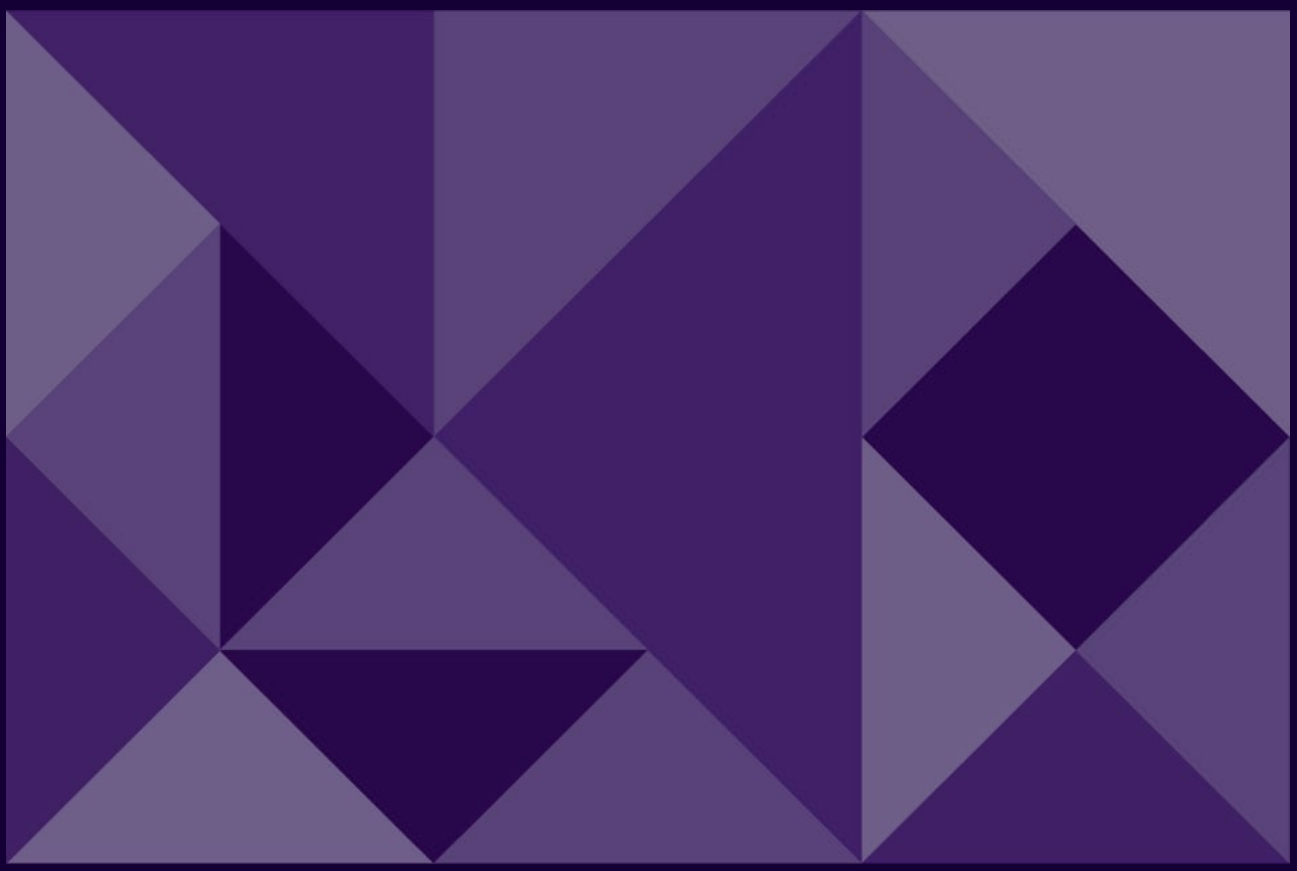
ACIL ALLEN

Right-sizing GRDC RD&E investment

Summary report

7 July 2025



About ACIL Allen

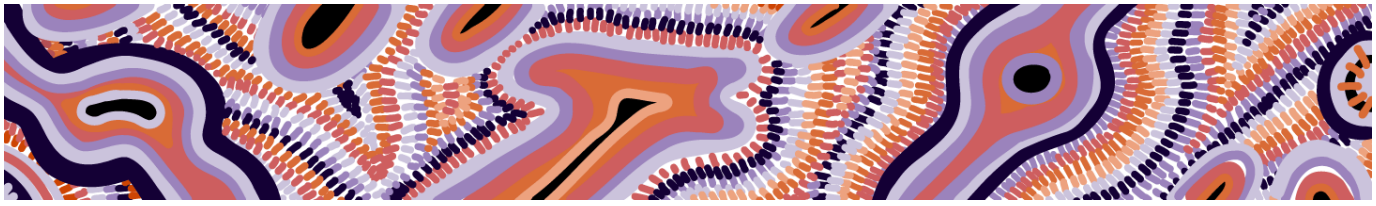
ACIL Allen is a leading independent economics, policy and strategy advisory firm, dedicated to helping clients solve complex issues.

Our purpose is to help clients make informed decisions about complex economic and public policy issues.

Our vision is to be Australia's most trusted economics, policy and strategy advisory firm. We are committed and passionate about providing rigorous independent advice that contributes to a better world.

Report to: Grains Research Development Corporation (GRDC)

ACIL Allen acknowledges Aboriginal and Torres Strait Islander peoples as the Traditional Custodians of the land and its waters. We pay our respects to Elders, past and present, and to the youth, for the future. We extend this to all Aboriginal and Torres Strait Islander peoples reading this report.



Goomup, by Jarni McGuire

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Glossary

Abbreviations	Definitions
$m	Million Australian Dollars
ABARES	Australian Bureau of Agricultural and Resource Economics and Sciences
Avoidance Zone	Represents throwing good money after bad. These are research projects which are not expected to yield significant gains, and which are not areas of comfort or where outcomes can be foreseen – or all of these things simultaneously. Within a GRDC context, the value pools concept can be useful to identify research which may be in the Avoidance Zone, as research areas where there is little value available but where there is also less certainty that genuine advances will be made.
BCR	Benefit-Cost Ratio
BERD	Business Expenditure on Research and Development
CBA	Cost-Benefit Analysis
