



From the Ground Up

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Executive Summary

This report began as an investigation into whether better Environmental, Social and Governance (ESG) reporting and data systems could unlock value for Australian farmers. It reached a broader conclusion. The central problem is not the sophistication of the frameworks, but the direction of the design process. Across Australia and the twelve countries visited in this research, agricultural programs, policy and investment repeatedly failed when institutions defined the problem, designed the solution and then asked farmers to comply. The result was often activity, reporting and administration, but not value at farm level.

ESG provided the clearest example: sustainability and carbon commitments developed at corporate or policy level, pushed down through supply chains without a clear pathway to a valuable outcome on a specific farm. The same pattern held in Australia's own institutions. Research, policy and finance are all active, but not consistently designed around farmer-defined problems or measured against farm-level outcomes.

Australia does not primarily suffer from a lack of money, capability or goodwill. It already has substantial research infrastructure, public institutions, industry organisations and capital available to agriculture. The deeper problem is that too many of these systems are designed from above. Farmers are often the last consulted, yet the first expected to absorb the cost, risk and implementation burden.

Across the examples in this study where farmer-led design produced genuine outcomes, the same four conditions were consistently visible. Clarity: the problem was specific enough that a farmer could recognise it as real and worth solving. Capital: finance and commercial arrangements were structured to create value for farmers, not simply to extract data or compliance from them. Collaboration: ownership of the problem and the outcome was shared across the parties involved, rather than managed through assembled committees and distant reporting lines. Context: signals moved in both directions. Macro systems shaping decisions on farms, and farm-level reality feeding back into those systems.

The report concludes that no agricultural program, policy, funding mechanism or research investment designed to benefit Australian agriculture will consistently create value for farmers unless farmers are involved in defining the problem and creating the solutions. That is the design test that should sit beneath future reform.

On that basis, the report sets out eight recommendations for redesigning Australia's existing agricultural architecture so that more value is created on farm:

1. New programs and policies begin with place-based, farmer-recognised problems, mapped before funding decisions are made.
2. Research institutions are accountable for farm-level outcomes, not just activity.
3. Australia's biggest cross-sectoral problems, the ones no single commodity-based institution owns, are backed by a dedicated outcomes fund, with freedom to take genuine risks.
4. A stronger national "translator" role: a small network of practising farmers connecting Australian agriculture to global trade and policy debates. Bringing

what they learn back to farmers, carries signals in both directions instead of just one.

5. Public and private capital reach producers on terms they can actually use.
6. Long-term policy settings give farmers, investors and institutions the stability to act with confidence.
7. Set Agricultural Innovation Australia the independence, resourcing and authority to publish standardised farm-level data, including farm share of the food dollar and natural capital accounting on a fixed schedule.
8. Farmer-to-farmer knowledge networks are enabled, not replaced by top-down extension models that no longer fit how farmers actually learn.

Australia does not need to build an entirely new agricultural system. It needs to change the direction of design inside the institutions it already has, so that programs, policy and investment begin with the people expected to make them work. Ask the farmer first. Then build that.

Keywords: Farmers, ESG, sustainability reporting, supply chains, compliance, agricultural policy, research and development, extension, grower groups, farm profitability

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Foreword

Growing up on a farm does not make you a farmer. But it does give you a way of seeing that is hard to unlearn.

My parents, Pip and Justin Jarrett, bought their first property in Orange, New South Wales in 1991. I was born in 1997, so the farm was already under way before I arrived. What I inherited was not a decision to farm, it was a way of seeing. Pip and Justin had both studied agriculture at university, and they came to it from a biological point of view rather than a chemical one. From the beginning, looking after the land was not a philosophy they adopted, it was just how farming worked.

They were not precious about what they grew. Grapes made the best business case for the Orange region at the time they were starting out, so grapes it was, alongside sheep, and over the years, a rotating cast of other enterprises. What stayed constant was the orientation, leave the land better than you found it. Over more than thirty years, they have planted thousands of trees across our three properties, converted 1,000 acres to certified organic land, taken soil organic matter from 1% to 4% and built a wine brand from the ground up, adding value at every step they could.

What they did not do was any of this because a regulation required it, a certification scheme incentivised it, or a supply chain demanded it. They did it because they understood something that no program taught them. That to farm for the long term, you have to look after the environment that supports you to farm. That understanding came from the ground, not from above.

My journey to this scholarship probably started after I left school and studied environmental management at university, where I encountered for the first time a version of agriculture I did not recognise. One that was seen as inherently damaging to the environment. The tension between that view and what I had grown up watching my parents do never really left me. It sent me back toward agriculture, and eventually into a role with the NSW Department of Primary Industries as a sustainability and biosecurity officer for vineyards and wineries.

It was there that the frustration properly began. I travelled the state training growers in sustainability programs, programs that asked farmers to generate significant paperwork to tick boxes for supply chains who needed to tick their own boxes for ESG reporting requirements. In Griffith, I sat with grape growers who were being paid below the cost of production for their grapes, and asked them to fill out forms that would not move the needle on a single practice on their farms. The sustainability reporting was real. The benefit to the farmer, or to the environment, was not.

I went overseas, did a vintage and did a lot of thinking. When I came back to work at See Saw Wines, I found myself, despite all the work I had done in the sustainability space, as confused by our own reporting requirements as anyone else. I was spending more time at a desk than outside doing work that actually mattered. That gap between what the system asked for and what the land needed was the question I took to Nuffield.

My original hypothesis was practical, if we could design better data systems, streamline reporting, create frameworks that actually served farmers rather than

supply chains, we could unlock real benefit for producers. It was a reasonable hypothesis. It did not survive contact with the evidence.

Across twelve countries, including New Zealand, Singapore, Taiwan, Zimbabwe, Romania, Poland, Chile, Canada, the United States, Brazil, Ireland, and the United Kingdom, I had hundreds of conversations with farmers, researchers, financiers, policymakers and industry leaders. The challenges were almost identical everywhere I went. Different languages, different climates, different commodities and the same structural problems, farmers squeezed by systems designed for someone else, capital inaccessible to the producers who needed it most, research disconnected from practice, institutions competing with each other instead of working together.

I did not discover on my travels that the system was broken. I already knew that. What I discovered was that the solutions being reached for such as better ESG frameworks, smarter sustainability reporting, improved data collection, were not going to fix it. In some cases they were actively making it worse, adding compliance load without changing outcomes. We have been building clever instruments on top of a broken system. The instruments get more sophisticated but the system keeps producing the same results, burnout, degraded land, and fragile supply chains.

This report is my attempt to name that structural problem clearly, and to propose where reform needs to begin. It is built on four conditions: Clarity, Capital, Collaboration, and Context.

I am not a policymaker, and this report does not pretend to solve everything. What it does is make the case that the problem is structural, not individual, and that the farmers who are doing everything right and still struggling deserve a system that works as hard as they do.

This report is for them. Its audience is those who can influence and make that happen.

Table 1. Travel itinerary

Travel date	Location	Visits/contacts
16–21 March 2025	New Zealand	Zespri; Marlborough (Intervine, Dog Point, Cloudy Bay, Nuffield Scholars); Christchurch (Aimee Blake and NZ Merino)
7–13 April 2025	Darwin, Northern Territory	Tipperary Station; Northern Territory CRC; Humpty Doo Barramundi
18 May – 23 June 2025	Global Focus Program: Singapore, Taiwan, Zimbabwe, Romania, Poland, Chile	
23–29 June 2025	Chile	Three Nuffield scholars' farms; Nuveen hazelnut farms
1 July – 24 September 2025	United States of America: California, North Carolina, South Carolina, Tennessee,	Several Nuffield scholars' farms; Lodi wine sustainability program; Fair Oaks Dairy;

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	Pennsylvania, Texas, New York, Arkansas	Tillamook Dairy; Walmart headquarters University of Tennessee (Centre for Profitable Agriculture); Tennessee spirits sustainability program NC State University Plant Sciences Institute; Darla Moore Business School Several Hudson Valley farms, upstate New York; New York Climate Week Rodale Institute; Rural Resilience Conference, Texas
26 September – 4 October 2025	Canada: Alberta and Ontario	Alberta: several farms; Telus Agriculture; Alberta sale yards Ontario: several farms
16–22 November 2025	Brazil: Belém (COP30)	Belém, for COP30
21–29 May 2026	Ireland	Multiple farm and Nuffield scholar visits
29 May – 3 June 2026	United Kingdom: Cornwall	Multiple farm and Nuffield scholar visits

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To the broader Nuffield community including fellow scholars, alumni, hosts around the world, and my GFP cohort, thank you for experiences and friendships I could never have dreamed of, and for a network I look forward to leaning on for years to come. My fellow Global Focus Program cohort, in order (Figure 1): (back) Alan McDermott, James Carter, Tom Youl, Paul Evans, Kari Moffat, Zoe McKay, Tarun Richards, (front) Mariela Ramirez, Juliette Vernooij, Cherilyn Jolly-Nagle, myself, and Claire Catford. Thank you for challenging, supporting, laughing, sharing and crying with me, and for inspiring me to contribute to agriculture globally in a more well-rounded, well-considered way.



Figure 1. GFP 3 in Sun Moon Lake Taiwan. (Source: Author)

I could not name everyone who offered wisdom, challenge, and generous conversation along the way, it would take pages. But a few people gave far more than I could have

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asked for. Catherine Marriott opened doors through her own contacts and generously read my report before submission. Su McCluskey spent hours on calls with me, helping me work through what I was actually trying to solve. Cherilyn Jolly-Nagle, who I was fortunate enough to travel with, let me brain-dump every half-formed idea I had, helped me reframe what my topic actually needed to answer, and kept reminding me to hold onto my voice and my purpose, helping farmers. Jean Lonie, a US Nuffield Scholar, took me into her home more than once and gave me opportunities in the United States I would never have had otherwise. And Graeme Finn, in Canada, took me in at my tiredest point of this Scholarship, and changed the way I think about farmers and sustainability programs for good.

To my family, Pip, Justin, Alice and Brendan Jarrett, thank you for the opportunity to complete this Scholarship while still holding a role at See Saw Wines, and for your unwavering support and willingness to back me without question. I would not have had this experience without you.

And to my housemates, Meg and Xanthe, who will happily never hear the word "Nuffield" again. Thank you for just being there through the second half of this Scholarship, through the report breakdowns and the "sorry, no time to hang out". You both played an integral part in me getting this report done.

AI acknowledgment

I acknowledge the use of Claude (Anthropic) throughout the preparation of this report, primarily to assist with structuring and drafting chapters from my research notes, voice recordings and interview transcripts, synthesising material across the twelve countries visited, and editing for length, clarity and consistency with the Nuffield style guide. All research findings, analysis, conclusions and recommendations in this report are my own, developed through my own fieldwork, conversations and judgement. AI assistance was a drafting and editing tool, not a source of the report's content or ideas.

Abbreviations

ABARES	Australian Bureau of Agricultural and Resource Economics and Sciences
ACCC	Australian Competition and Consumer Commission
ARENA	Australian Renewable Energy Agency
AUKUS	Australia–United Kingdom–United States security partnership
CEFC	Clean Energy Finance Corporation
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DARPA	Defense Advanced Research Projects Agency (United States)
ESG	Environmental, Social and Governance
GFP	Global Focus Program (Nuffield Australia)
KPI	Key Performance Indicator
NAB	National Australia Bank
NSW	New South Wales
PSI	Plant Sciences Institute, North Carolina State University
RDC	Research and Development Corporation
RIC	Regional Investment Corporation
UK	United Kingdom
US / USA	United States of America

Objectives

This research set out to:

1. **Investigate** whether ESG reporting and sustainability frameworks in agriculture are creating measurable value for the farmers asked to implement them, or primarily serving the reporting needs of the corporations and supply chains above them, and to use that evidence as a window into wider top-down design failures.
2. **Identify**, through direct observation of agricultural programs, institutions and policies across twelve countries, the design conditions that consistently separate programs which create real value at farm level from those that produce activity without outcome.
3. **Examine** Australia's own institutional architecture for agricultural research, extension and capital allocation against those conditions, to determine whether it is structurally designed to incorporate farmer-defined problems, or to work around them.
4. **Articulate** a practical set of design conditions, including clarity, capital, collaboration and context, that can be used to test whether future agricultural programs, funds or policies are likely to create value at farm level.
5. **Recommend** specific, actionable changes to existing Australian institutions that would put these conditions into practice, flipping programs, policy and investment from top-down to farmer-led, without requiring new bureaucracy to be built from scratch.

Introduction

The Wrong Question

This study began with a narrow, practical question: could better data collection and reporting systems unlock real value for farmers from ESG and sustainability frameworks already emerging around agriculture? It seemed like the right place to start. It was the wrong question.

What I found, almost everywhere I went, was the same mechanism repeating itself. A board, a set of executives, or a group of shareholders would hand their head of sustainability a directive. Reduce emissions, improve resilience, deliver on ESG, create regenerative supply chains. The directive was genuine, but it was also a buzzword standing in for a plan. The person tasked with delivering it usually had no clear understanding of their own supply chain, let alone the farms at the end of it, and no realistic way to build one at the scale required. Faced with an impossible brief and a real deadline, the response was near-universal. Design a program, push it down the chain, and ask the farmer to comply and report back. The gap between the boardroom directive and the ground-level reality did not close. It was filled instead by an entire layer of consultants, accountants and technology platforms whose business is translating, measuring and reporting on farm-level activity on behalf of the corporations that need to satisfy their own obligations. This layer was often the party most reliably making money from the arrangement. The farmer frequently was not.

