

AARES/NZARES Symposium

# *Land use practice change & adoption*



29 August 2018

Rutherford House, Victoria University of Wellington



**AARES**  
AUSTRALIAN AGRICULTURAL &  
RESOURCE ECONOMICS SOCIETY



# Setting the scene: Drivers for and barriers to land use practice change

- 1) Need for change
- 2) Barriers to change
- 3) Understanding farmers and Land Managers
- 4) Policy Levers

Environment Waikato Technical Report 2007/40

## Identification and Analysis of Drivers of Significant Land Use Change

[www.ew.govt.nz](http://www.ew.govt.nz)  
ISSN 1172-4005 (Print)  
ISSN 1172-9284 (Online)



## Pushing Against our Boundaries?

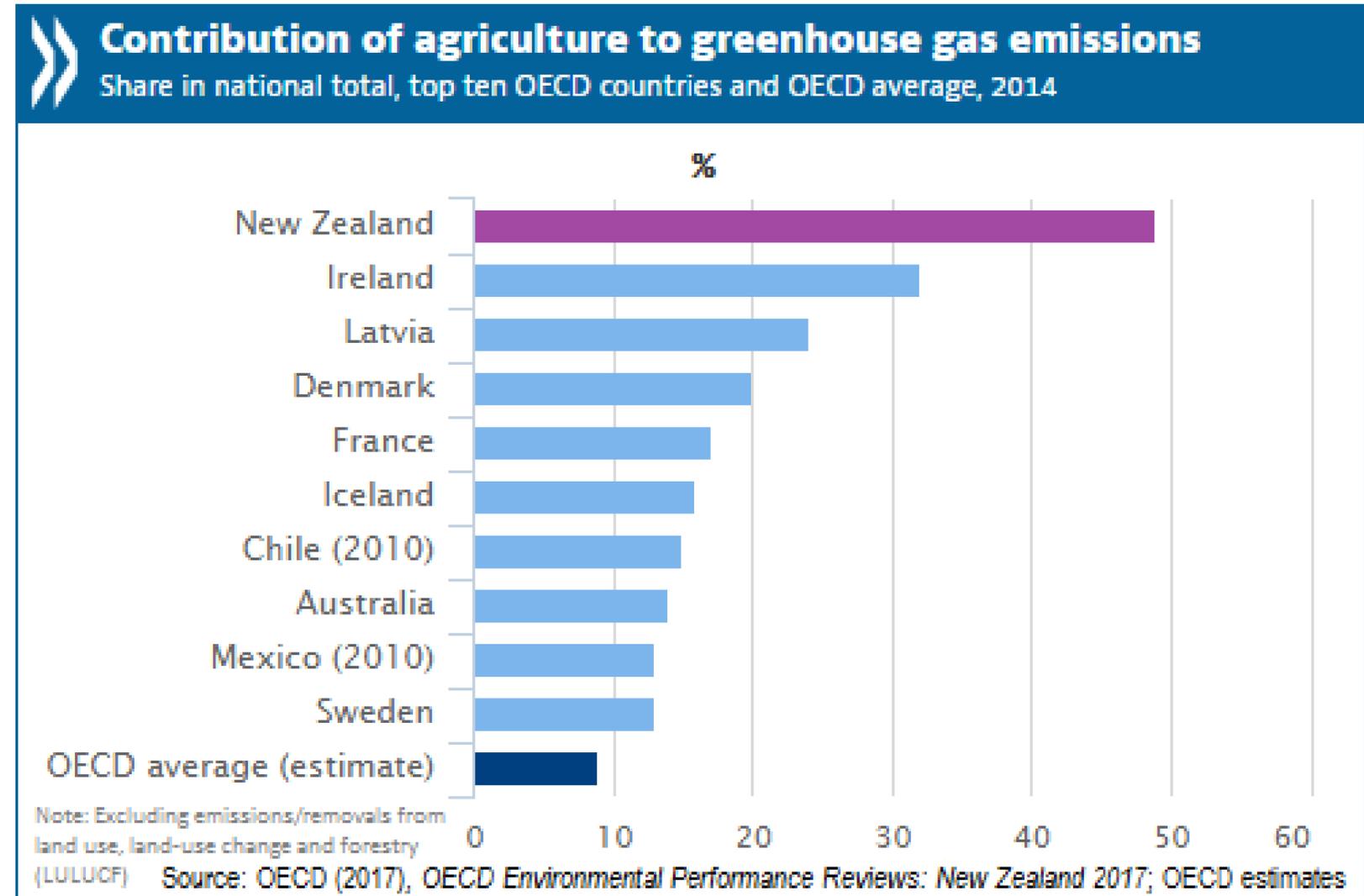
New Zealand has had a successful growth model based on traditional farm enterprises

However, according to the OECD (2017), the country is experiencing:

- unprecedented levels of water scarcity and quality issues,
- very high per capita greenhouse gas (GHG) emissions,
- threats to biodiversity, and
- significant erosion.