Comfort Zone	Represents research activities which could be considered business as usual, or incrementalist. These are research projects which GRDC / the sector knows need to be done to continue to advance and support the sector, but which are unlikely to yield groundbreaking, industry-shaping results. This zone can also be thought of as investing in research organisations or individuals with proven track records in their area of specialty (i.e., you know what you are going to get).
Enabler	Tier 2 priority related to enabling multiple strategic pillars
Ex-ante analysis	Evaluation of a project, policy, or investment before it is implemented
Ex-post analysis	Evaluation of a project, policy, or investment after it has been implemented
Expected value	Potential payoff and probability of a RD&E investment
Focus area	Tier 2 priority in GRDC RD&E Plan within a strategic pillar
FY	Financial Year
Goldilocks Zone	Exists for the small number of projects where a significant payoff can be guaranteed – or de-risked to a large extent – which generates the highest Expected Value. These are projects which are unlikely to be put forward often but should be identified and acted on as a priority over all other sectors of the quadrant when they do.
GRDC	Grains Research Development Corporation
MCA	Multi-Criteria Analysis
MFP	Multi-factor productivity
Moonshot Zone	Reflects more cutting-edge research which can yield a large payoff but is also inherently risky. As a result, the Expected Value of this research is reduced as it may not realise the intended outcome. However, funding research of this kind is core to the reason for research organisations to exist, as research in this zone is what can lead to transformational outcomes.
NPV	Net Present Value
OECD	Organisation for Economic Cooperation and Development
Option	Additional expenditure opportunities assessed against potential impact on GRDC's financial resilience and grains RD&E outcomes
Projects (business as usual)	Increase expenditure using current risk tolerances, structures, and processes
Research Collaboration	Establishing a large, time-bound research collaboration, focusing on Strategic and Applied Research with the aim of addressing complex or wicked problems