I saw this in plain sight at New York Climate Week, in panel after panel of food corporates and technology companies discussing how to solve climate and food security problems, without a single farmer on stage, or in most cases, in the room, to disagree.

A similar pattern holds in Australian policy, at a different scale. When a program does not produce the outcome it was designed for, the instinct is less often to redesign or retire it than to layer a new grant or fund alongside it (Productivity Commission, 2011). The system accumulates, it rarely sheds.

A system built for a different era

Australian agriculture's institutional architecture was not an accident. For most of the twentieth century, state extension officers connected research directly to farm practice. That infrastructure was progressively defunded through the 1980s, and the gap was filled by the Research and Development Corporation system, made up of fifteen levy-and-match bodies (Australian Government, 2026) whose primary accountability ran, from the outset, to their commodity levy base rather than to independently measured farm-level outcomes (Productivity Commission, 2011). The system this produced is often genuinely world-class. But it was built on assumptions of stable input prices, predictable climate, open global markets, that no longer hold. Chapter 1 traces this history in full.

What Australian agriculture looks like right now

In 2025–26, Australian agricultural production reached a record \$101.4 billion at the farm gate (ABARES, 2026). Beneath that headline, the picture is considerably more precarious. Average broadacre farm business profit, across cropping, mixed and livestock enterprises alike, is forecast to fall 40 per cent in real terms in 2026–27, from \$210,000 to \$126,000 per farm (ABARES, 2026). This is not a single bad season. Climate change alone reduced average Australian farm profits by 23 per cent between 2001 and 2020 (Hughes et al., 2019). The ACCC's Supermarket Inquiry review found that major supermarkets had increased their margins over the last five years while fresh produce suppliers faced persistent pressure on farmgate prices (ACCC, 2025). The record headline figure measures the size of the system. It says nothing about who inside it is actually getting paid.

Over roughly the last decade, this system has also absorbed a rising sequence of shocks it was never built to withstand. Drought and flood, the 2019–20 bushfires, a global pandemic, geopolitical conflict and energy price volatility. Around all of it sits an institutional architecture that has been described as program-rich but system-poor, extraordinary activity, with no single steward responsible for whether any of it creates value for farmers. This is the Australia the report's findings land in. Not a sector that needs to be built from scratch, but one with genuine capability, genuine goodwill, and an institutional architecture pointed in the wrong direction.

What the research found

The first half of this scholarship was spent answering my original question, and finding that ESG and adjacent sustainability frameworks were not, in their current form, creating value for farmers. That finding is not a dismissal of the work. ESG is not going away, and understanding its mechanics, its history and its genuine opportunities for Australian farmers is a valuable undertaking in its own right, one already done well by 2024 Nuffield Scholar Catherine Marriott, whose report is the companion resource for readers wanting a full picture of the global ESG landscape (Marriott, 2025). The second half of this scholarship was spent answering the question that replaced it, and this report is the record of that answer.

Across twelve countries and hundreds of conversations, the same pattern appeared everywhere. Squeezed margins, input volatility, climate exposure, labour shortages, disconnected research. Programs designed to address those challenges were very rarely built around what farmers said they needed. They were built around what supply chains needed to report, what governments needed to claim, or what research institutions found fundable. In too many cases, the farmer was the last person consulted and the first person asked to comply.

The same failure appeared institutionally in Australia. Almost \$3 billion invested in agricultural R&D in 2023–24 (ABARES, 2025), across 3,505 active RDC projects (Council of Rural Research and Development Corporations, 2024), with no coherent framework for measuring whether any of it produces value at farm level, and no public way to see how that spend compares with the research done outside the RDC system by the states or the private sector. A CSIRO-led review of Australia's agricultural innovation system found the sector's R&D architecture, built around single-commodity

productivity problems, is poorly matched to the cross-sectoral challenges agriculture now faces (Nelson, Burrows & Leith, 2024).

A CSIRO agriculture budget that could achieve far more if optimised for the right mix of short, medium and long-term problems, commodity-specific and cross-sectoral priorities, and economic, environmental and social outcomes. A Clean Energy Finance Corporation with access to more than \$30 billion in capital pathways (Clean Energy Finance Corporation, 2025), much of it not reaching the farm gate in forms farmers can use. The translator function that once connected Australian farmers to global trade and sustainability debates, ended (Australian Government, 2025). No standing, independent way to check whether any of this is working. The money, the capability and the goodwill are not absent, the design is wrong.

The thesis

No program, policy, funding mechanism or research investment designed to benefit Australian agriculture will consistently create value for farmers unless farmers are involved in defining the problem and creating the solutions. That is the finding. It is not complicated. But its implications are significant, because almost nothing in the current architecture of Australian agricultural institutions is designed to start there.

The four conditions explored in this report, Clarity, Capital, Collaboration and Context, are not a framework invented at a desk. They are the observable pattern in every example encountered across twelve countries where farmer-led program design produced genuine outcomes. Where those conditions were present, programs worked. Where they were absent, programs generated activity, reports and compliance load, but not value for farmers, and not change on the ground.

How to read this report

Chapter 1 makes the case that top-down design has failed, with evidence from Australia and across the twelve countries of this research. Chapter 2 shows what bottom-up design looks like when it works, through the best examples encountered. Chapter 3 examines the four conditions that made those examples work. Chapter 4 applies those conditions to Australia's specific institutional architecture and identifies what needs to change through eight specific proposals for decision-makers.

The audience for this report is those who design, fund and govern programs for Australian agriculture, including government, research institutions, finance and industry. The argument is not that the people in those roles are not working hard or do not care. It is that the systems they are working within are pointed in the wrong direction. Turning them around begins with one change. Ask the farmer first.

“Programs designed to address those challenges were very rarely built around what farmers said they needed. They were built around what supply chains needed to report, what governments needed to claim, or what research institutions found fundable. In too many cases, the farmer was the last person consulted and the first person asked to comply.”

Chapter 1: The Evidence That Top-Down Does Not Work

"We've created an army of accountants and the industry has been funded by ESG reporting that is earning more than the actual farmers who are supposed to deliver on it."

— Dr Rogier Schulte, Wageningen University, June 2026

Top-down program design, where problems are framed at the institutional level and solutions are pushed down to farmers, is not new in Australian agriculture. It is the default approach, and it has been the default since public extension services were wound back and replaced by a levy-and-match system primarily accountable to commodity groups rather than to farm-level outcomes.

This chapter does not argue that every top-down program fails or that institutional design has no place. It shows a recurring pattern, when programs are designed away from the farm, they consistently fail to produce value at farm level. The problem itself may be real, and it may need to be defined by governments, supply chains, researchers, communities and farmers together. But when the solution, the delivery mechanism and the measures of success are designed without farmers, the result is usually activity without value.

1.1 ESG: the clearest exhibit

ESG frameworks were the starting point of this research and the clearest exhibit of top-down design failure. ESG did not begin as a program for farmers. It began as a mechanism for institutional investors to assess corporate sustainability risk and was then applied to supply chains, which passed requirements down to suppliers, who passed them down to farmers. At every step of that chain, the problem being solved was the problem of the entity above, not the practical problem of the entity below.

At a major US food retailer's sustainability headquarters, the ESG strategy lead described their team's situation with unusual honesty. The company had made public commitments to reduce carbon across its supply chain. The commitments were genuine. The problem was that the supply chain was so complex and disaggregated that the team had no reliable way to measure whether the commitments were being met, no clear understanding of what meeting them would require at farm level, and no mechanism for turning a headline target into a specific, actionable change on a specific farm. The carbon target existed, the pathway from the target to the farm gate did not.

A conversation had with Dr Rogier Schulte from Wageningen University explains why this failure often occurs. The indicators that matter at policy level, the metrics a national government needs to track whether the country as a whole is moving in the right direction, are necessarily different from the indicators that are meaningful to an individual farmer managing their own land, which are different again from what a supply chain needs to aggregate and report. These are not simply different levels of

the same thing. They require genuinely different indicators, because an indicator that is meaningful at one scale can be meaningless or actively misleading at another.

The common response is to ask for a "minimum data set", one simplified list of indicators that everyone can report against. The demand is understandable, but the reality it would have to flatten is enormous. Soil organic carbon illustrates the point. Increasing it signals real progress in much of Spain and Australia, but in Finland's already carbon-rich soils, the same increase can make land waterlogged and less productive. A single global indicator set cannot be right in both places.

ESG frameworks rarely acknowledge this. They translate boardroom metrics directly into farm-level obligations. Farmers are asked to measure and report things that cost them time and money and often change nothing on the ground. The language of carbon, scope 3 and net zero is legible to sustainability teams and shareholders. It is not legible to a farmer managing a drought, a labour shortage and an input cost spike simultaneously.

"While we continue to define sustainable food systems from a boardroom rather than in the paddock, systems will continue to fail."

— Farmer panel, Hudson Valley farm visit, Climate Week NYC, 2025

1.2 The carrot field: what a solvable problem looks like

On a farm in Chile, I walked past rows of freshly harvested carrots left to rot in the field. The farmer explained, more than 30 per cent of his crop did not meet supermarket specification. Not because the carrots were unsafe or nutritionally inferior, but because they were the wrong shape, the wrong size, or had minor cosmetic defects. The supermarket would not take them. There was no secondary market. They were ploughed back into the ground.

This is a food-waste problem. It is also an income problem, an environmental problem and a supply-chain efficiency problem simultaneously. It is a problem the farmer experiences concretely and can describe precisely. It is also a problem that multiple actors in the chain have a stake in. The supermarket has an interest in specification consistency. The processor has an interest in throughput. The farmer has an interest in income. The environment has an interest in avoiding wasted production. The issue is not that only the farmer can identify the problem. The issue is that no sustainability framework in that supply chain had been designed around solving it.

The contrast with what a defined problem enables is instructive. When the question shifts from "how do we reduce carbon in our supply chain" which is abstract, difficult to measure and disconnected from any specific practice on any specific farm. To "how do we reduce the proportion of this farmer's crop that never reaches a consumer", everyone in the chain can see their role. The supermarket can examine its specification requirements. The processor can look at secondary markets. The farmer can look at variety selection and harvest timing. The problem is specific enough that it can be solved, and specific enough that the farmer can see the value in solving it.

That shift from vague sustainability language to a clearly defined problem that can be solved in context is the Clarity condition. It requires more than a better framework. It requires asking different questions, in a different order, and then designing the response with the people who have to make it work.

1.3 The institutional version: the Australian evidence chain

The failure visible in ESG supply chains has its institutional equivalent in Australia. The mechanisms are different, but the underlying failure is the same, and so is its effect. Rather than creating the conditions in which farmers can identify problems and pursue their own solutions, the system constrains what farmers are able to attempt in the first place.

For most of the twentieth century, Australian agricultural research and extension operated through direct public infrastructure. State extension officers who knew local farms, soils and seasons translated CSIRO and university research into practice, with no commercial stake in which solution was chosen. From the 1980s, that infrastructure was progressively defunded as market-efficiency logic extended into agriculture. The gap was filled largely by agrochemical companies, machinery dealers and agronomy consultants whose business models were tied to farmer spending on inputs. The agnostic adviser, with no commercial interest in the answer, almost disappeared (Productivity Commission, 2011).

Into this landscape, the Research and Development Corporation (RDC) system was born, established under the Primary Industries and Energy Research and Development Act 1989. RDCs preserved research investment through levy-and-match funding and produced genuine world-class science, but with a design constraint built in from the start. Each RDC's primary accountability runs to its levy-paying commodity base, not to independently measured farm-level outcomes. That constraint has deepened: of the fifteen RDCs, ten have now converted from Commonwealth statutory corporations to industry-owned companies under the Corporations Act, a shift that has generally strengthened industry control of RDC boards and made commercial governance more prominent without resolving the core question of accountability to farm-level outcomes (Council of Rural Research and Development Corporations, 2024; Productivity Commission, 2011).

The current architecture also reflects the assumptions of a particular era. Stable input prices, predictable climate, open global markets and reliable intergenerational succession. Those assumptions no longer hold. Input prices are more volatile, climate variability has increased, trade is more exposed to disruption, and succession is harder as land prices continue to rise. Yet many programs still assume a stability that no longer exists (Australian Government Department of Agriculture, Fisheries and Forestry, 2025). ESG frameworks, carbon markets and sustainability reporting did not replace this architecture, they were layered on top of it, developed largely around existing supply chain, financial and policy structures rather than from the vantage point of farm-level problem definition. Each new framework assumes that the right people to define what agriculture needs are those looking at it from above, not those living it from the ground.

The scale of the resulting mismatch is concrete. In 2023–24, Australia's fifteen RDCs jointly supported 3,505 active projects, of which 829 were specifically focused on climate and sustainability, backed by almost \$3 billion in total agricultural R&D investment (ABARES, 2025; Council of Rural Research and Development Corporations, 2024). The same pattern holds on the capital side. In January 2025, NAB and the Clean Energy Finance Corporation launched a \$300 million co-finance program to help farmers invest in sustainable technology (CEFC, 2025). By November 2025, only \$71 million, less than 40 per cent, had been drawn down, mostly by larger operations (Gregory, 2026). The capability, the capital and the activity all exist. What

is missing is a structural discipline that asks, across all of it, whether farmers are better off, or freer to solve the problems they actually face.

