibre industry in New Zealand needs to change and adapt in many things it does. This workshop reinforced many of the key principles of the report. Of note, the high-level vision for Te Taiao was seen by some farmers in the workshop as out of touch with excellence in practice of many land managers and ‘condescending’.

It is interesting to note that collaboration and business models were not specifically mentioned in the Success Indicators. Understanding how these two themes identified by the workshop and interview participants would help achieve the success indicators and outcomes identified for the Fit for a better world vision may be worth looking into further.

The following table lists the Success Indicators noted in the Fit for a Better World Aotearoa New Zealand, Agriculture, Food & Fibres Sector Vision and Strategic Direction Towards 2030 document. These Success Indicators have been grouped under the Workshop established themes.

Wairarapa Workshop Theme	Success Indicators - Fit for a Better World Aotearoa New Zealand, Agriculture, Food & Fibres Sector Vision and Strategic Direction Towards 2030 (pg 9 & 10)
Mindset	<ul style="list-style-type: none"> - Having access to tools and the frameworks empowers people to manage change. - Tools and decision making - Update of tools and frameworks that support decision making
Market/Consumers	<ul style="list-style-type: none"> - Market access and development - - Grow and develop billion-dollar NZ industries through category ownership and premium value chains. - Value add – select the market niches where we can excel in providing and capturing value – and keep a razor-sharp focus on those. - The consumers we need to work with are the types of people who have choices and want to live by values. They are interested in the story of how these outstanding food and fibres are produced: the carbon footprint, the water footprint, the biodiversity impact - The success of the sector transformation will therefore depend on capturing value and rewarding those who produce and supply outstanding, ethically produced food and fibres. It is propose this can be achieved through a New Zealand premium food and fibres provenance system. This would entail two main parts – verified products and associated marketing.
Supply and Value Chain	<ul style="list-style-type: none"> - Capturing more value - can be achieved through a New Zealand premium food and fibres provenance system. This would entail two main parts – verified products and associated marketing.

	<ul style="list-style-type: none"> - Business and value chain development - Focus on growing billion dollar-plus industries, developing new billion-dollar industries, nurturing entrepreneurship, and supporting the development of more premium value chains that we won and that return value to us in New Zealand – - Ones that produce very good yields, where we have unique IP and where we can capture value. - The enablers will be: developing policy to support business development in our sector, and aligning research, innovation, tertiary education and training capability.
Collaboration	<ul style="list-style-type: none"> - Not specifically mentioned
Business Models	<ul style="list-style-type: none"> - No specifically mentioned
Climate Change + Resilience	<ul style="list-style-type: none"> - Climate resilience - We need to tackle climate change with urgency. Our science and research effort, government policy and our strategic planning as a sector must set an ambitious course for carbon neutrality and at the same time support resilience in our rural communities and economies. We also need to profoundly shift how we relate to and use water. - Regenerative farming and establishment of Te Taiaodesign a NZ based regenerative farming approach based on current sustainable practices and a mindset of continuous improvement and the principles of Te Taiao and the Maturanga that underpins it. - Supporting farm level change
Trusted Data	<ul style="list-style-type: none"> - Data provides all kinds of benefits, at national, regional and catchment levels, as well as for individuals and their businesses. Information must be designed and managed to provide trusted data
Land Suitability	<ul style="list-style-type: none"> - Land use optimisation will be most effective at the regional level. We will ask, “what is best farmed here, in this place, with this climate, soil, topography”

Table 4: Te Taiao – Fit for a better world – alignment with Workshop themes.

8.0 What is missing: Gaps and Actions

A number of the farmers involved in the workshop and interviews were generally people that demonstrated their attitudes, mindset, and the extent to which they are currently working 'beyond the farm gate' to capture and create more value is important to achieve a future ready farm system. However, they also highlighted the struggles they had encountered over the years, often associated with the 'How', to achieve a farm system that was more financially and environmentally resilient.

8.1 Gaps

For the purpose of determining a core set of actions, we have focused on the gaps in relation to the dominant themes of mindset and new business models and suggesting tools/support that could be used to overcome these gaps.