Abbreviations	Definitions
Strategic Research Fund	Creating a time-bound Strategic Research Fund, to replenish strategic research knowledge and capacity to realise RD&E outcomes in the medium to long term
Services	Additional module of programs and one-off activities which are not RD&E but build capacity and contribute to RD&E plan focus areas
Partner	RD&E organisation contracted to deliver RD&E by GRDC
Research intensity	The ability to sustain RD&E capacity and ability in grains RD&E focus areas.
Research utilisation	The ability of GRDC partners to sustain grains RD&E capability.
R&D (PIRD Act)	Research and development in relation to a primary industry or class of primary industries means systematic experimentation and analysis in any field of science, technology, or economics (including the study of the social or environmental consequences of the adoption of new technology) carried out with the object of: (a) acquiring knowledge that may be of use in obtaining or furthering an objective (b) applying such knowledge for the purpose of attaining or furthering such an objective
R&D activity	R&D activity, in relation to a primary industry or class of primary industries, means: an R&D project, development of persons to carry out R&D, dissemination of information or provision of advice/assistance, R&D publication.
RD&E	Research, Development and Extension
RDAC	Research, Development, Adoption and Commercialisation
Strategic research	Discover what was previously unknown. Experimental and theoretical research undertaken to acquire knowledge directed towards specified broad areas in the expectation of useful discoveries. It provides the broad base of knowledge necessary for the practical solution of recognised problems.
Applied research	Apply science to identify a solution. Original research undertaken to acquire new knowledge with a specific application in view. It is undertaken either to determine the possible uses for the findings of basic research or to determine new ways of achieving some specific and predetermined objectives.
Development	Develop a solution that may be used. Activities undertaken to enhance and validate the relevance of applied research outputs in a particular system, crop, or environment.
Adoption	Support uptake and use of a solution. Communication and extension activities to promote the adoption of the outputs of R&D.
Commercialisation	Ensure a solution is commercially available. Activities undertaken to facilitate the adoption of R&D output by a commercial partner(s) to deliver a product or process for adoption by growers.
RDC	Research & Development Corporation
Researcher	Persons, group, or organisation undertaking RD&E

Executive summary

Context

The Grains Research and Development Corporation (GRDC) Board initiated a strategic review to determine the optimal level of RD&E investment to maintain and accelerate innovation for Australian grain growers. This review was prompted by a significant revenue uplift driven by industry conditions in recent years.

It forms part of a suite of three projects conducted by ACIL Allen for GRDC that examine: GRDC's approach to levy revenue forecasting (completed November 2024); the optimum level (or 'right-size') of RD&E investment needed to maintain or accelerate the delivery of RD&E (this project, completed May 2025); the capacity and ability of the grains industry RD&E system (due to be completed, July 2025).

Key findings

- GRDC's mandate is to **invest available funds** to generate impact and maintain financial resilience.
- Modelling shows GRDC has sufficient **financial resilience** (forecast revenue and reserves) to maintain expenditure in real terms and invest an **additional $60m per annum** for a decade which under drought (lower revenue) scenario should not need to be adjusted to retain reserves until the early 2030s.
- GRDC realises impact through setting direction (RD&E Plan) and its investment portfolio.
- The RD&E Plan focuses on **harnessing existing potential and unlocking frontiers** (as well as other priorities), through a balanced portfolio of investments with delivered partners to realise impact.
- GRDC's investments and Australian grains RD&E have **consistently demonstrated impact** over time.
- Future investments need to **maintain and extend beyond productivity** to integrate environmental, social, and non-market benefits to avoid diminishing returns and develop appropriate solutions.
- GRDC's portfolio is heavily weighted towards **applied R&D**, and there is an opportunity to include more strategic Research in investments to build the capacity, knowledge, and technology for future RD&E.
- A scan of industry/RD&E drivers indicate sustaining **research intensity** (pressure on the problem), and **research utilisation** (partner capability) are critical for GRDC, delivery partners and impact.
- Options analysis shows an integrated suite of additional investments, adaptively managed as a **Strategic Fund**, is required to right size through drawing down current reserves and future surpluses.

Recommended way forward

1. Invest an additional $60 million dollars per annum for a decade in R&D ($50m) and Services ($10m)
2. Structure these investments as a strategic fund focused on sustaining the research intensity required to realise production and broader industry and societal goals with partners (i.e., investment mix). This should include targeting additional strategic research and investing in services to build capacity.
3. Update investment and risk assessment policies to better evaluate, target, and demonstrate the value of investments for GRDC, partners and levy payers in the future.