ESG and adjacent programs sit inside that architecture as additional layers of obligation, not neutral ones. In many cases they constrain farmers' capacity to innovate, pulling time, attention and capital into compliance tasks designed elsewhere, and leaving little incentive or space for creative, place-specific solutions. The more effort goes into satisfying external metrics that were never designed around farm-level problems, the less room there is for farmers to reach for their own.

1.4 The cost of getting it wrong

The most direct cost is compliance load. Farmers who participate in sustainability programs, whether driven by supply-chain requirements, government grant conditions or levy-funded projects, spend time and money on administration that does not improve their land, their business or their community. Across this research, farmers repeatedly described projects where multiple organisations were required to sign off on every dollar spent, with administration absorbed before anything reached a farm gate. The Griffith grape growers described in the Foreword are one example. The forms were real, the benefit was not.

The second cost is opportunity cost. When billions of dollars are invested in agricultural research and development across thousands of projects, the question of what those resources could produce if directed towards clearly defined farm-level challenges, and solved with farmers rather than for them, is not rhetorical. It is the central question this report asks. Every dollar tied up in activity that does not change farm practice or outcomes is a dollar not available to back the innovations farmers themselves are ready to reach for.

The third cost is trust. When programs consistently fail to produce value for the farmers they are meant to influence, farmers disengage. The mandatory levy system, the sustainability reporting chain, the RDC governance process and adjacent institutions all lose credibility, not because the people running them are incompetent or insincere, but because the design logic keeps producing the same result, activity without value at farm level. When farmers see systems constraining their ability to pursue creative, context-specific solutions instead of helping them do it, trust is eroded further.

Chapter finding

Top-down design fails at farm level because it sets the questions and metrics from above, then imposes solutions from the same vantage point. Many of these problems are real, and many need input from government, markets, research and farmers alike.

But once a problem is identified, it will not reliably create value unless farmers help design the solution, the delivery mechanism and the measures of success. Until that sequence is reversed, activity without value will continue.

Chapter 2: What Bottom-Up Looks Like

If the evidence against top-down design is consistent across countries, so is the evidence for what works instead. The examples in this chapter are not held up as models to be replicated. They are evidence of a pattern. The question is not whether Australia should copy the North Carolina Plant Sciences Institute or recreate the Ballymaloe farm and Jameson Whiskey partnership. It is whether the design conditions that made those examples work, farmer-defined problems, shared funding, shared value, and place-specific solutions, can be applied to the institutions Australia already has. That is a different and more tractable question.

In every case where farmer-led program design produced genuine outcomes, the same observable conditions were present. This chapter describes those examples. The next chapter names the conditions.

2.1 The NC Plant Sciences Institute: farmer-defined research at institutional scale

The North Carolina Plant Sciences Institute (PSI) at NC State University is the most sophisticated example of bottom-up institutional design encountered across the twelve countries in this research. North Carolina's agricultural sector generates close to 100 billion dollars annually across an extraordinarily diverse range of commodities, roughly equivalent to the entire Australian agricultural sector from a single US state (Walden, 2024).

PSI was founded by two academics who recognised that the university's agricultural faculties were working in silos, each pursuing research that was institutionally defensible but disconnected from the problems facing actual farms. Their response was not to write a report recommending coordination. It was to design an institution that makes coordination structurally inevitable, and to start by asking the people with the actual problems.

Before a single dollar of institutional funding was committed, PSI convened every major grower group in North Carolina and asked one question. What are the problems on your farms that research could actually help solve? Figure 2 shows the result. Labour efficiency, pest and disease pressure, seed research, technology for early diagnosis, carbon verification, crop resilience, cost of equipment and funding transparency all appear on the same page, grouped not by academic discipline but by how growers actually experience them, as overlapping questions of labour, cost, resilience, regulation, technology and markets that cut across every department. That problem map became the research agenda.

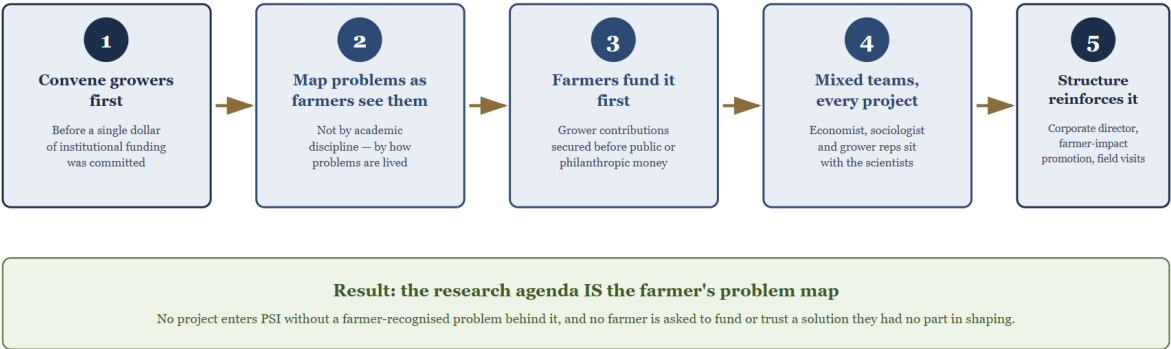


Figure 2: North Carolina grower panel readout. The problem map that became PSI's research agenda (Source: North Carolina Plant Sciences Initiative)

Grower groups did not just provide the brief; they funded it. Their contributions were secured before significant public bond or philanthropic money, so government and donors were approached with demonstrated farmer demand already behind the proposal. Figure 3 shows the full design sequence, and why the order of operations matters as much as the individual steps. PSI's project model deliberately includes economic and social science expertise alongside biological, data and engineering science, so growers are never the last people in the room (North Carolina Plant Sciences Initiative, 2026).

The PSI Design Sequence

What made the North Carolina Plant Sciences Institute work was the order these things happened in



North Carolina's agricultural sector generates close to US\$100 billion annually — roughly the size of the entire Australian agricultural sector, from a single US state.

Figure 2.3: The PSI design sequence — order of operations, North Carolina Plant Sciences Initiative

Figure 3: The PSI design sequence, order of operations, North Carolina Plant Sciences Initiative. (Source: Author)

PSI is only a few years old, and it is too early to measure its full impact at farm level. But the design conditions that make impact likely are present. Farmers defined the problem set, farmers co-funded the solution, the institution has been structured around outcomes rather than activity, and the distance between research and farm practice has been deliberately minimised (North Carolina Plant Sciences Initiative, 2026).

The design logic here is close to what Recommendation 3 proposes for Australia. A clearly defined, farmer-recognised problem, resources committed against it, minimal bureaucratic layering, and success measured by whether growers can use the result, not by publication count. PSI achieves this inside a university rather than through a separate fund. The principle does not require a new institution from scratch, just a mandate and funding relationship structured around outcomes rather than activity.

2.2 Ballymaloe and Jameson: shared value built from a specific problem

On a mixed arable farm in County Cork, Ireland, Darren Allen grows barley for Jameson Irish Whiskey under a regenerative agriculture protocol. Table 2 shows the commercial case. The regenerative system produced a slightly lower yield than the conventional system, but on a fifth of the carbon footprint and with five times the margin above its breakeven point.

Table 2: Ballymaloe farm trial data, regenerative vs conventional barley production for Jameson Irish Whiskey

	Regenerative	Conventional
Carbon footprint	50 kg/acre	250 kg/acre
Breakeven yield	1.8 t/acre	2.8 t/acre
Actual yield achieved	2.8 t/acre	3.0 t/acre
Margin above breakeven	1.0 t/acre	0.2 t/acre

Source: Conversation with Darren Allen and Jameson representative on farm

What makes this work, where so many supply-chain sustainability initiatives do not, is the way the problem was defined and by whom, and how responsibility for solving it was shared. Jameson's parent company, Pernod Ricard, has set regenerative agriculture targets across its commodity groups worldwide, from viticulture to grain. Rather than issuing those as a compliance requirement to be reported against, the company employs place-based staff whose job is to work out what regenerative practice actually means in each specific context. In Ballymaloe, that meant a local representative approaching Darren Allen directly, not with a protocol to sign, but with an offer to design the approach together. The company would work with Darren on what regenerative farming would look like for his specific land and system. It would pay a price premium on the grain to help fund the transition. And it would take on the data collection itself, so the burden of measurement sat with the buyer who needed the data, not the farmer who needed to farm, and so what was learned could keep refining the approach rather than sitting in a report nobody revisited (Irish Distillers, 2025).

The collaboration has also created room for genuine farmer-led innovation to be properly resourced. Darren, who has a habit of experimenting, had already brought in a Brazilian biological agronomist working informally on the farm, trialling composts and biological preparations built from local bacteria and microorganisms around the Ballymaloe site. What the wider project added was not the idea, that was already Darren's, but the resourcing and data collection to give it scientific rigour. Rather than an informal on-farm trial of the kind many farms run without ever being able to prove what worked, the same experimentation now sits inside a properly measured project. WhatsApp groups of growers in the Ballymaloe orbit share practical knowledge about cover crops, implements and biological inputs faster and more usefully than any formal extension system.

What makes Ballymaloe a model is not its scale. It is its design logic. Every element of the system starts from a clearly defined problem that both farmer and buyer recognise as their own. Every relationship is structured around shared value. No one is being asked to comply with a framework they did not help design.

2.3 Rodale Institute: farmer-funded, long-horizon research

The Rodale Institute in Kutztown, Pennsylvania has run the world's longest continuous side-by-side comparison of organic and conventional grain cropping since 1981. Table 3 and Figure 4 show what forty years of consistent funding actually produced.

Table 3: Rodale Institute Farming Systems Trial, 40-year results, organic vs conventional

Metric	Organic	Conventional
Yield, after 5-year transition	Matches	Baseline
Yield in drought years	31–40% higher	Baseline
Profitability	3–6x higher	Baseline
Energy use	45% lower	Baseline
Carbon emissions	40% lower	Baseline

Source: Rodale Institute, Farming Systems Trial 40-Year Report.

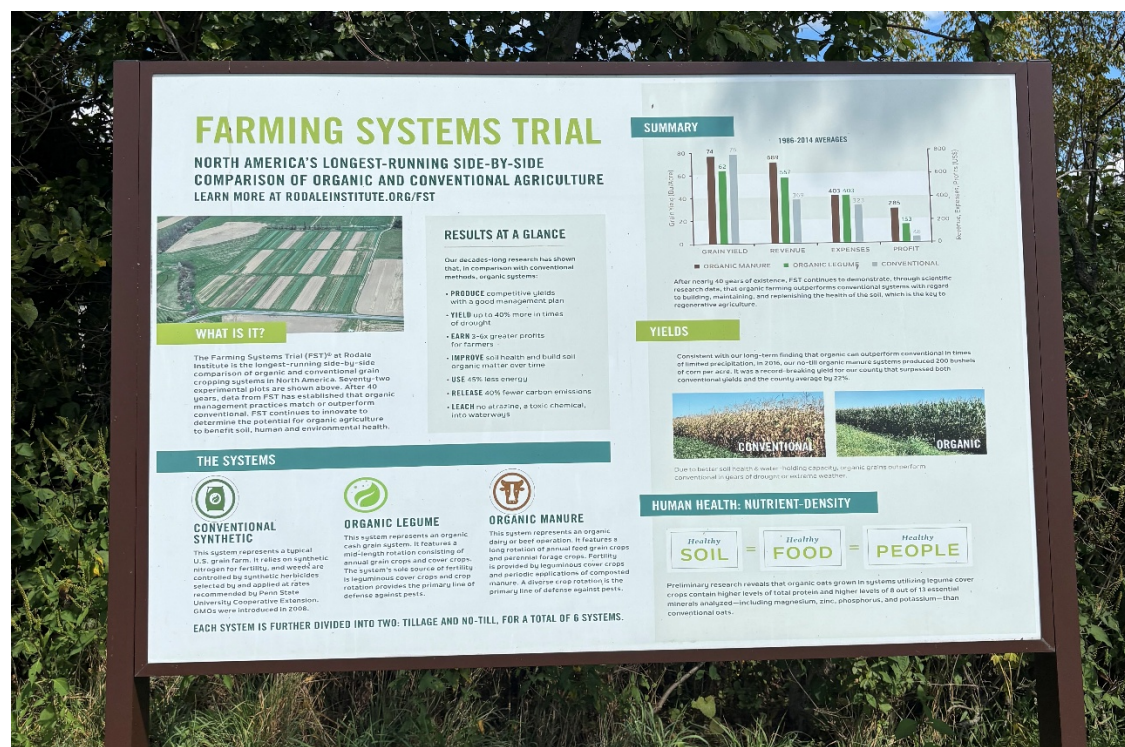


Figure 4: Farming Systems Trial detail onsite at Rodale Institute. (Source: Author)

Those findings, higher resilience, higher profitability, lower cost, took forty years of unbroken funding to prove. No commercially funded trial, and no research program tied to a three-year grant cycle or a three-year electoral term, would have been designed to run that long. The early years of the trial showed organic yields declining during the transition period, exactly the result that would have got a short-cycle program defunded before the real result, matching yields, better drought performance, far higher profitability, ever had the chance to appear (Rodale Institute, 2021).