Gaps	Potential solution – tool, support
<p>Mindset – tool to support identification of individual's values, and how this can be used to establish collaborative producer/grower groups.</p>	<p>Multi Criteria Decision Making (MCDM) assessment</p> <p>8 of the farmers interviewed have confirmed they would like to complete a MCDM assessment</p>
<p>New business models</p> <p>Support to identify models that can bring groups of farmers with aligned values together to capture and/or create more value from their farm, and the collective land area farmed.</p> <p>The business models could include a range of options (partnership/equity models) to:</p> <ul style="list-style-type: none"> • Enable land use transformation to higher value futures • Enable the next generation of farmers • Enable farmers to achieve mixed businesses within the same farm boundaries • Enable cross-farm boundary and catchment benefits for emissions to air and water. • Enable scale up to meet the market – producer and grower groups to ensure value is shared and more flows back to the farm. enable the best 10% of a farm to be farmed by say horticulture and the worst 10% to be farmed by a Forester. <p>Support toll processing of varying scales from niche producers to higher volume producer groups .</p>	<p>Support and structure are required to execution of the model and ongoing management.</p> <p>While there are a number of examples, such as MyFarm, in relation to new opportunities and models, and various sector groups supporting future ownership structures. We suggest that a focus group approach would be the best way to share information, experience and approaches relating to business models that can support next generation, cross sectors, cross farm boundary and catchment benefits and scale to meet market opportunities.</p> <p>A useful next step could be to undertake an evaluation with the support of a number of farmers (pre-focus group establishment) of business models, their characteristics, effectiveness, and any barriers to enablement.</p>

Table 5: Gaps and potential solutions

8.2 Actions - Activating the 'How'

An objective of the Project is to create an exemplar of how a market-led future farm system land use opportunity can be created.

Any one of the potential value-add opportunities identified during the workshop could be selected to develop this exemplar. We have selected the Olive production integrated into a dairy system to develop this exemplar. We have selected this option as the olive processor was a workshop participant and actively seeking to identify opportunities to expand supply of olives, thus, we have both the processor and the farmer in the room – two key participants in the value chain, and both with a future focused mindset.

8.2.1 Exemplar – Olive/dairy land use integration for high value olive products

We can demonstrate that the eight themes identified can be given effect to by this exemplar

Theme	Activation steps
Mindset	Based on the exemplar scope (and the knowledge that the olive processor is supportive), engage with a range of Wairarapa based dairy farmers to seek interest in participating in an olive/dairy initiative. Screen participants using the MCDM assessment tool.
Collaboration	Based on the outcome of the MCDM assessment, identify the farmers who have values aligned with this cooperative opportunity. Have a facilitator work with the selected group and the processor to determine the way in which they aim to collaborate, how they will work together from a system perspective – integrating dairy and olive production, and the approach to share skills and expertise.
Market/Consumer	The olive processor has the market insights in relation to the value-add olive products and co-products. Identify where further detailed market insights are required if necessary. Engage capability to support next level of market insights if required.
Climate Change + Resilience	Model the dairy/olive system – phosphates, nitrogen and carbon flows. Model the carbon sequestration impact of olive trees (International Olive Council have completed considerable work on this). Dairy cow consumption of an olive by-product for animal health or reduced methane emissions. Assess the stabilisation and storage requirements of the olive by-product to ensure a suitable annual supply of dairy cow food (note Professor Richard Archer, Massey University is an interested party that could potentially contribute to this research).
Trusted Data	Identify the key data that supports the ability of the 'dairy/olive producer group' to tell the provenance story including the environmental benefits. Link this data to a QR Code based app (existing ex LFI).
Land Suitability	Science questions to be answered include – <ol style="list-style-type: none"> 1. Identification of suitable land (i.e. the best 10%) – soils, climate/rainfall etc 2. Identification of the best olive tree cultivars

	Complete a Land Use Suitability assessment for each participating dairy farm.
Value Chain/Supply Chain	<p>Having the olive processor part of the producer group from the start enables the group to work together to identify how they will redesign the supply chain to ensure as much value is captured for the group as possible. Identify the links directly to markets and consumers for the high value food products, and animal food from by-products and where in each of those supply chains they can remove participants that do not add value.</p> <p>Develop a long-term supply agreement to ensure all parties have certainty and clarity on the baseline contract price. Include mechanism to adjust the price for market upside fluctuations.</p>
New Business Models	<p>Facilitated discussion with the founding group members on the business model options that best suit their ambitions and skills. For example, determine who owns the olive trees, who manages them. Is there an opportunity for various ownership models in relation to the olive groves? As a group, what is the best model to enable farmers and processor to benefit long term?</p> <p>How will the group enable new farmers to join if expansion is considered favorable in the future?</p>

Table 6: Exemplar – Activation Steps

9.0 Comparison between Canterbury and Wairarapa – Farmer Workshops

There were several key messages and themes common between both Canterbury and Wairarapa farmer groups. The most obvious difference between the two groups was the extent to which the Wairarapa farmers were already focused on participating beyond the farm gate and the level of current participation /or understanding of the need to be involved to capture more value back to the farm. Examples of the Wairarapa farmers activities beyond the farm gate included taking action to be involved in the market and linking closer to the consumer via business ventures such as 999 Farms (premium grass fed beef to USA consumers); a beef producer partnering with a China based marketer to connect to premium chefs and retailers in China; supplying wheat to Breadcraft with a view to providing provenance enabling Breadcraft to tell the Wairarapa story; Mark Guscott's lamb story: participation in a farmer producer group supplying Sheep and beef to Silver Fern Farms; start-up farmer group looking at market opportunities for strong wool.