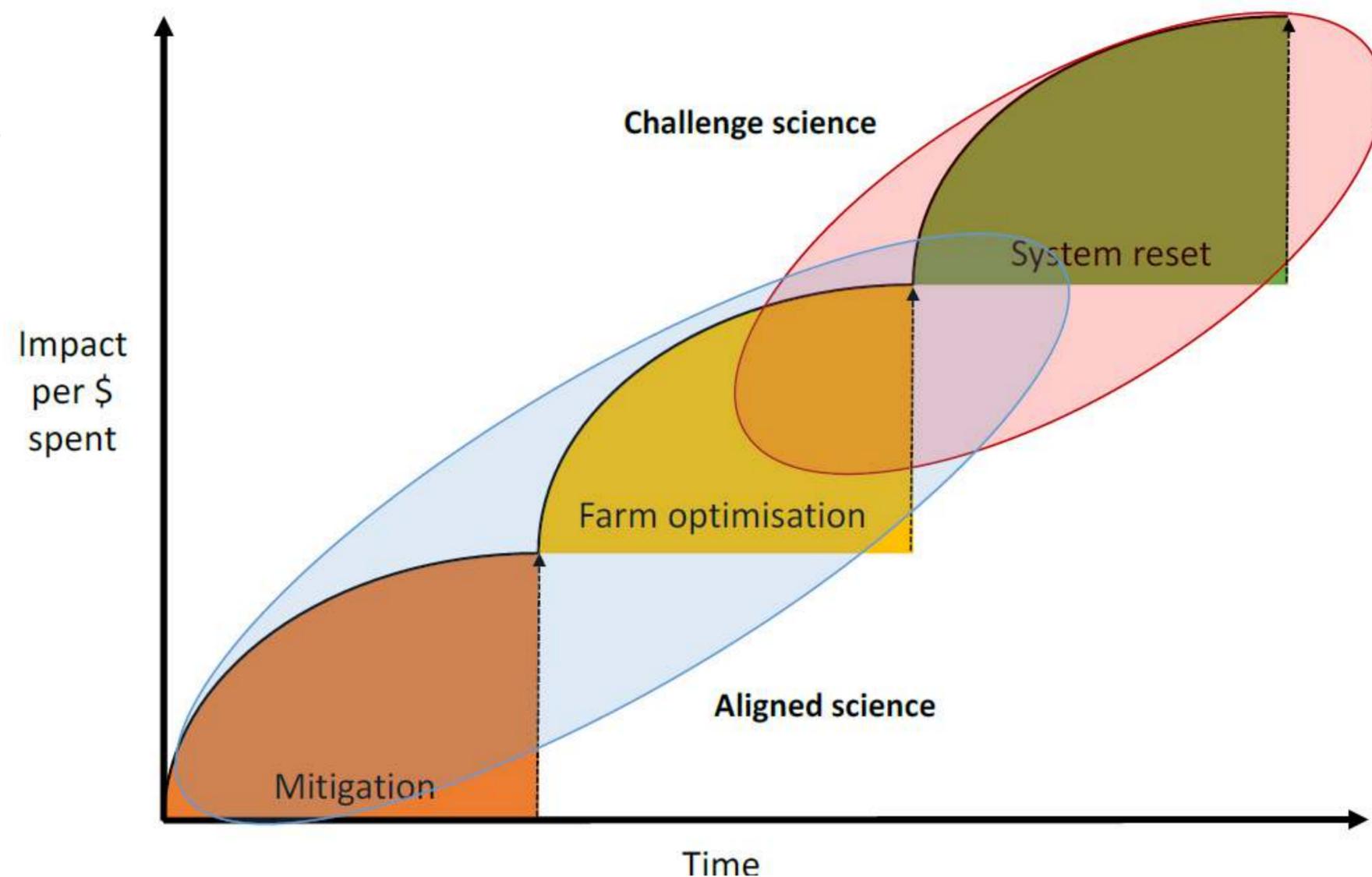
NZ is therefore facing both external and internal challenges to its current model of primary production and it has been argued that business as usual or even incremental change is not sufficient to enable these challenges to be addressed



# Transformational Change

Whilst incremental change will be valuable, solutions to the complex challenges facing the land-based sectors must provide