These specific numbers are not a template for Australian farmers to expect. Kutztown's soils, climate and cropping systems are their own, and a yield figure generated there will not transfer directly to a wheat belt in Western Australia. What transfers is the structural lesson. The value to growers around Kutztown is not that Rodale found the right answer for everyone, but that they have forty years of rigorous, locally specific evidence they can act on with confidence. That is what Australian regions need more of. Not Rodale's results, but Rodale's kind of enduring, place-based research relationship, replicated across Australia's own diversity of soils and climates.

This is the gap Recommendation 6 is built to close. Australia has research capability and short-term funding in abundance. What it lacks is a mechanism for funding the questions that only pay off over decades, because that kind of commitment cannot survive being re-tendered, re-prioritised or quietly dropped every time a government or a funding cycle change. Rodale's results did not happen despite the long timeframe. They happened because of it.

A more recent Rodale project applies the same design principle at smaller scale. A group of hazelnut producers, unable individually to justify the cost, split the funding for a researcher between them. That shared cost bought something none of them could afford alone. Dedicated time from a trained researcher to properly study and collect data on questions they had chosen and needed answered, rather than research questions someone else had chosen for them (Rodale Institute, 2021).

2.4 Landcare: farmer and community-led stewardship, and what happens when governance drifts

Landcare is Australia's longest-running example of farmer and community-led design embedded in a national program. Figure 5 traces its path, from grassroots origin in Victoria in the mid-1980s, through Prime Minister Bob Hawke's 1989 national launch and the "Decade of Landcare," to more than 6,000 groups and hundreds of thousands of volunteers active today (Landcare Australia, 2025).

The core Landcare pattern mirrors the design logic of the international examples in this chapter. Problem definition is local, groups identify the issues that matter in their patch (gully erosion, salinity, invasive pests, declining soil health) and design projects using a mix of farmer knowledge, scientific input and modest public funding. National policy provides support, but the agenda is set by the people who live with the consequences. Over three decades, Landcare groups have delivered large numbers of on-ground projects, revegetation, erosion control, weed and pest management, and more recently climate-focused resilience work (Landcare Australia, 2025).

However, Landcare also illustrates what happens when governance and program architecture drift away from that original bottom-up intent. From the early 2000s, successive national programs shifted a growing share of investment toward regional structures and centrally designed funding rounds. Community Landcare organisations and the National Landcare Network describe the result as a double loss. Local groups face more complex reporting to access funds, while a higher proportion of the total budget is consumed in administration before it ever reaches a paddock or a creek (National Landcare Network, 2022).

Two independent evaluations put a number on this. A 2022 economic evaluation of the NSW Landcare Program found \$86 million in benefits from a \$22.5 million investment over four years, a return of \$3.83 for every dollar invested (nation partners, 2022). A separate 2020 study of Victoria's Landcare Facilitator program found a \$4 million annual government spend generating \$31 million in benefits, a benefit–cost ratio of better than 7:1 (RPS Group, 2020). Both point to the same underlying pattern, local coordinators and groups, properly funded, deliver returns well above the cost of supporting them.

Landcare's significance for this report is therefore two-sided. It shows Australia already has a living, national-scale example where locally defined problems and shared knowledge produce real outcomes, and it shows how easily those outcomes erode when governance recentralises and administrative layers grow faster than the money reaching projects. The design conditions that made early Landcare work, subsidiarity, simple pathways for small grants, local control over priorities are not foreign to Australia, they are already here. The question is whether future programs reinforce those conditions or repeat the pattern of centralisation.

The Landcare Timeline

A grassroots model, a national launch, and thirty years of drift back toward the centre

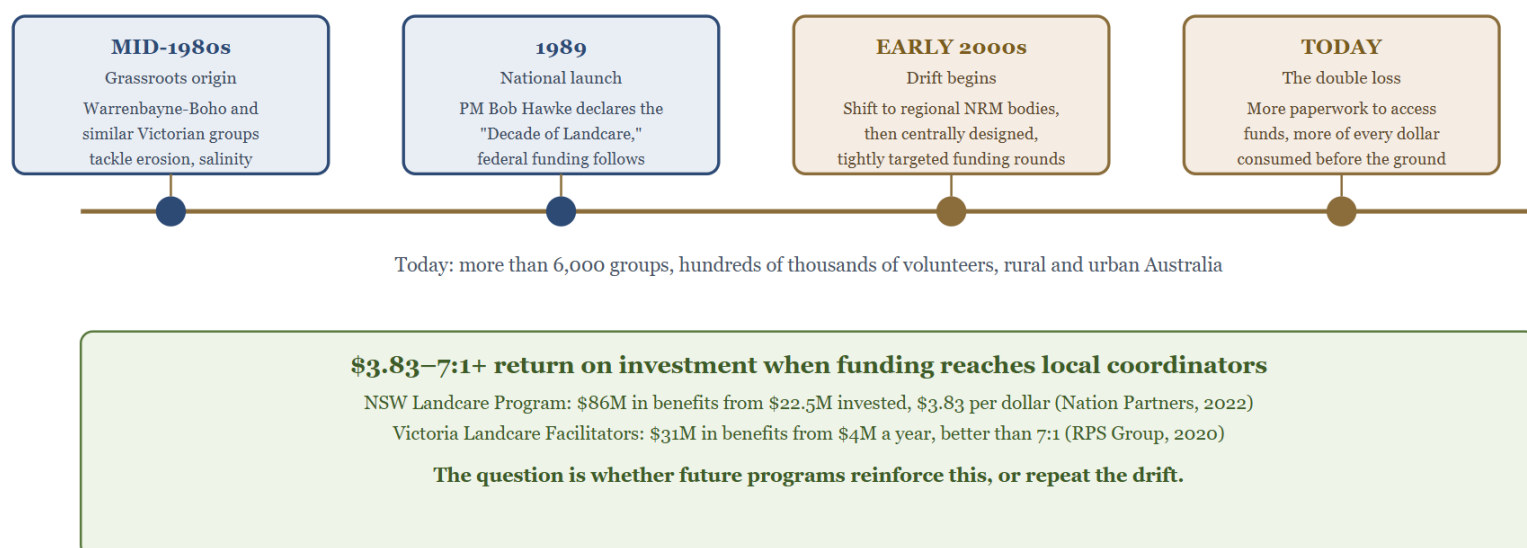


Figure 2.5: The Landcare timeline, from grassroots origin to centralised administration

Figure 5. The Landcare timeline. From grassroots origin to national movement, 1986–present (Source Author)

2.5 Graeme Finn: the farmer who got there without any of the programs

On a ranch in Alberta, Canada, Graeme Finn is running one of the most genuinely sustainable mixed grazing systems encountered in this research. Year-round grazing, nutrition kept in the ground, animals and land managed in integrated cycles that build rather than deplete soil health. He said, directly and without apology, that he barely believes in climate change.

Graeme is nonetheless delivering exactly the outcomes that ESG frameworks, sustainability programs and carbon markets say they are trying to produce. He is doing it without any of them. The systems designed to generate his outcome do not reach him, do not recognise what he is doing and do not reward him for it. That is not his failure, it is the system's.

His operation makes two things clear. First, the agronomic and business logic for sustainable practice can stand on its own when it is designed from the realities of a particular place, with a clear line between practice, resilience and profitability. Second, if a farmer who is already delivering the desired outcomes is invisible and unrewarded to the frameworks, then the frameworks are not fit for purpose. They are not finding the people they were supposedly built to support.

Part of why Graeme is invisible to every framework is structural, not just a design flaw in any one scheme. There is no independent, standing measure of what his land is actually producing. In soil health, resilience and other outcomes the frameworks claim

to want, that exists outside a program he would have to actively join. A farmer only becomes visible to the current system by enrolling in it. An independent, continuously funded body publishing standardised data, of the kind recommendation 7 proposes, would reverse that logic, farmers like Graeme would be measured and counted by default, not by invitation.



Figure 6. Graeme Finn and me looking at his pasture management in Alberta, Canada (Source: Author)

Chapter finding

Across every example in this chapter - PSI, Ballymaloe and Jameson, Rodale, Landcare and Graeme Finn, the same conditions were visible. A specific problem farmers recognised as their own, capital structured to create shared value, collaboration built on genuine shared interest rather than assembled committees and solutions designed for the specific context of the place and people involved.

These are design conditions, not exceptional circumstances. Replicable wherever the institutional will exists. Chapter 3 names them: Clarity, Capital, Collaboration and Context.

Chapter 3: The Four Conditions

The four conditions of Clarity, Capital, Collaboration and Context are not a framework invented for this report. They are the observable pattern in every working example described in the previous chapter, and the observable absence in every failing one. They are not a checklist that guarantees success if ticked. A program can satisfy all four in a design document and still fail if that satisfying was done by the institution rather than by the farmers the program is meant to serve. Nor are they an argument that all top-down interventions are invalid. They are a diagnostic. Where all four conditions are present, programs are far more likely to produce outcomes. Where they are absent, programs tend to produce activity instead (Figure 7).

Four Conditions, Not a Checklist

Remove any one, and the whole thing gives way, even if the other three look fine on paper

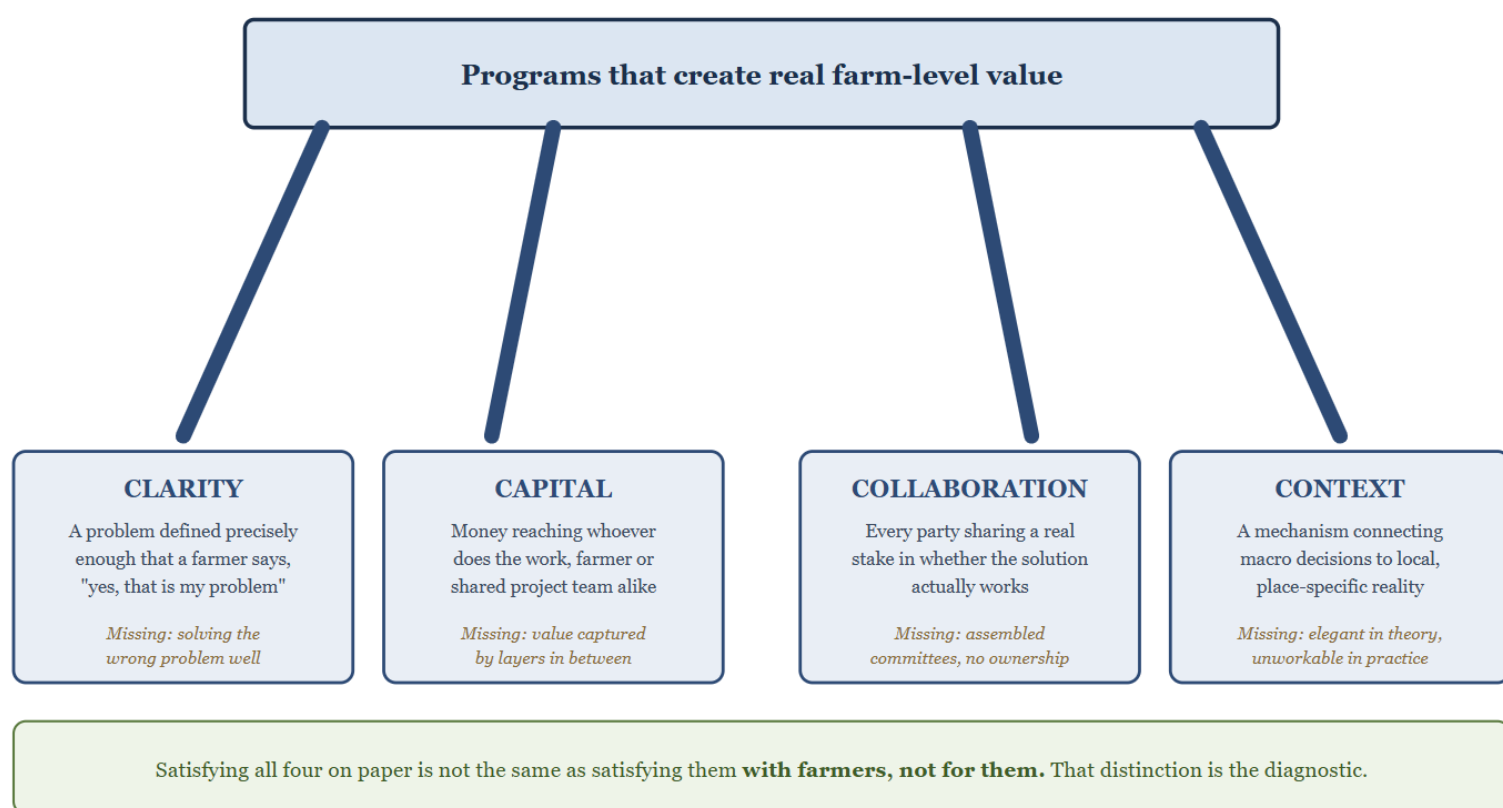


Figure 7. The four conditions of effective program design: Clarity, Capital, Collaboration and Context (Source: Author)

3.1 Clarity: defining the problem precisely enough that a farmer can recognise it

The failure mode that Clarity addresses is not the absence of vision. It is the presence of language that sounds like vision but contains no specific problem. “Reduce carbon in our supply chain.” “Improve sustainability outcomes.” “Build resilience across the agricultural sector.” These are not problems. They are aspirations expressed in institutional language. A farmer cannot act on an aspiration.