1 Scope and context

The GRDC Board initiated a strategic review to determine the optimal level of RD&E investment to maintain and accelerate innovation for Australian grain growers. This review was prompted by a significant revenue uplift driven by industry conditions in recent years.

It forms part of a suite of three projects conducted by ACIL Allen for GRDC that examine:

— GRDC's approach to levy revenue forecasting (completed November 2024)

— The optimum level (or 'right-size') of RD&E investment needed to maintain or accelerate the delivery of RD&E (this project, completed May 2025)

— The capacity and ability of the grains industry RD&E system (due to be completed, July 2025).

The aim of this work is to:

— understand how much GRDC could invest in RD&E on behalf of and for the benefit of levy payers, the grains industry and broader society, and the implications of changes in the magnitude of RD&E investment over time

— assess the benefits and returns anticipated under different RD&E investment scenarios to determine if there is an 'optimal approach', and whether there is a point of diminishing returns to optimise the scale and timing of RD&E spending

— address a number of areas and opportunities in the context of GRDC's current and anticipated future capacity to invest in RD&E

— inform GRDC of the impact of the resulting implications and considerations that will assist in developing a way forward for grains RD&E investment

GRDC is an industry services company investing industry and government funds in R&D activities

GRDC is constituted under the *Primary Industries Research and Development Act 1989* (PIRD Act) to invest government and industry funds in R&D, acquiring and applying knowledge to achieve objectives outlined in an R&D Plan through R&D activities defined in the PIRD Act and the principle-based Statutory Funding Agreement Guidelines. GRDC plays a critical role in supporting and funding RD&E activities within the Australian grains industry, guided by its purpose and vision outlined in its 2023-28 RD&E Plan (or 'the Plan'). GRDC's purpose is: "To invest in RD&E to create enduring profitability for Australian grain growers". Its vision is: "World-class innovation, creating solutions for Australian grain growers for a better tomorrow".

The RD&E Plan is stakeholder agreed and invests $230-$240M per annum

The Plan, informed through consultation with growers, government and industry, outlines GRDC's current aspirations and goals. The Plan (refer Box 1.1) focuses on balancing current and future needs to support the growth of the Australian grains industry, continuing to invest in existing RD&E efforts to drive incremental improvements, remove inefficiencies, and manage risks. At the same time, an increasing pool of funding is earmarked for innovative, breakthrough technologies and practices to deliver significant yield and efficiency gains, ensuring long-term industry growth.

Box 1.1 GRDC's RD&E Plan 2023–28

GRDC's RD&E Plan 2023–28 outlines four strategic pillars and enablers that guide its investment decisions:

1. Harness Existing Potential: Investing in current technologies and practices to maximise immediate benefits for growers
2. Reach New Frontiers: Exploring innovative and breakthrough technologies for long-term industry advancement.
3. Grow Markets and Capture Value: Enhancing market access and adding value to grain products to increase profitability.
4. Thrive for Future Generations: Focusing on sustainability and resilience to ensure the long-term viability of the grains industry

Enablers – Knowledge transfer and adoption, capacity and ability, data and insights, and innovative partnerships.

Source: GRDC's RD&E Plan 2023–28

GRDC influences through setting direction and investment contracts

In delivering its research program, on an annual basis and over time, GRDC has a number of "levers" it can pull to directly influence its investment phases (refer Figure 1.1) and the value derived in the research ecosystem. These levers include how much GRDC invest, the direction of investment, the investment partners, the type of RD&E and portfolio balance, and how they procure and partner. Each lever is not discrete, and the interdependencies vary across the RD&E Plan priorities and current industry, public policy and research community conditions in Australia and overseas.

Grain growers are the primary but not only beneficiary of investments

Figure 1.2 presents the GRDC ecosystem and its key stakeholders, capturing individual growers, industry and broader society as the beneficiaries; GRDC's role; and the RD&E providers. GRDC invests in RD&E for the benefit of its principal stakeholders, defined as individual growers (levy payers), the industry, and broader society – collectively the "beneficiaries". The realisation of benefits (economic, social and environmental) needs to link to growers. This can be directly or indirectly as part of GRDC's balanced investment portfolio.