The Canterbury group were very 'within the farm gate' focused. It is important to note that the difference in time, December 2018 and July 2020 may be a reason for this as the conversation across the agri sector in the last 2 years has been centred around participating in the value chain to capture more value. The selection of participating farmers and how the workshop was run may also have impacted on the outcome. In saying that, as indicated above many of the Wairarapa farmers have been actively involved in value capture or creation opportunities for many years.

Both groups were, to varying extents, aware of why they need to change, however the Canterbury group were more strongly focused on both environmental limits and addressing profitability with the overhead cost of their investment in irrigation. Several noted significant limits to their options due to lack of further banking support. Both groups could describe what some of the things that need to change are, but the biggest challenge was how to activate these changes – the 'How'. There were several barriers and issues including skills, lack of clarity of the market opportunity, lack of ability and/or time to do it on their own – and thinking that they had to do it on their own to capture the most value.

At the conclusion of both the Canterbury and Wairarapa workshops, the following key themes and messages were captured.

1. Each farmer needs to understand their own values and drivers to enable them to make decisions relating to the future of their farm – from participating in new opportunities, to succession planning and environmental initiatives.
2. The need for farmers to be involved beyond the farm gate to find higher value opportunities for their businesses.
3. Where opportunities require scale and consistency of supply, the need for farmers to work together collaboratively to enable them to meet market demand.
4. Accelerating land use/farm system change was generally linked to identifying credible market opportunities with established value chains, rather than a focus on answering or solving a particular science question.
5. How farmers can work with parties in the value chain to de-risk land use change decisions needs to be explored more to develop fit for purpose business models/partnerships.
6. Farmers in both regions valued the MCDM assessment. The CPW Farmers who participated in a MCDM assessment found the information and insight it provided in relation to their business decision making useful.
7. Focus initially on capturing more value from what farmers know they can grow/raise on their farm, minimises the need for significant change or investment in on-farm infrastructure.
8. Ensure that any opportunities farmers are considering are consumer led.
9. Participating in any producer group should be based on firstly understanding that the group members share the same values.
10. The need to consider the emerging requirement to prove our story. Data captured on farm and through the supply chain can be used for multiple functions, including to tell an evidence-based provenance story to consumers who care, and thus to support farmers to retain their licence to operate.

A notable difference between the two groups was the Canterbury based CPW farmers had invested in irrigation, which was operational at the time of the workshop. Many were struggling to identify how to make irrigation pay, and therefore were looking for new land use options. However, they were not market focused. Rather their view was more around what can we grow/raise on our land. The Canterbury workshop highlighted the need to be market led, and the subsequent OLW-funded Speciality Grains and Pulses Study identified a range of grains and pulses land use opportunities that a number of these farmers will have the chance to participate in as the initiative is advanced into a commercial stage.

The Canterbury based group had the opportunity to participate in the MCDM assessment and the follow up 'results' presentation mid 2019 was very well received.

The Wairarapa farmers on the other hand have not taken on new irrigation, so this was not a major driver of the discussion at the workshop. However, Wairarapa Water Ltd are currently developing the Wakamoekau Community Water Storage Proposal which has included an assessment of market-led near-term opportunities for new land use options. Several of the farmers participating in the workshop have indicated they intend to invest in reliable water and are aware of this study and the opportunities identified.

The work undertaken by LFI and the OLW NGS team since the first workshop with Canterbury based CPW farmers in 2018 and subsequent Speciality Grains and Pulses Report 2019 has continued to be built upon and is contributing to the formation of a Wairarapa Grower Group as part of the LFI work with Wairarapa Water Ltd.

The diagram below indicates how the Olive/Dairy opportunity could further build on work that has been completed by the previous studies and workshops.