The carrot field in Chile remains the clearest illustration. More than 30 per cent of a farmer’s crop was left to rot because no sustainability framework in that supply chain had been designed around the specific, observable problem the farmer was experiencing. Once the question shifts from “how do we reduce carbon” to “how do we reduce the proportion of this farmer’s crop that never reaches a consumer”, the issue becomes legible to everyone in the chain and therefore potentially solvable. Clarity is not a communication exercise, it is the act of defining the problem precisely enough that the people expected to solve it can recognise it as real.

This requires more than better wording. It requires looking at the system closely enough to understand where value is being lost, where incentives are misaligned, and where the stated problem differs from the operational one. A systems design approach matters because the visible symptom is often not the real constraint. What appears at first as a carbon problem, a productivity problem or a resilience problem may turn out, on closer inspection, to be a logistics failure, a data failure, a contract design failure or a market access failure. Until that deeper problem is defined properly, the proposed solution is likely to be misdirected.

The North Carolina PSI shows what Clarity looks like when it is done well. Grower groups were asked to define the problems they actually faced before research agendas were written, and that map sorted by how farmers experience problems, not by university discipline, became the brief for the research itself. Farmers knew what they were being asked to support, and researchers knew what they were being asked to solve.

The hardest part of this work is not designing solutions. It is spending enough time on definition that farmers can read a problem statement and say, “yes, that is my problem”. In every example in Chapter 2, the most valuable time was spent up front. Listening to producers, mapping how problems are actually experienced and testing whether the wording of the problem made sense back at the farm gate. In a well-designed program, this “clarity work” should take the longest. It is the phase schemes most often rush through in order to get to visible activity, and it is the phase that determines whether that activity will mean anything.

There are governments beginning to build this time in. The UK’s Environmental Land Management tests and trials and England’s Land Use Framework both use structured processes where farmers and communities map land-use problems and options before the rules are finalised, rather than after the fact (UK Department for Environment, Food and Rural Affairs, 2020; UK Department for Environment, Food and Rural Affairs, 2025). In Australia, we do not need to look far to see this done well. First Nations governance and facilitation practices, grounded in more than 60,000 years of culture, reflect the same discipline. As Dr Miriam-Rose Ungunmerr-Baumann describes the practice of Dadirri, decisions are not reached until there has been enough time spent in inner, deep listening and quiet, still awareness (Ungunmerr-Baumann, n.d.). The

“what should we do” part comes last, not first. Modern program design often inverts that order, rushing to solutions and leaving the real work of clarity undone.

The test for Clarity in any program is simple. Can a farmer in the target region read the problem statement and say, “yes, that is my problem”? If the answer is no, the program has not yet achieved Clarity, and it should not proceed to design.

Recommendation 1 proposes a way of making this discipline mandatory rather than optional through a required, farmer-led problem-defining phase before any major program or policy is designed, in which agencies must demonstrate that the people affected recognise the problem statement as their own.

3.2 Capital: finance designed for farmers, not around them

The failure mode that Capital addresses is not the absence of money. It is the loss of value as money moves through the system. Capital exists, but too much of it is captured by the layers in between: intermediaries, administrators and entities positioned closest to the point of allocation, before it reaches the people who will actually do the work. In Australian agriculture, the money exists. Public research budgets are substantial, the RDC levy system channels major annual investment into industry R&D, and specialist vehicles like CEFC, RIC and ARENA have established significant transition-finance pathways. The repeated problem is that the existence of capital does not guarantee it reaches farmers and the environment, or that farmers and the environment capture its value when it does. This report focuses on that flow problem, not on whether the total pool of capital is adequate for every future need. Where additional capital should come from, government, philanthropic or private, is a live and important question, but it is a separate one, and is left for further work.

Where the work lives on individual farms, capital has to reach individual farmers. If the outcome is improved soil, reduced emissions, better biodiversity or greater resilience, the person who has to change practice is the farmer. A financing system that pays consultants, administrators and intermediaries but leaves the farmer under-capitalised has failed, no matter how large the headline commitment looks as the NAB–CEFC facility described earlier illustrates.

Where the work is genuinely shared, capital has to concentrate on doing the work rather than financing the bureaucracy around it. Collaborative research and innovation projects are the clearest example. When they are designed well, money is spent on the people and infrastructure that can solve the problem. Researchers, growers, trial sites, equipment, data and the time needed to work together. When they are designed badly, a growing share of the budget disappears into program administration, reporting systems and internal coordination, consuming human labour and capital without changing anything on the ground. A specific and recurring version of what this looks like through RDC projects is a tender goes to a consulting firm, paid at commercial rates, which then convenes farmer panels and grower groups to supply the expertise the project actually depends on, unpaid (Figure 5). The people holding the knowledge being purchased are rarely the people being paid for it.

The Defence Advanced Research Projects Agency (DARPA) in the US shows what good capital architecture looks like in this second case. DARPA’s budgets still move through a public agency, but its program managers control relatively lean central structures and direct most of the money straight to small, focused project teams. As

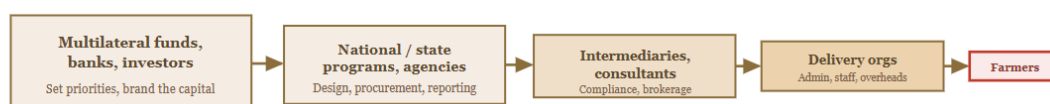
Ezra Klein and Derek Thompson describe in *Abundance*, program managers are empowered to recruit and fund networks of researchers without bureaucratic constraints, given clear problems and finite pots of money, and judged on whether their teams produce working solutions rather than reports (Klein & Thompson, 2025; Defense Advanced Research Projects Agency, n.d.). The effect is simple, as much of each dollar as possible is spent on solving the problem, and as little as possible is spent on the system around it (Figure 5).

The test for Capital is therefore twofold. First, in a program where farmers are expected to change practice, does a farmer actually capture genuine value from this financial arrangement? Second, in a collaborative project, are most of the dollars going to the people and places doing the work, including the farmers whose knowledge the project depends on, or to the layers wrapped around them? If the answer to either question is no, the capital is not yet designed for a farmer or environmental outcome, regardless of how large the headline investment appears.

Where Does the Money Go?

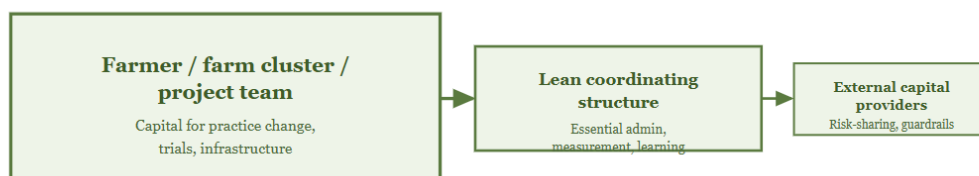
Same dollar, two different journeys through the system

\$1 committed to "sustainable agriculture"



Result: capital is real, but most of every dollar is spent in the middle of the system, not on the farms and projects meant to change.

\$1 designed around who does the work



Result: most of every dollar reaches the people and places doing the work; administration exists to support them, not the other way round.

The NAB–CEFC facility and Landcare both show the top pipe. Telus Agriculture and the DARPA-style research fund this report proposes both show the bottom one.

Figure 3.2: Two capital pipes, the same dollar committed, two very different journeys to the work

Figure 8. Capital flows in agricultural programs: where value is captured and where it is lost
(Source: Author)

3.3 Collaboration: shared ownership of the problem and the outcome

The failure mode that Collaboration addresses is not the absence of partnerships. Agriculture is full of partnerships, committees, advisory groups and working groups.

The failure is that many of them are assembled rather than grown. People are placed in a room and asked to collaborate, instead of being drawn together by a specific problem they all need solved.

Assembled collaboration produces meetings, reports and agreed language. Grown collaboration produces solutions, because the people involved share a direct stake in whether the solution actually works (Figure 9). Ballymaloe and Jameson is a clear example. The farmer, the buyer and the wider network are not collaborating because collaboration is a policy objective. They are collaborating because each has something real to gain from answering a specific commercial and agronomic question, and something real to lose if it is answered badly.

The contrast is visible in many top-down sustainability commitments. Where targets are set in boardrooms and passed down a supply chain, the people expected to implement change often had no role in defining the goal and no stake in whether it was realistically framed. When the target proves difficult to implement, there is no genuine collaborative mechanism for redesigning it, because collaboration began too late. JBS, the world’s largest meat producer, is one of the most recent examples of a company abandoning its net-zero goals, after concluding the goal could not be delivered (Bloomberg, 2026). A target spanning hundreds of thousands of independent producers, without standardised measurement infrastructure or producer involvement in the design, arrived at the only place that kind of target can arrive (Weller, 2026).

Assembled, or Grown?

The same people, in a room, for two very different reasons

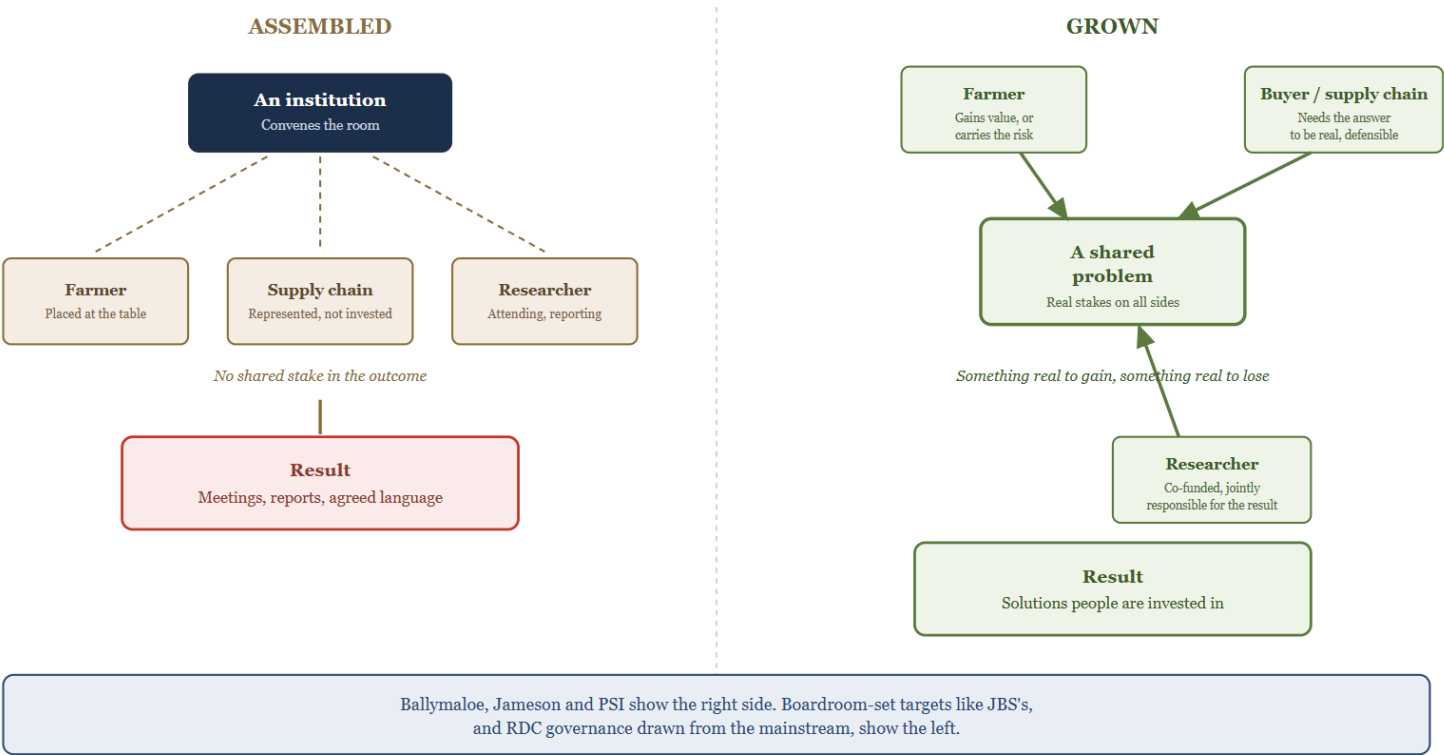


Figure 3-3: Assembled versus grown collaboration

Figure 9. Two forms of collaboration: assembled around a room versus grown around a shared problem (Source: Author).

The hardest question in this condition is worth stating plainly, who gets to decide which problem a collaboration is organised around, and on what basis? Dr Schulte's own research group is studying this directly, asking whether the people who end up deciding do so because they hold the most relevant knowledge or because they hold the most institutional leverage. That question does not yet have a clean, universal answer, and it is better to say that honestly than to pretend otherwise.

The test for Collaboration is whether every party involved has a direct stake in whether the solution works at farm level and delivers the environmental outcomes it claims. If one party's stake ends at a report, a publication or a compliance tick, while another carries the operational risk, the condition has not yet been met. Collaboration in this sense is not a tick box or a KPI, it is a design decision, choosing to build programs and partnerships in which farmers, institutions and supply-chain actors all own the problem, all own the outcome and all stand to gain from getting the solution right.

3.4 Context: the two-directional problem

Context is the condition most frequently misunderstood because it operates in two directions simultaneously, and most programs address only one of them. The first direction is macro context. The geopolitical environment, the trade architecture, the inflation cycle, the regulatory landscape, the climate trajectory and the broader economic super cycle. Institutions need this view because farms do not operate in isolation. They are exposed to policy shifts, export markets, energy prices, labour systems and geopolitical shocks that no individual producer can control.