opportunities beyond systems optimisation to transformational change

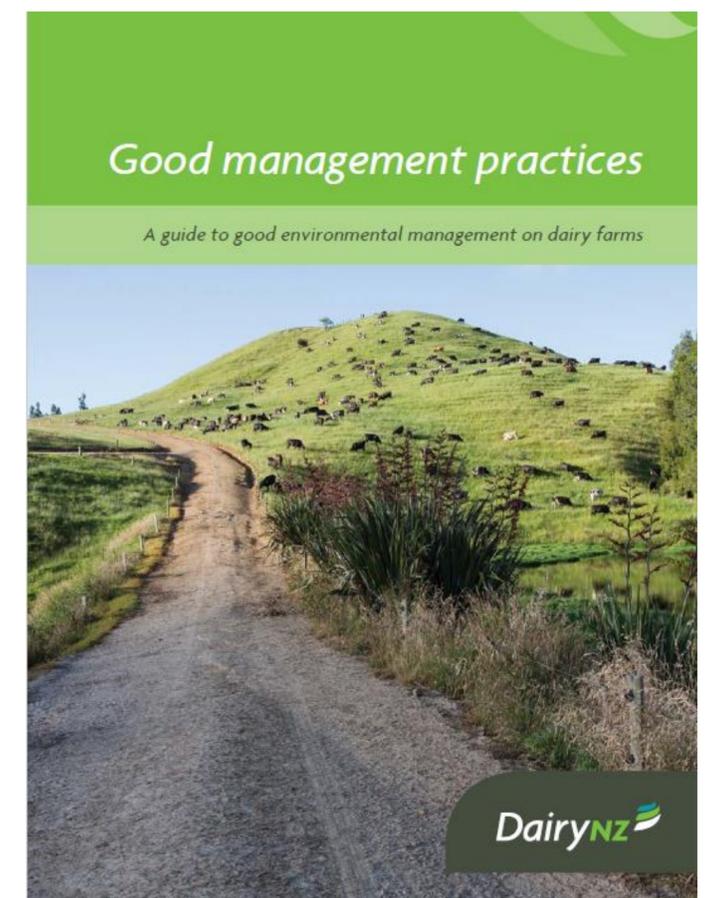
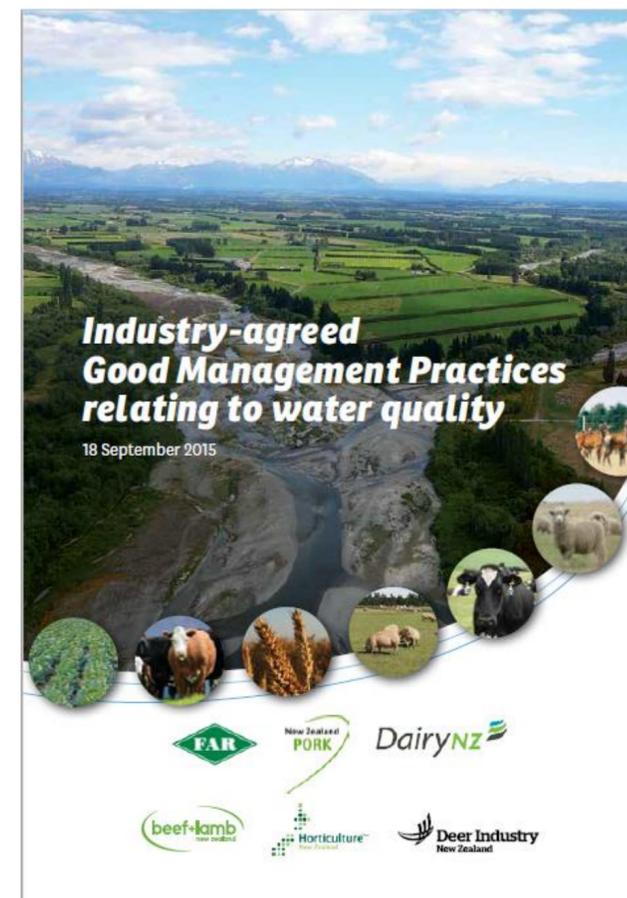
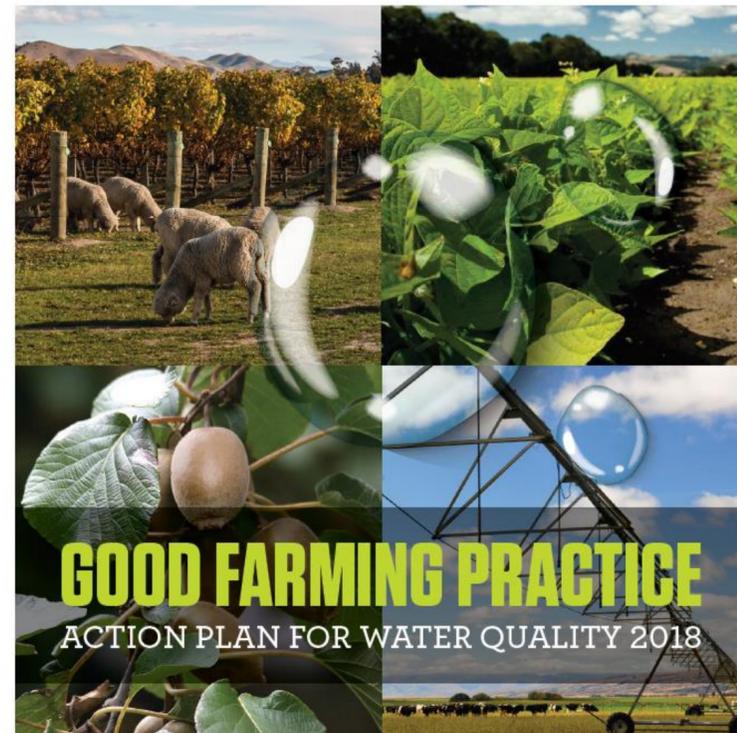
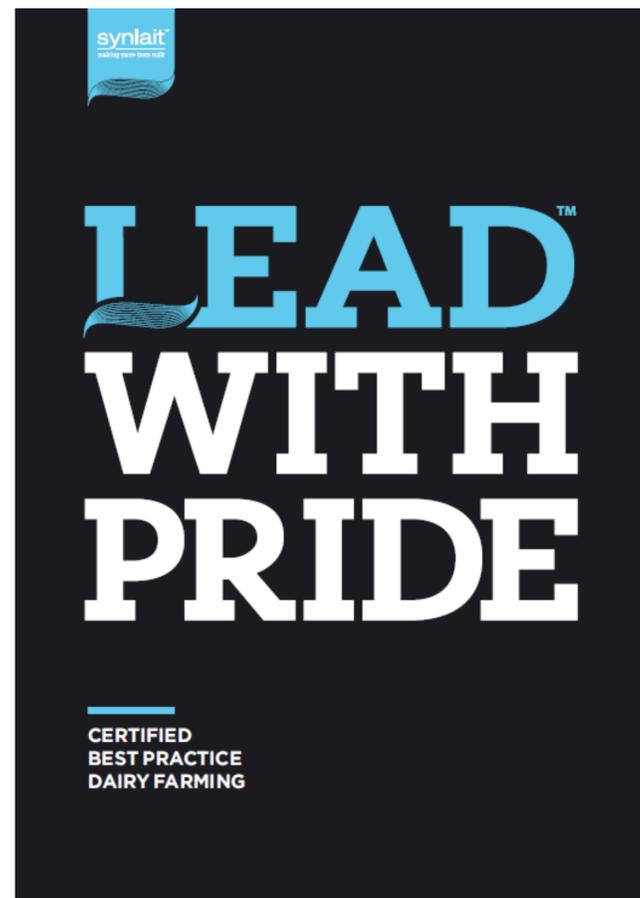
Within the broader context of the OLV Challenge, the project is concerned with identifying Next Generation Systems and engaging with land-use managers to support the process of transformation