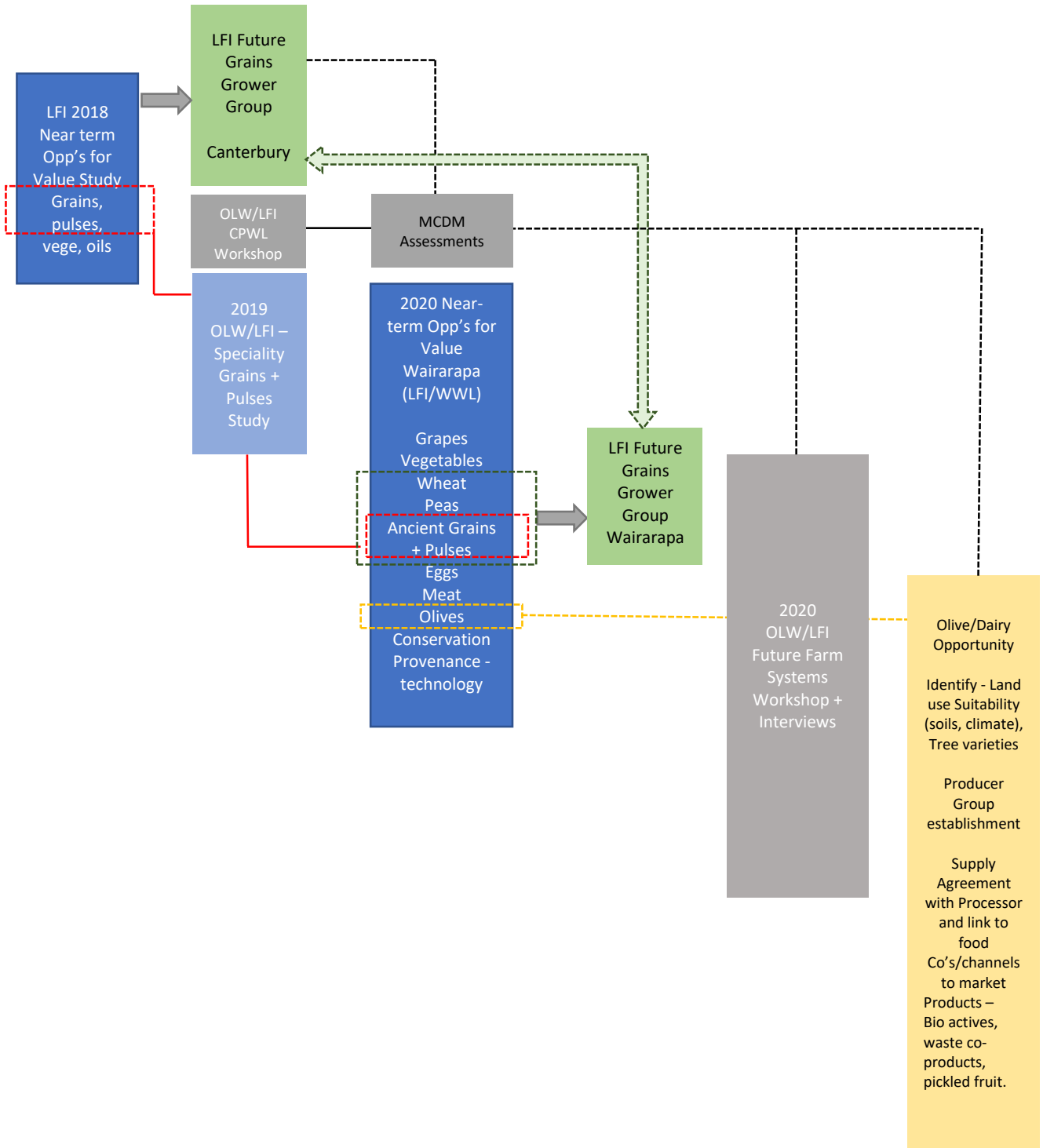


Diagram 3: OLW NGS + LFI – MDCM and a market led approach leads to opportunities for farmers

10.0 Where to from here?

To begin to address the question of ‘How will you make changes in relation to future ready farm systems?’ some key next steps were identified.

1. **Mindset** – supporting farmers with a tool to help identify their individual values and drivers was seen to be a very positive starting point to support them as they look to the future and the various environmental, economic, social and cultural challenges and opportunities ahead.

Action: Support the NGS-Multi Criteria Decision Making Assessment for the 8 farmer participants who confirmed this would be of value to them and their business. The assessment is outside the scope of the project, but Prof Renwick is investigating opportunities to complete this activity and is exploring opportunities to fund this work.

2. **Business Models** – support to identify models that can bring groups of farmers with aligned values together to capture and/or create more value from their farm, and the collective land area farmed, both at a catchment level and crossing farm boundaries.

Action: Focus groups on business models to identify and explore a range of options, characteristics, effectiveness, and any barriers to enablement.

3. **Future farm system exemplar** -Based on the outcomes of the workshop develop a future farm system exemplar of how a market- led future farm system land use opportunity can be created. It is recommended that the Olive/Dairy opportunity is activated based on the interest from a number of dairy farmers, and the olive processor participating in the workshop. Having both farmer and processor engaged at this early stage reduces many barriers that could exist, for example market insights, supply chain and market access.

Action:

- Utilise the MCDM Assessment tool for participant farmers and processor
- Identify benefits from an integrated dairy-olives farming system (environmental, social, economic, animal welfare etc)
- Identify gaps in knowledge in:
 - ‘science’ (may include integration, systems design, nutrient management, effluent management, irrigation etc)
 - Supply chain
 - Markets
- Develop a collaborative value-share business model