The second direction is ground-level context. What farming actually looks like in a specific place, for specific farmers, in a specific season. This includes rainfall variability, soil type, labour availability, crop mix, debt levels, infrastructure, local ecology, succession pressures and community capacity. Governments and research institutions may define the problem using their understanding of the macro environment, but farmers generate solutions using their knowledge of the local operating reality. Those solutions are inherently place-based. Lauren Rickards' framework illustrates how dense that reality is (Figure 10). Dozens of interconnected systems, from water and native vegetation to advisers, finance, health services and local government, all bearing on a single farm business simultaneously and largely invisible from a macro vantage point.

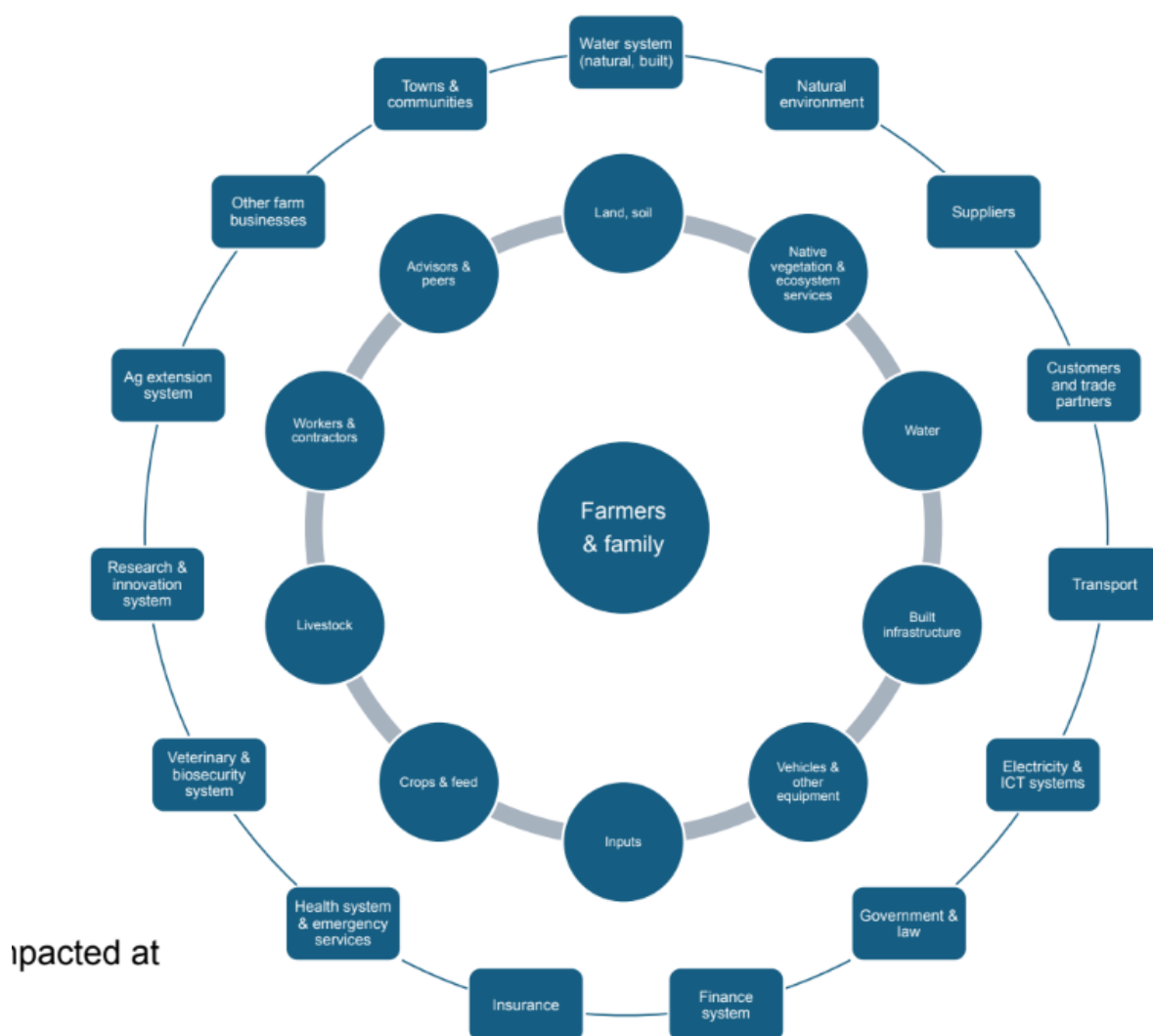


Figure 10. Lauren Rickards' farm-level systems map: the density of local operating context
(Source: Rickards, 2026)

A failure of Context occurs when either direction overwhelms the other. If macro logic dominates, programs become elegant in theory and unworkable in practice. If local logic dominates without attention to broader structural change, solutions may work briefly but remain brittle in the face of regulation, market shifts or climate risk. The challenge is not choosing one level over the other. It is designing a mechanism that connects them.

That connecting mechanism is a translator function, and Chapter 2 has already shown what it looks like when it works. Jameson's parent company, Pernod Ricard, holds a global regenerative agriculture strategy, shareholder expectations, ESG commitments and commodity-wide targets set at corporate scale. Instead of translating that strategy into a compliance protocol handed down to Darren Allen, the company used a place-based representative whose job was to sit with Darren and work out what "regenerative agriculture" meant for his specific soil, system and farm. A conversation had with Mel Poulton, New Zealand's previous Special Agricultural Trade Envoy, described the same function at national scale. Someone with skin in the game on a working farm, but also fluent in policy architecture, able to move in both directions, listening upward

and translating downward, and listening downward and translating upward. Her practical advice captured the role perfectly: “We were given two ears and one mouth. Use them in that proportion.” This is not a soft skill, it is institutional infrastructure. Building roles, processes and feedback loops that keep macro decisions anchored in local realities, and local decisions aware of the wider system they sit within. Figure 11 outlines what this could look like.

Australia once had closer equivalents to this translator role. Many of those bridging functions have since been weakened or removed. Their absence is itself a design choice, and it helps explain why so many programs now struggle to connect national ambition with farm-level usability. Chapter 4 examines what rebuilding that function could look like at national rather than corporate scale.

The test for Context is whether a program has a genuine mechanism for translating between the macro system and the local one. If policy is written without a way of hearing the paddock, or if farm practice is discussed without reference to the wider system shaping it, the condition has failed.

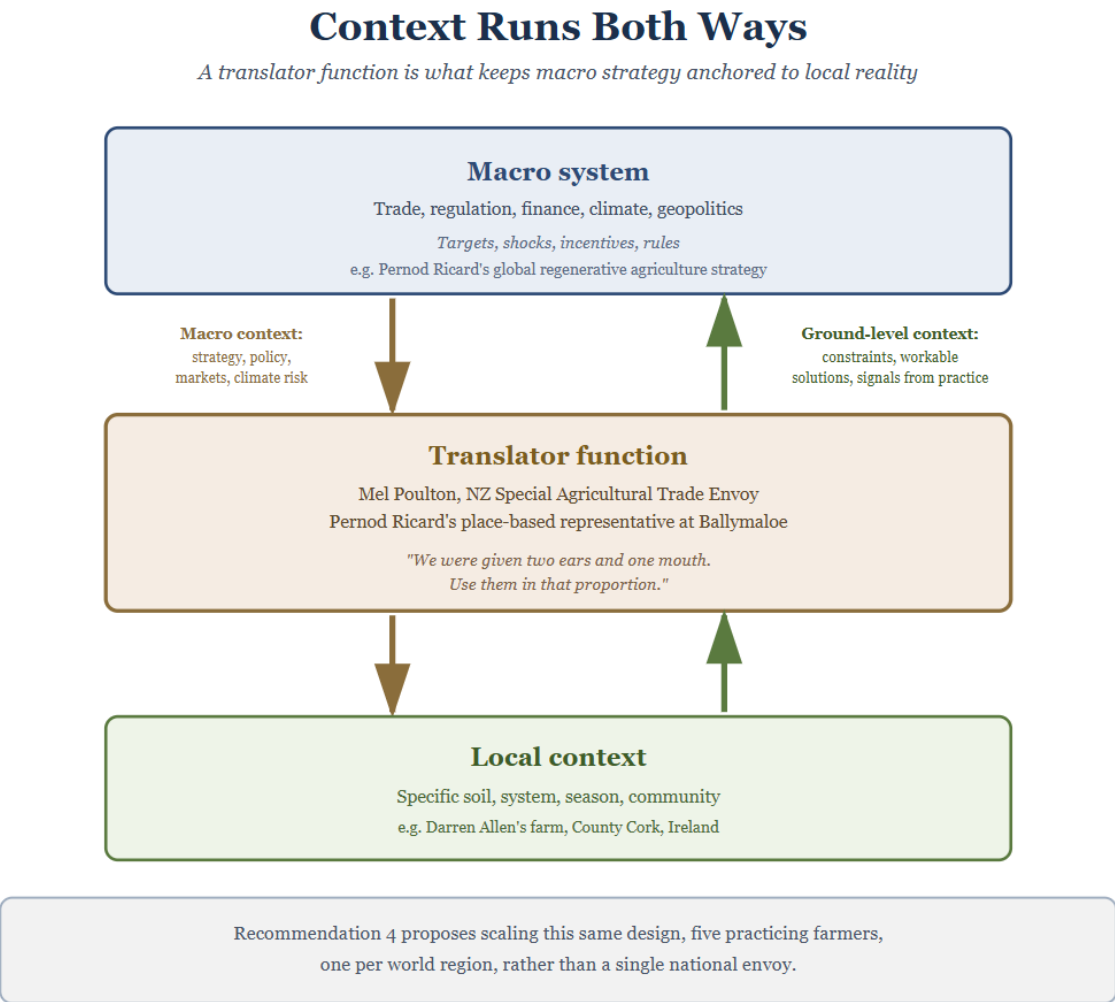


Figure 3.3: Context operates in two directions, macro systems down to farms, and farms back up through translator roles that keep policy anchored in local reality

Figure 11. The translator function: connecting macro policy decisions with local farm realities
(Source: Author)

Chapter finding

Clarity, Capital, Collaboration and Context are tests to be passed from below, not a framework applied from above. Descriptive, not prescriptive. Where all four are present, programs are far more likely to produce outcomes. Where they are absent, they tend to produce activity instead.

Clarity: dig past the visible symptom to find the real constraint.

Capital: trace where value is lost between commitment and farmer.

Collaboration: build genuine shared stakes, not assembled committees.

Context: build institutional infrastructure that listens in both directions.

Naming these conditions does not make the design problem simple. It makes it visible enough for Australia's institutions to begin redesigning around it.

Chapter 4: What This Means for Australia and Recommendations

The previous chapters establish a general argument. Top-down program design fails, bottom-up design works, and four conditions describe what bottom-up design requires. This chapter applies that argument to Australia's institutional architecture and sets out eight recommendations for what needs to change. The answer is not that Australia's agricultural institutions need to be abolished and rebuilt. It is that specific design features, accountability structures, problem-definition processes, capital deployment mechanisms and translation infrastructure need to be reoriented. The change required is directional. Critically, this is not a call for new spending. Australia is already investing at scale. The argument is for reallocation and redesign.

4.1 Mapping risk before designing the response

Every recommendation in this chapter assumes a starting point that does not yet exist in Australian agriculture. A shared, ground-level picture of where the greatest risks actually sit, built by the people carrying them, before institutions decide what to fund or research. At present, RDC strategic plans, research priorities and new program designs are shaped by what institutions, researchers or funding bodies identify as important, informed by consultation but rarely built from a structured, farmer-led mapping process that comes first and constrains what follows.

The shape of the alternative emerged in conversation during this research with Gerald McDermott, Professor and Chair of International Business at the Darla Moore School of Business, University of South Carolina, whose work examines how regions build the institutional capacity to upgrade entire industries over time (McDermott, pers. comm., 2025). The mechanism is straightforward in principle: map the specific risks facing each commodity and region, at the level of the communities carrying them, then aggregate that mapping upward. Where the same risks recur across commodities and regions, and they consistently do, that becomes the basis for shared investment and coordinated research, rather than each RDC or program working in isolation on its own version of the same problem. Applied to Australia, this would mean RDC five-year strategic plans, new research funding and new capital mechanisms are built from a mandatory, structured risk map, not from institutional judgement about what seems important.

McDermott's published analysis of the Argentine wine sector offers a clear real-world test of why this matters. In the 1990s, the neighbouring provinces of Mendoza and San Juan began from near-identical conditions but took different paths (McDermott, 2007). San Juan followed a top-down route, government designed and imposed investment incentives centrally, with little grower participation. It attracted substantial capital but produced almost no upgrading. By the early 2000s, Mendoza, with around 61 per cent of national wine production, accounted for over 90 per cent of exports, while San Juan, on comparable production, contributed under 7 per cent. Mendoza did the opposite. Government convened growers, cooperatives, universities and research bodies into joint institutions before designing solutions, built shared databases mapping

microclimates and best practice, and gave stakeholders real governance power over programs, not consultation after the fact. McDermott's conclusion is precise. Upgrading is determined not by how much money or resources a region starts with, but by whether problem-identification and solution design are genuinely shared from the outset. By 2004, the Mendoza approach had been formalised into a twenty-year national wine strategy, built through eighteen months of structured workshops across every wine-producing region, before a single dollar of the new funding structure was designed.