Source Richard McDowell, OLV

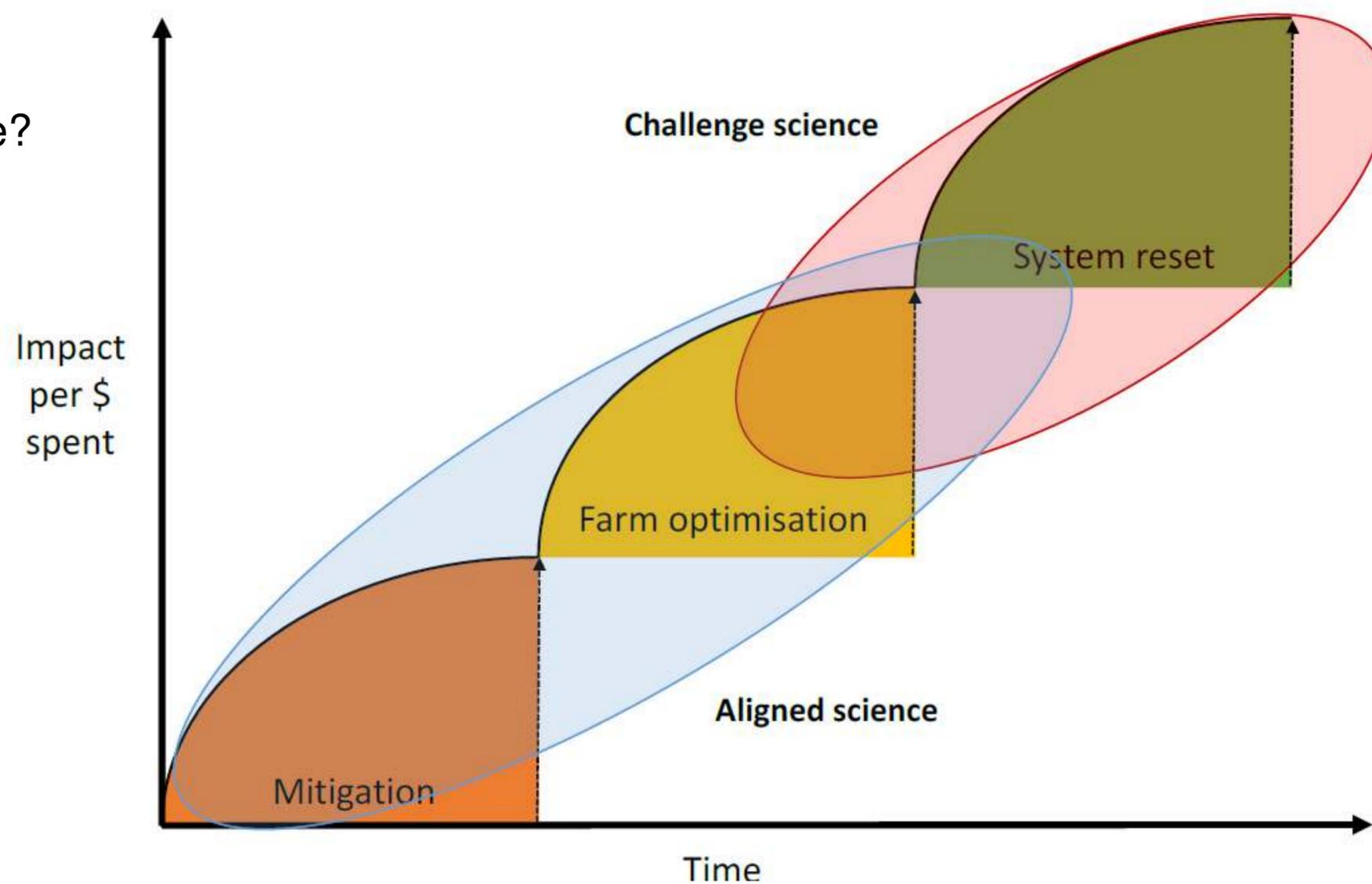
# Step 1: Doing it right

We know a lot about Good Management Practices



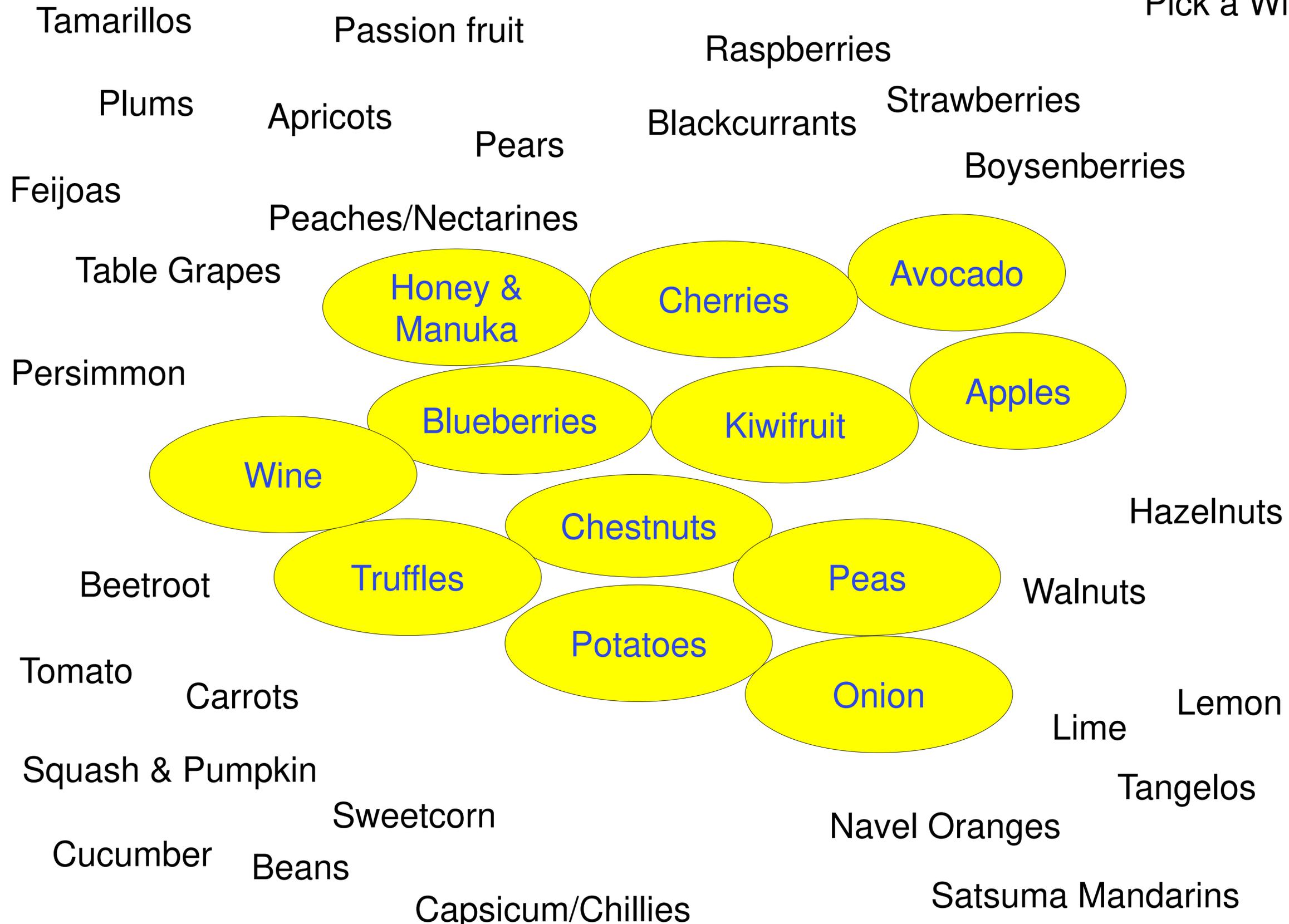
## Step 2: Doing the right thing

We know less about transformational Change?



Source Richard McDowell, OLV

Pick a Winner?



Source SLMACC: Evaluation of profitability and future potential for low-emission productive uses of land that is currently used for livestock

# Extensive work on Barriers to Change

OECD publishing

Please cite this paper as:

Wreford, A., A. Ignaciuk and G. Gruère (2017), "Overcoming barriers to the adoption of climate-friendly practices in agriculture", *OECD Food, Agriculture and Fisheries Papers*, No. 101, OECD Publishing, Paris.  
<http://dx.doi.org/10.1787/97767de8-en>

OECD Food, Agriculture and Fisheries  
Papers No. 101

## Overcoming barriers to the adoption of climate-friendly practices in agriculture

Anita Wreford, Ada Ignaciuk,  
Guillaume Gruère

JEL Classification: Q16, Q18, Q54



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SUSTAINABLE LAND USE AND BEHAVIOURAL CHANGE

How To Support And Develop New Practices for  
Farmers and Lifestylers

A Literature Review

Prepared for:

**Robyn Skelton, Manager Land Resources (Western)**  
**Bay of Plenty Regional Council**



## Evidence from Australia

### Box 2. Why is it difficult to discuss climate change with farmers? Evidence from Australia

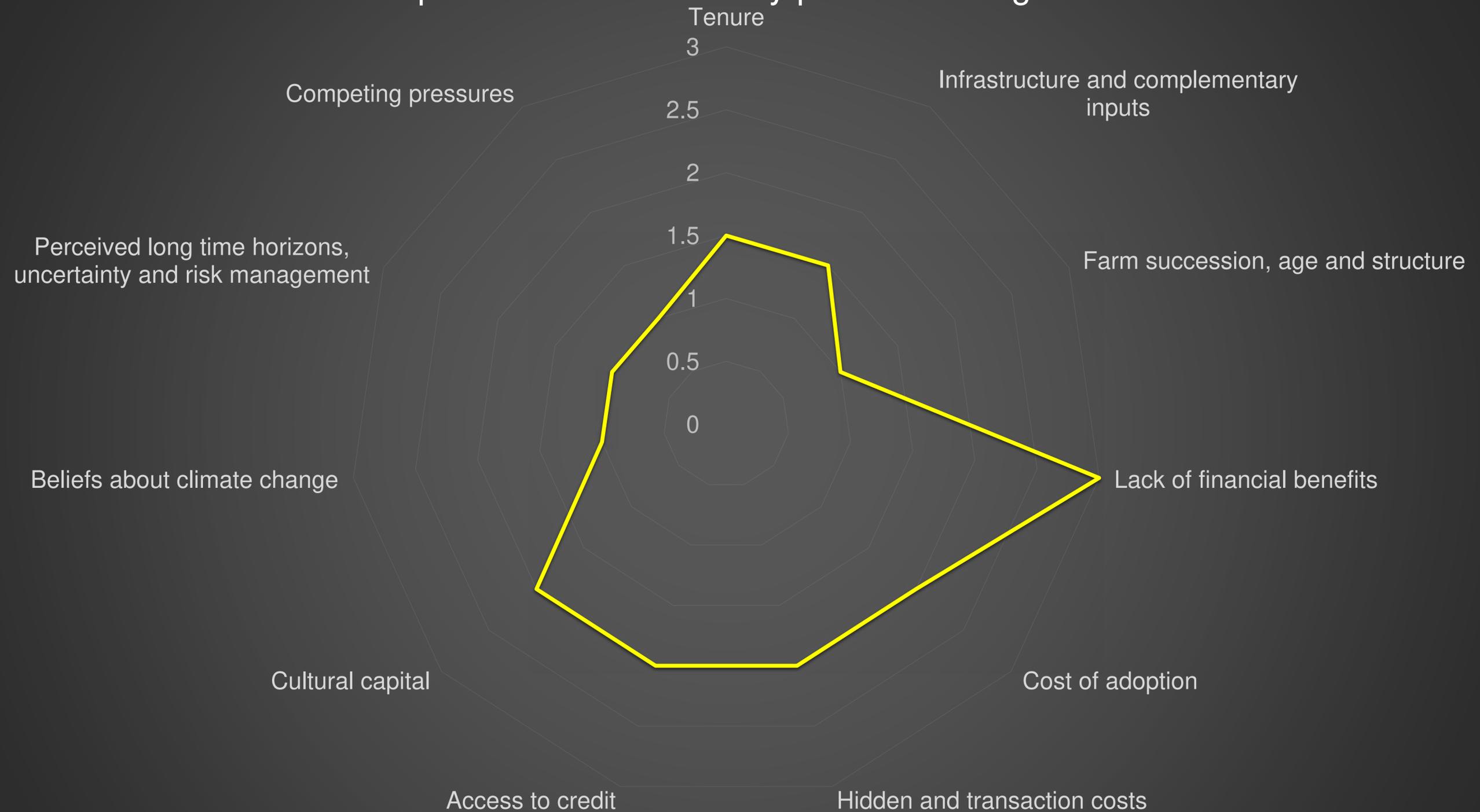
To better understand the non-adoption of farmers in climate adaptation projects, Robertson and Murray-Prior (2016) surveyed Australian farmers about their willingness to discuss the impacts of, and their adaptation to, climate change. They identify five key reasons why it is difficult for farmers to discuss these issues.

1. Climate change is a slow-moving phenomenon and projections are uncertain
2. Time horizons for farm planning are relatively short and managing the “here and now” of climate (and price and cost) variability takes precedence
3. There is confidence in the ability of technological progress to keep pace with negative impacts of climate change
4. Biophysical science does not have much to offer to support longer term more transformational decisions
5. Communication is difficult in a contentious environment.

The authors then recommend a series of action to cope with these issues, emphasising the need to focus on farm management practices rather than optimal systems, and finding ways to regain the trust of farmers on climate change issue, notably by involving farm and agriculture specialist in participatory communication approaches.

*Source:* Robertson and Murray-Prior (2016).