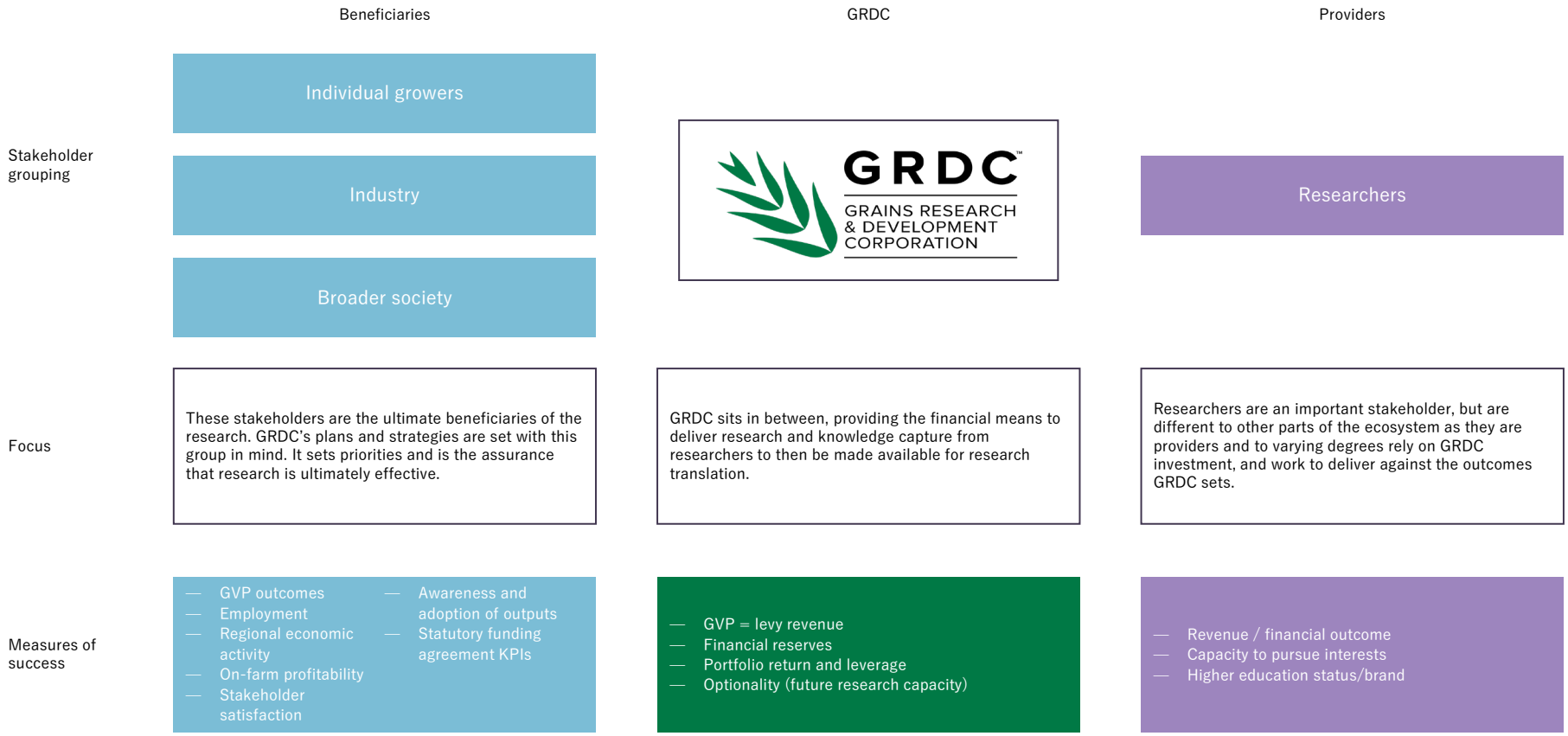
Industry trends and drivers are well known and will continue to disrupt at an unknown rate

Major trends and drivers are anticipated to impact growers and the grains industry and be reflected in GRDC's future revenue and expenditure, presenting both risks and opportunities in the context of RD&E investment and returns (refer Figure 1.3). Various studies, plans and policies all highlight sustainability, productivity, markets, technology and workforce are and will continue to be major societal and grains (industry) drivers. This requires on-going R&D. While productivity remains as GRDC's core remit, stakeholders will look for (co-)investments which address other drivers first and subsequently realise grains productivity gains. Ongoing uncertainties surrounding climate risks will require GRDC to continue to adapt its funding strategies, including strategic use of reserves.