The live test case for applying this logic in Australia is already in front of government: The Regional Investment Corporation's expanded loan mandate, discussed fully under Recommendation 5, where how "resilience" will be defined remains open. A structured, farmer-led risk map of the kind Recommendation 1 proposes would give that definition a real evidentiary base, rather than allowing it to default to whatever is easiest to report against.

4.2 RDC accountability for farm-level outcomes

Australia's fifteen RDCs sit at the centre of the country's agricultural research architecture, but their accountability is still oriented more toward levy payers, governance processes and portfolio reporting than toward independently measured farm-level outcomes. The RDC model is a government-industry partnership that has supported agricultural innovation for more than 35 years, and the collective RDC system has developed impact-assessment guidelines and system-wide indicators to demonstrate value and transparency (Australian Government Department of Agriculture, Fisheries and Forestry, 2026; Rural RDC, 2013). Even so, those mechanisms do not amount to a single framework that directly tests whether farmers are better off in practice across the full portfolio of RDC investment (Rural RDC, 2013; Productivity Commission, 2011).

This is not simply a measurement issue, it is structural. RDC funding is tied to levy-and-match arrangements, and the system is designed around commodity-based governance and industry-linked priority setting. That means research agendas tend to reflect the interests of organised mainstream levy payers more strongly than those of smaller, regional or non-mainstream producers, even though all producers contribute through levies and are affected by the outcomes (Department of Agriculture, Fisheries and Forestry, 2025; Productivity Commission, 2011). Under this structure, an RDC can report success through projects funded, reports delivered and stakeholder engagement while still leaving little evidence of meaningful change for the farmers most exposed to risk.

This report's focus on RDCs rather than advocacy or lobby bodies is deliberate. Because RDC funding is drawn from compulsory commodity levies, its reach extends to the great majority of Australian farmers by default, not by membership choice. Voluntary peak and advocacy bodies play an essential role, but their coverage is self-selecting and, in several cases, shrinking. Reform aimed at RDCs therefore has a structural claim on farm-level representativeness that advocacy-based reform does not.

The Birchip Cropping Group in Victoria offers a useful domestic counter-model. It is farmer-owned and farmer-directed, with growers helping define the research agenda,

fund the trials and judge whether the results are usable in their own paddocks. Grower groups such as this are valuable because they are close to the point of decision and can move quickly from problem definition to practice change. They show what a more directly farm-centred accountability model looks like in practice, even if they cannot replace the scale of the RDC system.

The visibility problem compounds the accountability problem. RDC-reported figures capture only part of Australia's total agricultural R&D spend; state and territory governments, other Commonwealth programs and the private sector all fund research outside the RDC system, with no public register showing how much is spent where, or whether neighbouring states are separately funding near-identical work. Australia's own research agencies have acknowledged this directly, noting that the overlapping roles of RDCs, state and territory governments, CSIRO and universities create some level of duplication and high transaction costs, because objectives differ between agencies that both purchase and provide these services (ABARE, 2009). Recommendation 2's shift to outcome-based reporting cannot fully close that gap on its own; it would need to sit alongside a public, queryable view of where agricultural R&D dollars are actually going, across all funders, not just RDCs.

Recommendation 2 therefore proposes a redesign of RDC funding, governance and accountability around farm-level outcomes rather than activity alone. RDCs would remain commodity-based bodies, but their five-year strategies and annual reporting would need to answer a different question: which specific, measurable problems identified through the farmer-led risk mapping in Recommendation 1 did this RDC make progress on this year, and how is that visible on farms? Success should be measured against clearly defined outcome indicators at farm level, co-designed with growers and linked to shared risk maps, not just against project counts or levy-payer satisfaction.

Funding structures should shift with it. RDC-commissioned projects routinely pay consulting firms at commercial rates while relying on unpaid farmer panels and grower groups to supply the expertise the project depends on. Budgeting for farmer expertise as a standard line item, rather than treating it as an in-kind contribution, would make participation more realistic and more competitive, drawing in producers who want the outcome rather than only those who happen to have time.

4.3 An outcomes fund for Australia's big cross-sectoral problems

Chapter 3 introduced DARPA as the design logic Recommendation 3 draws on. DARPA, the US Defense Advanced Research Projects Agency, is a real, currently operating institution, and its funding model is structurally different from how almost all Australian agricultural research is funded. Conventional research funding, in Australia and the US alike, works through competitive grants. A researcher applies, a panel reviews the proposal, and funding follows if it is judged strong enough. DARPA works the opposite way. Program managers, senior domain experts with real autonomy across science and industry, identify a problem and go looking for the people who could solve it, then fund them directly. As Ezra Klein and Derek Thompson describe in *Abundance*, drawing on the work of Carnegie Mellon's Erica Fuchs, the best program managers act as talent scouts, spotting that a particular combination of people, brought

together deliberately, could crack a problem no one of them could solve alone (Klein & Thompson, 2025; Defense Advanced Research Projects Agency, n.d.).

The trade-off is real, and the case for adopting this model in Australia does not pretend otherwise. Grant-funded, peer-reviewed research is described by researchers in this space as effectively “doomed to succeed”, reliably productive, but rarely surprising. DARPA-style funding is closer to “doomed to fail”. Most individual bets do not pay off, but the ones that do produce breakthroughs the safer system was never designed to find. This is precisely why Recommendation 3 does not propose replacing the RDC system with a DARPA-style fund. MIT economist Pierre Azoulay’s point is the right one: no innovation system should be made up of only one funding model (Azoulay, Graff Zivin & Manso, 2011). What Australian agriculture is currently missing is not a better version of its existing grant system, but a second, deliberately different instrument sitting alongside it, built specifically for cross-sectoral problems that no single commodity-based RDC is designed to own.

The gap this would fill is structural, not accidental. A 2024 CSIRO paper makes the point directly. The RDC system was built to solve single-commodity productivity problems, and does that well, but the country’s biggest challenges now sit at the intersection of multiple sectors, emissions, energy, labour, waste and manufacturing, in ways no single RDC is designed to fund (Nelson, Burrows & Leith, 2024). The Cooperative Research Centres program, Australia’s existing vehicle for cross-sectoral collaboration, has faced a related criticism for close to two decades. An independent government review found stakeholders consistently raised concerns about onerous selection processes and reporting requirements that consume time and resources which should be going to the work itself (Miles, 2015).

Recommendations 1 to 3 are meant to work together. Recommendation 1’s risk map makes the biggest cross-cutting risks visible. Recommendation 2 gives single-commodity problems a home inside reshaped RDC accountability. Recommendation 3 funds the remaining “no one owns this” risks through DARPA-style program management rather than conventional grants.

A recommendation like this needs capital, and Australia already has large pools of money that could plausibly fund it without new taxes. The diesel fuel rebate is one example. The Fuel Tax Credits Scheme currently returns on the order of \$8–10 billion a year to businesses for off-road fuel use, with the largest benefits flowing to very large fuel users such as mining rather than to farm businesses (Farmers for Climate Action, 2026; Climate Energy Finance, 2025). Whether that scheme should be reformed is a separate debate this report does not attempt to resolve. It simply demonstrates that multi-billion-dollar pools of existing capital already exist, and redirecting even a portion toward a properly designed outcomes fund is realistic, not hypothetical.

Recommendation 3 proposes exactly that. A dedicated agricultural outcomes fund, run on DARPA’s operating model, with empowered program managers rather than competitive grant rounds, sized to genuinely resource the cross-sectoral problems Australian agriculture currently has no mechanism to fund.

4.4 Rebuilding the translator function

Chapter 3 argued that Context is a two-directional problem. Macro systems shaping farms, and farms sending signals back into those systems. Australia’s current

architecture is heavy on the first direction and weak on the second. The role of Special Representative for Australian Agriculture was created to close that gap, and was held by Su McCluskey until it was abolished. In that time, she helped build the relationships and trust needed to progress key agreements, including work to secure Australia's agricultural interests in the EU free trade negotiations, by taking farm-level realities into those rooms and bringing emerging standards and expectations back to producers in plain language. Its removal took out one of the few pieces of national "translator" infrastructure that consistently connected farm practice to global debates and brought those debates back to Australian producers.

The need for this kind of role is greater now than when it was created. Rising nationalism, trade fragmentation and contested standards mean more of agriculture's future is being decided in international forums where soft diplomacy, trust and relationships matter as much as formal negotiating positions. Farmers are among the most trusted messengers in that space. A well-designed translator function would use that trust deliberately. Taking Australian farm realities into global rooms, and bringing early signals about emerging rules, risks and opportunities back to the paddock before they harden into obligations.

Chapter 3 already showed what this looks like at smaller and national scale, through Jameson's place-based representative on Darren Allen's farm and Mel Poulton's account of the role at national level in New Zealand as someone with skin in the game on a working farm, but also fluent in policy architecture.

Recommendation 4 proposes rebuilding this translator function as a distributed network rather than a single envoy after discussions with Mel Poulton. Five practising Australian family farmers, each responsible for a region of the world (the Middle East, Asia, Europe, the Americas and Africa), would be mandated to build long-term relationships with their counterparts and to track debates on trade, climate, standards and resilience. Domestically, the same network would be tasked with structured listening at home. Regular farmer roundtables, sector-specific forums and direct links into Cabinet, so that signals from the paddock are heard upstream as clearly as signals from Geneva, Brussels or Washington are heard downstream. The job description is simple. Keep macro decisions anchored in local reality, and keep local practice aware of the wider system shaping it. An outline of this translator function can be seen below in Figure 12.

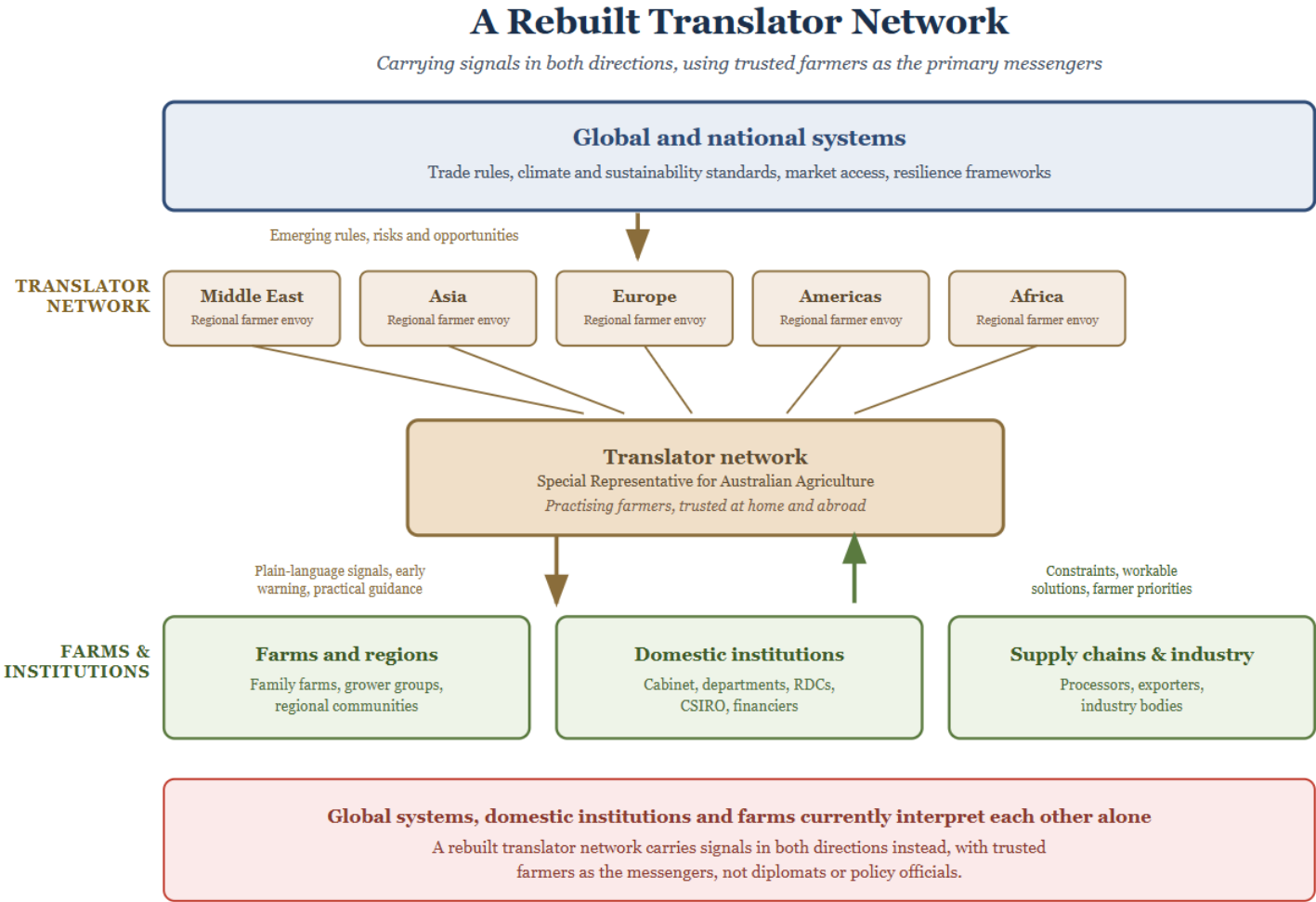


Figure 4.x: A rebuilt translator network sits between global systems and Australian farms, carrying signals in both directions

Figure 12. Recommendation 4: a five-region translator network linking global relationships to structured domestic listening and Cabinet

As this report goes to print, a narrower version of this function is being rebuilt. In July 2026 Su McCluskey was appointed the NFF's Australian Agriculture Trade Diversification Representative, a 12-month Austrade-funded role providing a whole-of-sector voice in trade discussions. Its creation confirms the gap this report identifies. Its design also illustrates the limits of a partial fix: a single person, a 12-month mandate, housed inside one peak body, and scoped to trade rather than the full two-way translator function Chapter 3 describes. Recommendation 4's distributed, standing model is what closing that gap durably would require.