# Barriers to adoption of climate friendly practices in Agriculture

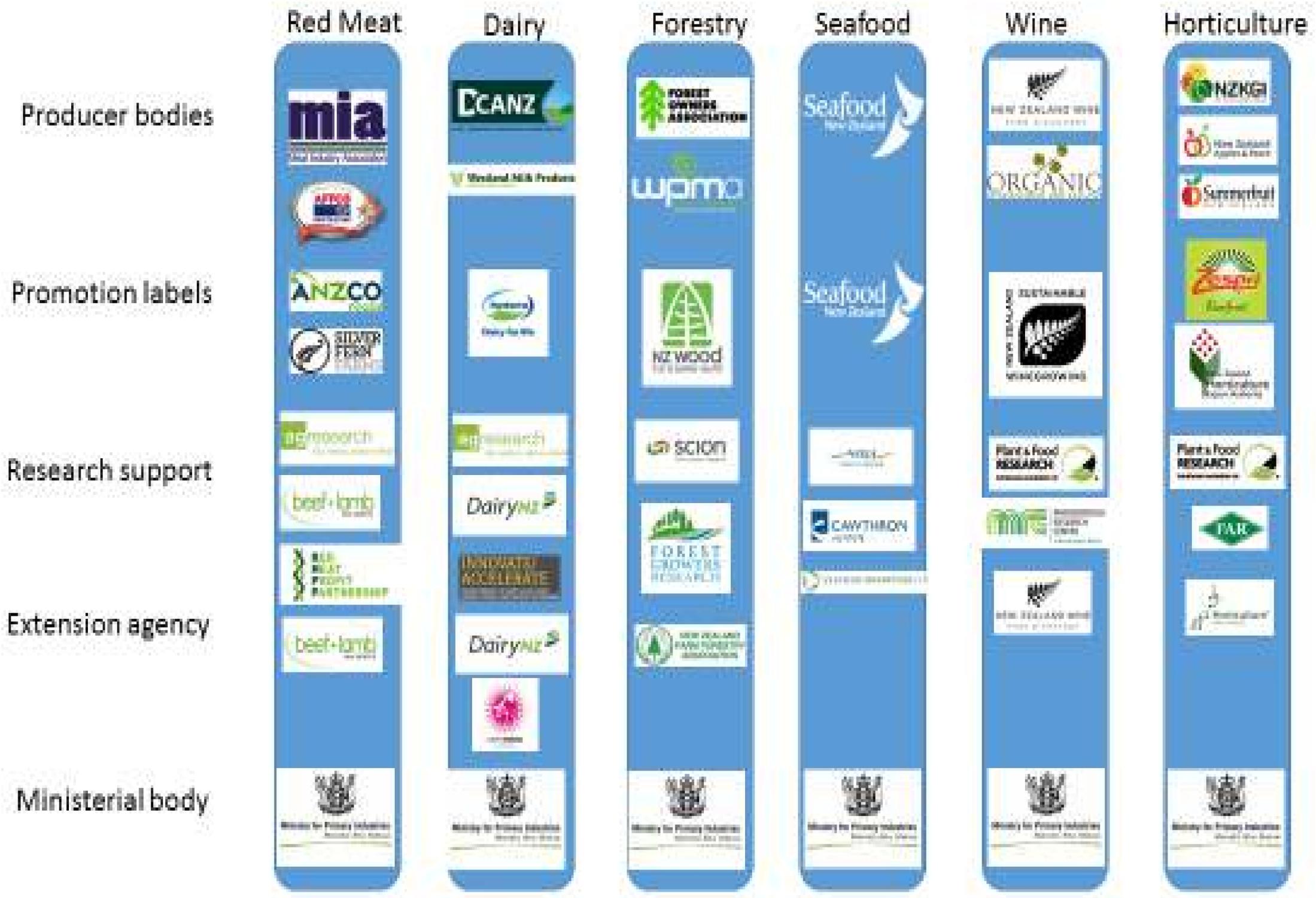


Source: Wreford et al

Type of barrier	Description	Primary focus: A - adaptation, M - mitigation or both	Volume of literature	Agreement in the literature	Indicative relative weight of barrier	Suggested role for policy
Sector level	Effect of practices on production	M	Low	Moderate	High	Research, communication
	Information and education awareness	Both	Moderate	High	High	Targeted engagement policies and demonstration
	Industry co-operation	Both	Low	Moderate	Low	National regulation
Policy related	Limited extent of climate policy	M	Moderate	Moderate	High	Policy should provide regulatory certainty but first understand barriers and address them through communication and engagement
	Leakage	M	Low	Moderate	Moderate	Global governance
	Reporting and administrative costs	M	Low	Low	Low	International level reform of inventories
	Non-climate related agricultural policies (Input subsidies, production support, subsidised insurance)	Both	Low	Low	Moderate	Identify policy distortions and work across sectors to remove them. Mainstream/integrate climate change goals across sectorial policies

Note: Volume: 0-5 articles = low; 5-15 = moderate; 15+=high. Agreement, relative weight and suggested role for policy determined by expert opinion.

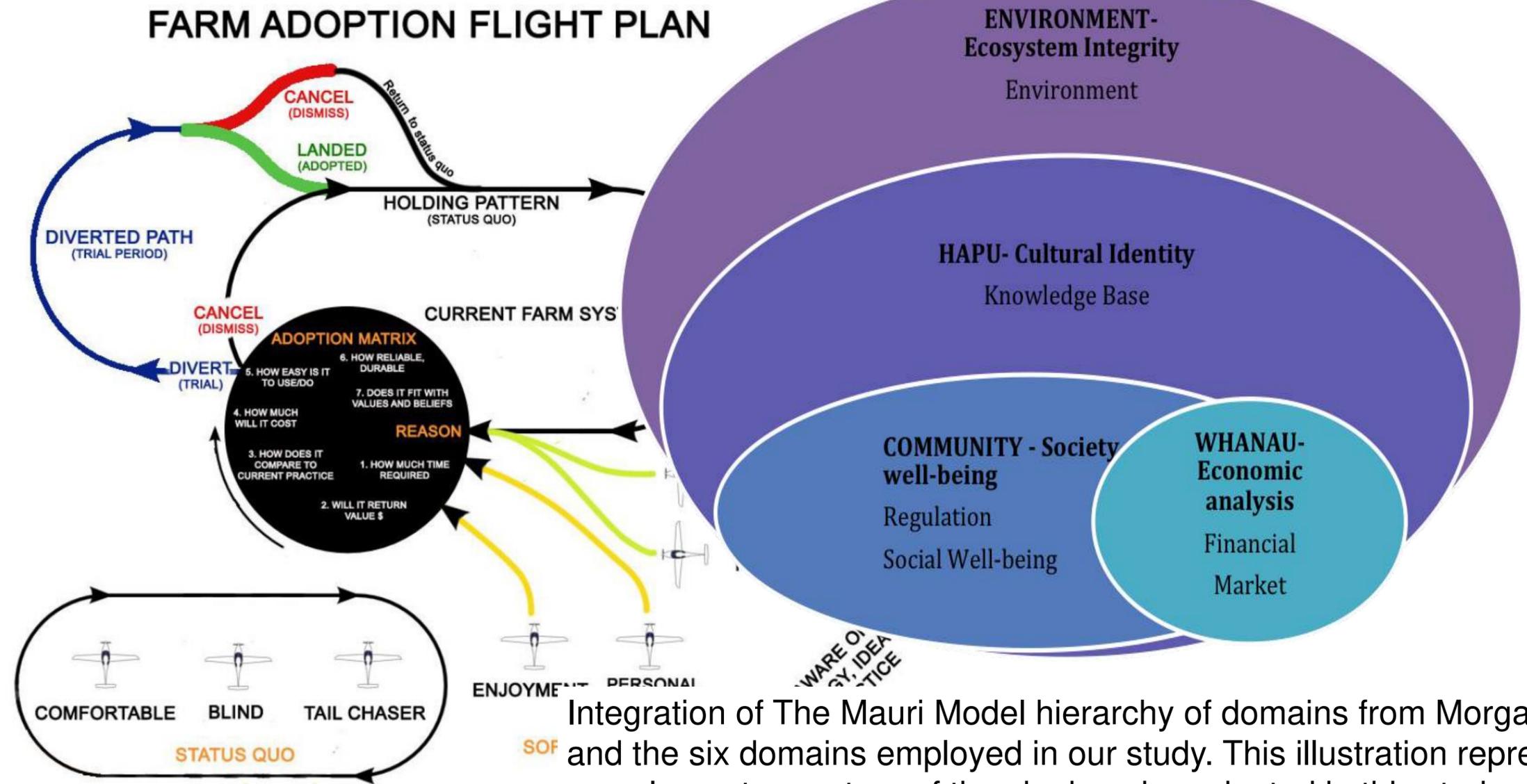
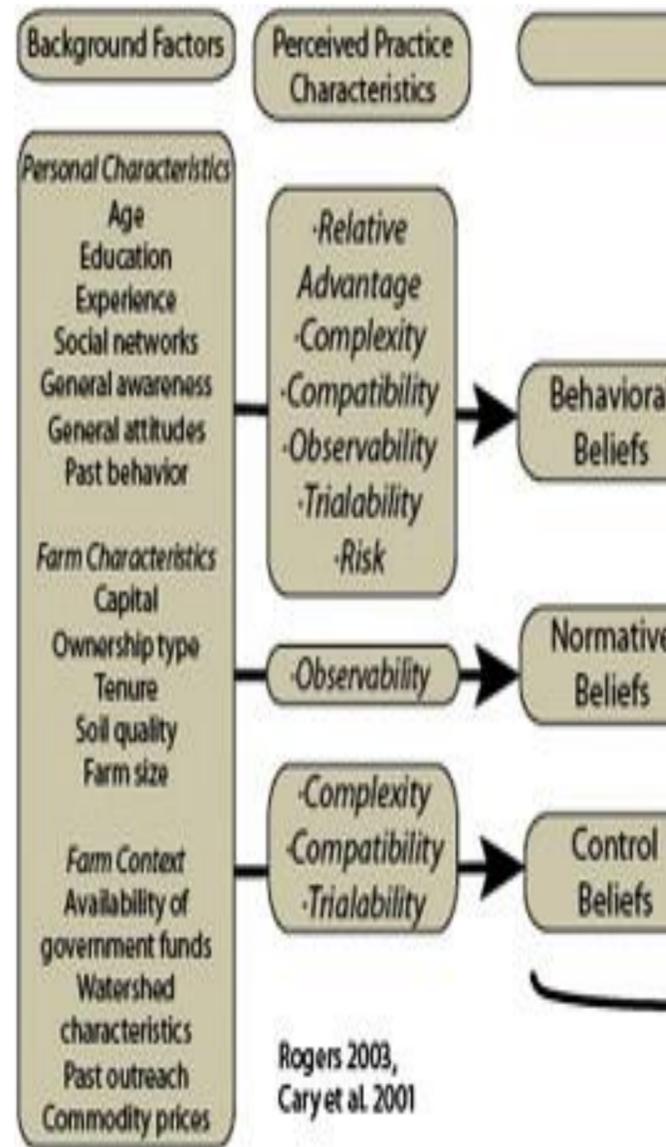
Summary of barriers identified in the literature, with an assessment of the volume of literature, strength of evidence, relative weight, and the suggested role for policy to overcome a barrier. Shading indicates suggested relative importance.