4.5 Farm-gate capital designed with farmers

Chapter 1 showed that capital for agriculture is not absent, it is often trapped in forms that do not reach farms, or that reach them on terms designed around institutional risk rather than farm reality. Chapter 3's Capital condition sharpened the test, in programs where farmers are expected to change practice, does a farmer actually capture genuine value from the financial arrangement? This is not a shortage of capital, it is a

design default. Financial products in agriculture are built around the risk-assessment and reporting needs of the institution supplying the capital, not the cash-flow patterns and risk realities of the farm business receiving it. Australia's current farm-gate capital architecture fails that test too often. Banking relationships reward short-term balance-sheet metrics more than long-term resilience, a lending framework built for institutional risk reporting, not farm cash flow. The CEFC has access to tens of billions of dollars, but relatively little reaches individual farm businesses as deployable, fit-for-purpose finance, capital designed to deploy efficiently at institutional scale, not to arrive useably at farm scale.

The Regional Investment Corporation's expanded mandate is the clearest live example of what is at stake. In August 2025, the Australian Government added a further \$1 billion in RIC loan funding (RIC, 2025), taking total concessional support since 2018 to more than \$5 billion, with the scope now broadened to cover climate resilience and Australia's net-zero transition. What "resilience" will actually mean in that expanded program is still undecided. Left to default, it is likely to become a reporting category attached to familiar loan products. Defined using the risk mapping proposed in Recommendation 1, it could instead become the core instrument for financing real resilience at farm level.

Beyond RIC, the NAB–CEFC facility already discussed illustrates the limits of current co-finance design. The lesson that capital products work better when farmers help design them, and that the farmer's share of value is a first-order question, not an afterthought.

Recommendation 5 proposes a systematic audit and redesign of existing farm-gate capital so that public and private transition finance reaches the producers who most need it, on terms that reflect agricultural risk and reward. The audit step is simple but rarely done. For instruments such as CEFC pathways, RIC loans and major concessional schemes, measure what proportion of capital has actually reached operating farms, and whether the product's design reflects the institution's risk framework or the farmer's. The redesign step follows the same logic as Recommendations 1 to 3. Use farmer-led risk mapping to define the problems, involve farmers directly in shaping product design, and build in mechanisms, such as bank co-investment linked to resilience outcomes rather than just collateral, that align the interests of lenders, public financiers and producers.

4.6 Policy that outlasts the government that wrote it

Every recommendation in this chapter depends on farmers, researchers and institutions being willing to invest on a timeframe longer than a single term of government. None of it will happen if the policy settings underneath it can be unwound every three years. Climate-related costs to the Australian economy are already estimated at around \$38 billion a year (Australian Climate Service, 2025), a figure that, compounded over a decade, approaches the total cost of a single major long-term national commitment such as the AUKUS submarine program. Australia also accounts for around 12 per cent of the world's natural disasters, a disproportionate share for its size and population (CRED / UCLouvain, 2026), while receiving only around 1.4 per cent of global climate finance (Climate Policy Initiative, 2025). A country carrying that level of physical and financial exposure cannot afford to treat its agricultural and land-use policy as a three-year proposition reset with every election.

Chapter 2 showed what forty years of unbroken funding produced at the Rodale Institute. Results a three-year grant cycle, or a three-year political term, would have abandoned before they existed. Australia has no mechanism for that kind of patience in agriculture. Other jurisdictions facing comparable exposure have made a different choice. Denmark and California have both sustained multi-decade energy and land-use commitments through changes of government, not by freezing policy detail but by legislating durable frameworks that set long-term direction and bind successive administrations to common goals. The specifics differ, but the design principle is consistent. When policy is expected to outlast an election cycle, it has to be built to survive one, with explicit cross-party buy-in and structures that make ad hoc reversals harder than continuity.

Recommendation 6 proposes that Australia legislate a long-term food and agricultural policy framework that survives changes of government, covering food security, land-use planning and on-farm climate resilience. It would not dictate every program, but would fix key anchors. Agreed national objectives for agricultural land use, guardrails for competing claims from energy, carbon and biodiversity projects, expectations about agriculture's role in national emissions and resilience plans, and minimum consultation standards with farmers when major shifts are contemplated. In practical terms, it gives Recommendations 1 to 5 a stable scaffold long enough to actually change outcomes at farm level.

4.7 Independent, continuous farm-level data

The shift this report argues for, from activity to outcomes and from top-down design to farmer-led problems, depends on being able to see, in a trusted way, what is happening at farm level over time. At present, Australia has no independent, continuously funded institution whose job is to measure the things that matter most to farmers, such as farm share of the food dollar, long-term profitability, and soil and natural-capital condition, and publish them in forms farmers and policymakers can actually use. Data exists, but it is scattered across grant projects, one-off pilots, private platforms and internal dashboards. Metrics are often chosen to suit institutional reporting needs rather than farm reality.

The Netherlands' Sustainable Dairy Chain offers a working model of standardised, farmer-usable measurement. Through this initiative, dairy processors and farmers jointly set long-term sustainability objectives for climate, animal health, grazing, biodiversity and the environment, and commission Wageningen Economic Research to produce detailed sector reports that track progress against those targets on an annual basis (Wageningen Economic Research, 2017). Those reports provide a consistent national baseline without replacing farm-level judgement or corporate reporting. Australia has never sustained an equivalent commitment for any commodity.

US food dollar research shows what accredited, farm-relevant economic metrics can look like when they are done well. The U.S. Department of Agriculture's Economic Research Service publishes the Food Dollar Series, an input-output-based measure of how much of each dollar spent on domestically produced food reaches farms and how much is captured by post-farmgate stages. In 2024, US farms received just 11.8 cents of each food dollar, with the remaining 88.2 cents absorbed by processing, distribution, retail and other services (U.S. Department of Agriculture, Economic

Research Service, 2026). Australia has no independent, routine equivalent for its own food dollar.

Recommendation 7 proposes having an independent, continuously funded body with a clear mandate to publish standardised farm-level data on a fixed schedule. Its job would be to track, in a small set of agreed indicators, how much of each food dollar reaches the farm gate, how key natural-capital metrics are moving, and how different parts of the sector are faring financially and environmentally. It would work with RDCs, CSIRO, grower groups and private platforms, but its governance and funding would be arm's-length enough to maintain trust. Australia does not lack cross-RDC coordination infrastructure capable of taking this on. Bodies such as Agricultural Innovation Australia already sit close to this mandate. What is missing is not a new institution, but the independence, resourcing and authority to run it properly. In practical terms, it would provide the measuring stick for Recommendations 1–3 and 6. Risk maps grounded in real data, RDC accountability assessed against outcomes not anecdotes, an outcomes fund judged on its farm-level impact, and capital products evaluated on whether they genuinely improve farm resilience.

4.8 Enabling farmer-to-farmer and peer-based extension

Across twelve countries, the most durable knowledge transfer this research observed did not flow from institutions to farms. It flowed from farm to farm, through grower groups, field days, demonstration sites, WhatsApp networks and peer-led trials. The strongest examples in this report, Ballymaloe, Landcare, Graeme Finn and the Birchip Cropping Group, all relied on farmers learning from each other in structures they trusted. Yet much of Australia's current investment in extension and knowledge transfer still assumes a top-down model: information developed centrally, pushed out through limited staff, evaluated by how many workshops were held or factsheets downloaded.

Recent research on farmer information networks and catchment groups sharpens this point. A qualitative study of sheep, beef and dairy farmers found that community-driven catchment groups and farmer-led networks are among the most effective knowledge brokers, precisely because they are bottom-up. Farmers described how these groups improved contextual relevance and receptivity to information, and how they “morphed” into broader community structures that supported social connection alongside technical learning. The same study found that farmers use cross-referencing and triangulation, testing information with peers, family, staff and their own experience to validate what they hear, and that trust is built over time on credibility and fit to local reality rather than on institutional logos. In practice, this is peer-based extension working as design, not as an accident (Blake et al., 2023).

Digital tools have changed what is possible. Peer networks now share practical knowledge about inputs, rotations, grazing, machinery and markets faster and more effectively than any single agency can. The constraint is no longer technical scale; it is institutional design. As CSIRO's own researchers argue, the key questions are who sets the research hypotheses, who evaluates outcomes, and whether the system is structured to enable knowledge flow or to intermediate and control it.

Recommendation 8 proposes that governments and institutions stop trying to rebuild the extension service of the 1970s and instead focus on enabling the conditions under

which peer learning and farmer-to-farmer knowledge transfer happen naturally. That means funding coordinator roles in farmer networks and grower groups without capturing their agendas, making trial results and research data available in formats farmers can use without a statistician, recognising farm engagement and peer-network contributions in the performance and promotion of researchers and extension staff, and investing in physical and digital infrastructure (demonstration farms, trial networks, open data platforms and interoperability standards) that gives peer learning something concrete to flow through. In effect, it turns the Collaboration and Context conditions into everyday practice. Farmers define the questions, test solutions together, and spread what works through networks they own.

From diagnosis to design

Across twelve countries, the same pattern kept appearing. Programs designed away from the farm produced activity, reports and compliance load, but not value for farmers. Chapter 3's four conditions of Clarity, Capital, Collaboration and Context distilled what the working examples had in common. Table 4 maps each recommendation in this chapter back to the conditions it operationalises.

Together, the eight recommendations turn the report's central argument into a practical agenda. Start with the farmer's problem, and build the data, capital, collaboration and context needed for that to last.

Table 4: How the eight recommendations map to the four conditions

Rec.	What it does	Condition(s) addressed
1	Farmer-led risk mapping before program design	Clarity
2	RDC accountability for farm-level outcomes	Clarity, Collaboration
3	DARPA-style outcomes fund for cross-sectoral problems	Clarity, Collaboration, Capital
4	Rebuild the translator function as a distributed farmer network	Context
5	Audit and redesign farm-gate capital	Capital
6	Legislate long-term food and agricultural policy	Capital, Context
7	Independent, continuous farm-level data	Clarity, Capital, Collaboration, Context
8	Enable farmer-to-farmer and peer-based extension	Collaboration, Context

Conclusions

This report set out to answer a narrower question about ESG frameworks and farm-level value. It ended up answering a broader one. Why do agricultural programs, policy and investment keep failing to create value at the farm level, and how can they be flipped from top-down to farmer-led? The answer is clear. These systems fail not because agriculture lacks effort, money or expertise, but because the sequence of design is wrong.

Again and again, institutions defined the problem in ways that made sense to boards, departments or reporting systems, then designed delivery mechanisms and measures of success around those needs, and only later asked farmers to implement them. That sequence reliably produced compliance load and weak accountability for value on farms. The alternative already exists in practice. Across the strongest examples in this research, the same conditions kept recurring, the problem was clear enough for the farmer to recognise, capital supported change rather than merely announcing it, collaboration reflected shared ownership, and solutions were shaped by context.

Australia already has many of the ingredients required for a better system. Research capability, producer organisations, public institutions, industry levies and sophisticated finance. What it lacks is a consistent discipline of designing from the farm upward. The recommendations that follow set out what that discipline requires in practice.

The central conclusion of this report is therefore simple. No program, policy, funding mechanism or research investment designed to benefit Australian agriculture will consistently create value for farmers unless farmers are involved in defining the problem and creating the solutions. Until that becomes the default design rule, activity without value will continue. Australia does not need to invent a new agricultural system from scratch, it can make the one it already has work far better by turning it in the right direction.

Recommendations

1. Require farmer-led risk mapping before any new agricultural program, research investment or capital mechanism is designed. The problem list becomes the brief, not an afterthought.
2. Redesign RDC funding, governance and accountability around farm-level outcomes, so oversight is no longer structurally captured by the mainstream, levy-paying interests that fund it.
3. Establish an agricultural outcomes fund, run on DARPA principles, farmer-defined problems, minimal bureaucracy, measured only on real-world results.
4. Rebuild the translator function as a distributed network of five practising farmers, one per world region, reporting directly to Cabinet, not a single envoy role.
5. Audit existing farm-gate capital, then redesign it with farmers, including formal bank co-investment mechanisms tied to resilience, not short-term balance-sheet metrics.
6. Legislate long-term food and agricultural policy so it survives changes of government, covering food security, land-use planning and on-farm climate resilience.
7. Set Agricultural Innovation Australia the independence, resourcing and authority to publish standardised farm-level data, including farm share of the food dollar and natural capital accounting on a fixed schedule.
8. Enable farmer-to-farmer and peer-based extension, rather than rebuilding a 1970s model, fund coordinator roles, open up trial data, and reward researcher engagement with farmers.

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