Source: Wreford et al (under review)



# Extensive work on understanding decision making



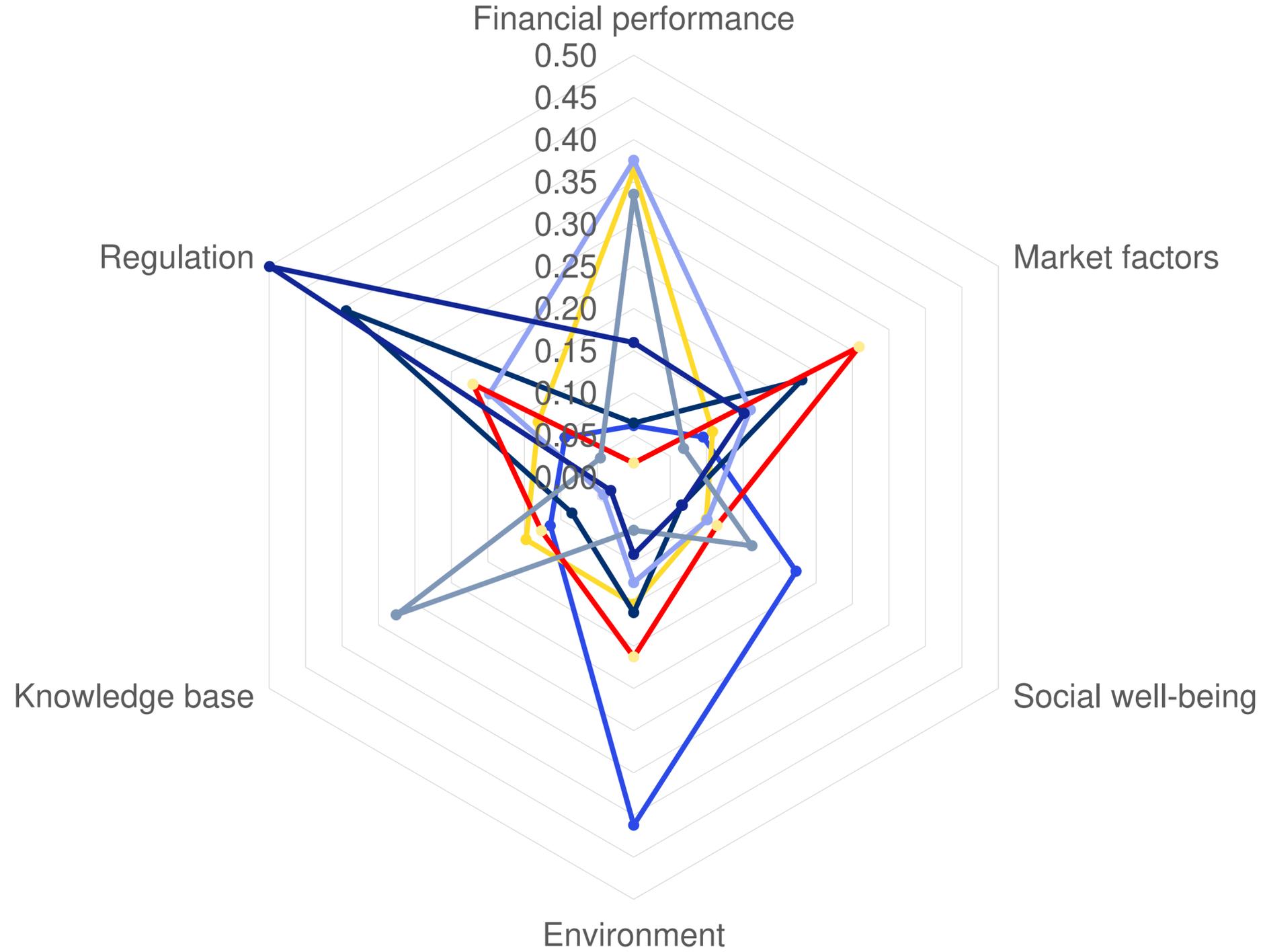
Integration of The Mauri Model hierarchy of domains from Morgan (2014) and the six domains employed in our study. This illustration represents the complementary nature of the six domains adopted in this study, with other

Source: New Zealand frameworks.

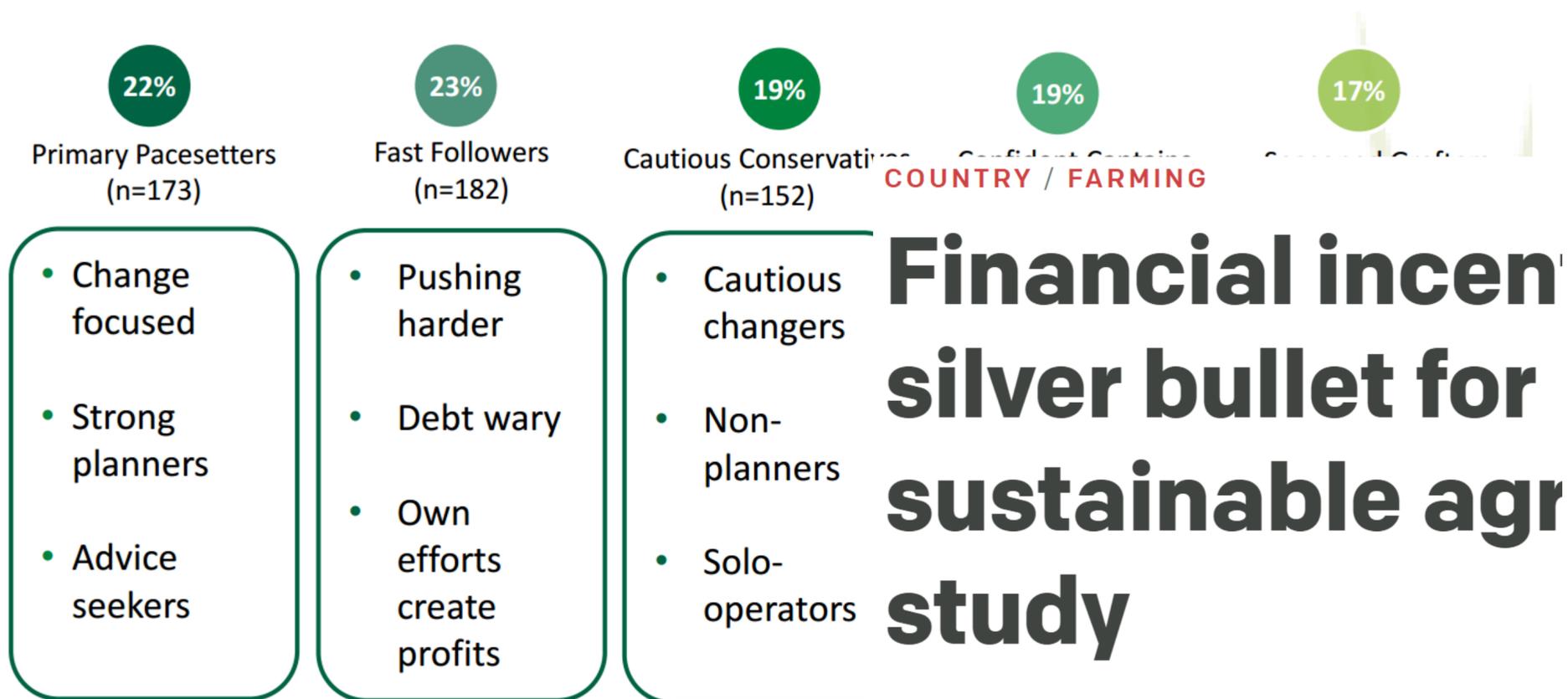


# Domain Importance for System Change

● MT 
 ● MC 
 ● SH 
 ● SFF1 
 ● SFF2 
 ● LFF1 
 ● HC



# We know a lot about farmers and land-managers

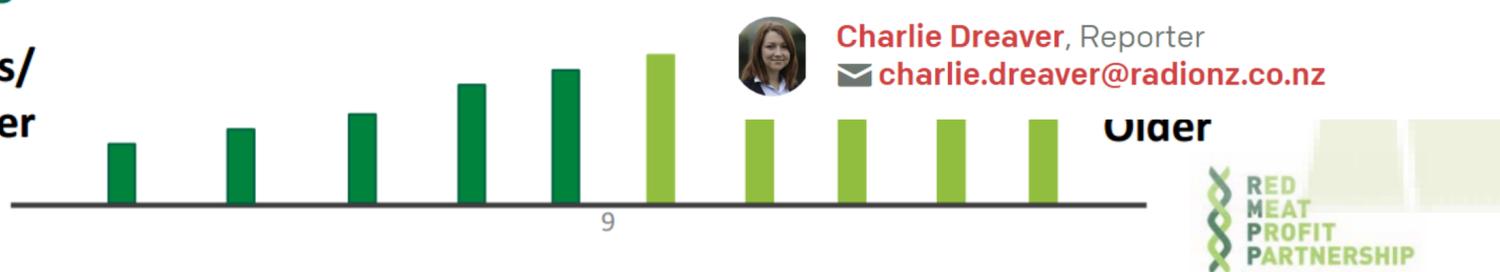


## SUSTAINABLE LAND USE AND BEHAVIOURAL CHANGE

How To Support And Develop New Practices for Farmers and Lifestylers

Open to change

Less barriers/ Younger



8:25 am on 27 August 2018

Charlie Dreaver, Reporter  
charlie.dreaver@radionz.co.nz



A Literature Review

Prepared for:

Robyn Skelton, Manager Land Resources (Western)

Bay of Plenty Regional Council



## Policy tools are available

Category	Specific policy mechanisms included
Positive incentives	Financial or regulatory instruments <sup>A</sup> to encourage change
Negative incentives	Financial or regulatory instruments <sup>A</sup> to inhibit change.
Extension	Technology transfer, education, communication, demonstrations, support for community network
Technology development	Development of improved land management options, such as through strategic R&D, participatory R&D with landholders, provision of infrastructure to support a new management option.
No action	Informed inaction

<sup>A</sup>Financial or regulatory instruments include:

1. polluter-pays mechanisms (command and control, pollution tax, offsets)
2. beneficiary-pays mechanisms (subsidies, conservation auctions and tenders), and
3. mechanisms that can work in either way depending on how they are implemented (define and enforce property rights, such as through tradable permits).

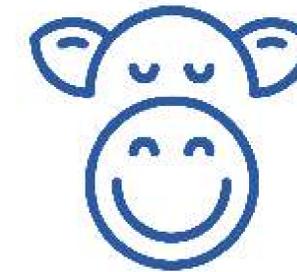
Source: Pannell (2008)

## It's not easy...

Drivers for change  
Barriers to change  
Can identify how to overcome those barriers  
Understand the decision making processes  
Know land managers

### Rights, Roles and Responsibilities

National Government  
Local Government  
Research  
Advisory  
Industry  
Individual Land Manager



happy cow  
MILK CO

### It's over. Or is it?

After a four-year fight for more sustainable dairy, I made the hard decision to give up.

But the incredible support and encouragement that followed this announcement has galvanised me to give it one more go.

We've re-invented farming, milking and bottling. Now, to make it work, we need to re-invent distribution. With an amazing team of supporters, we're exploring options for crowd-funding this next phase.

Time	Session	Speakers
9.00 – 9.30am	Registration	
9.30 – 9.50am	Setting the scene: Drivers for and barriers to land use practice change	Alan Renwick, Lincoln University
9.50 – 10.30am	What do we know and how do we share it?	Rachel Clements and Jane Davidson, MPI
10.30 – 11.00am	Applied approaches to agricultural extension and adoption of GMP	Terry Parminter, KapAG
11.00 – 11.20am	Coffee break	
11.20 – 11.50am	Evidence from the Red Meat Profit Partnership	Denise Bewsell, RMPP
11.50 – 12.20pm	Behaviour change of land managers: A practical perspective	Grant Cooper, Horizons Land Manager
12.20 – 12.50pm	Discussion (including experiences from the audience)	Speakers and audience
12.50 – 1.30pm	Lunch	
1.30 – 2.30pm	New Approaches to land use change: Impact investment	International experiences with impact investment - Carl McGuiness, The Nature Conservancy NZ Impact Investment for landscape interventions: A case study from New Zealand - Cerasela Stancu, Envirostrat
2.30 – 3.00pm	Tea Break	
3.00 - 4.45pm	Tools to help change: ADOPT Tool Practical Session	Rick Llewellyn CSIRO