Figure 1.1 GRDC's investment phases and levers

Source: ACIL Allen

Figure 1.2 Stakeholders in the GRDC ecosystem



Source: ACIL Allen

Figure 1.3 Trends and drivers

Theme	Trend/ driver	Threat / opportunity	GVP / GRDC revenue impact		GRDC expenditure impact	
			Downside scenario	Upside scenario	Downside scenario	Upside scenario
Sustainability and environment	Sustainable and ethical production	O & T	Higher industry costs, reduced yields, and increased levy revenue variability and unpredictability.	Strengthening of Australia's competitive advantage (e.g. long-term industry resilience, improved market access).	Additional research and support is required to addresses challenges, and support business resilience.	Successful R&D leads to more efficient, sustainable practices and reduces the need for intervention.
	Environmental degradation	T				
	Climate change, action on climate	T & O				
	Transition to net zero	O				
Productivity and cost	Production risks	T & O	Rising production risks, slowing productivity growth, and increasing costs.	Strengthening of Australia's competitive advantage (e.g. enhanced productivity, risk mitigation, and improved cost efficiency).	Additional research and support is required to address production risks.	
	Declining productivity growth	T				
	Cost pressures	T				
	Increasing farm scale	O & T				
Economic and market dynamics	Growing demand and market opportunities	O	Increasing market volatility and geopolitical uncertainty.	Sustained industry growth from growing demand (e.g. domestic and feed grain demand) and new market opportunities.	Additional research and support is required for risk management, industry resilience, and for the benefit of industry.	
	Market volatility	T				
	Changing market landscape, new markets	O & T				
	Geopolitical tensions and national security	T & O				
Technology and innovation	Technological innovation growth	O	Higher costs, uneven technology adoption, and reduced opportunities for leverage and investment from state government.	Higher industry productivity, and efficiency.	Increasing need for investment in cutting-edge R&D.	Reduced reliance on public sector expenditure; Increase in co-investment opportunities.
	Growth in private sector RD&E	O				
Workforce, skills	Talent and workforce challenges	T	Reduction in productivity gain opportunities.	A sustainable and skilled workforce, supporting industry growth and profitability.	Insufficient RDE capability to meet supply needs and costs of RDE increase to deliver same outputs (e.g. core services).	Successful workforce planning and capability mix supports successful R&D delivery.

Source: ACIL Allen

2 Right-sizing finance

GRDC has opportunity to increase RD&E expenditure

GRDC has both the **scope and flexibility to increase its RD&E investment** for the benefit of levy payers and the Australian grains industry as a result of:

— having a legislated mandate to receive and invest industry and government funds as an industry services company with a remit to invest in RD&E to the benefit of levy payers and industry

— a higher baseline forecast levy revenue (Figure 2.1) and very strong cash reserves, following a period of beneficial seasonal and market conditions sufficient to mitigate GRDC revenue risks for many years.

This places GRDC in a strong position to increase expenditure to invest in creating additional benefits. Modelling shows GRDC has sufficient financial resilience **to maintain expenditure in real terms and invest an additional $60 million per annum for the next decade**. **Even under drought scenarios (**Figure 2.2**,** Figure 2.3**,** Figure 2.4**) GRDC should not need to adjust until early 2030s.**

The risks of diminishing marginal returns can be mitigated

The grains industry and R&D are well established and GRDC has consistently demonstrated positive returns and will continue to do so through maintaining and developing its disciplined investment processes. Even so it is reasonable to expect that in some areas diminishing marginal returns are to be expected but the question of where GRDC is facing diminishing marginal returns is a matter of perspective and context. The risk is that the marginal benefit of each extra unit of RD&E investment starts to decline, even as total output continues to rise. This risk can be mitigated by:

— having an intentional strategy (goal clarity and horizons) with periodical reassessment of priorities and targets to integrate social and environmental goals and avoiding investment in enduring low value services

— improving co-ordination and using collaborative models to leverage co-investment, share the risk and diversify the portfolio

— building capacity and sustaining the RD&E effort along with improved (new) problem statements that integrate new technologies and partners

— assessing and communicating based on evidence on more than just economic impacts and market values.

Cost of not increasing RD&E expenditure

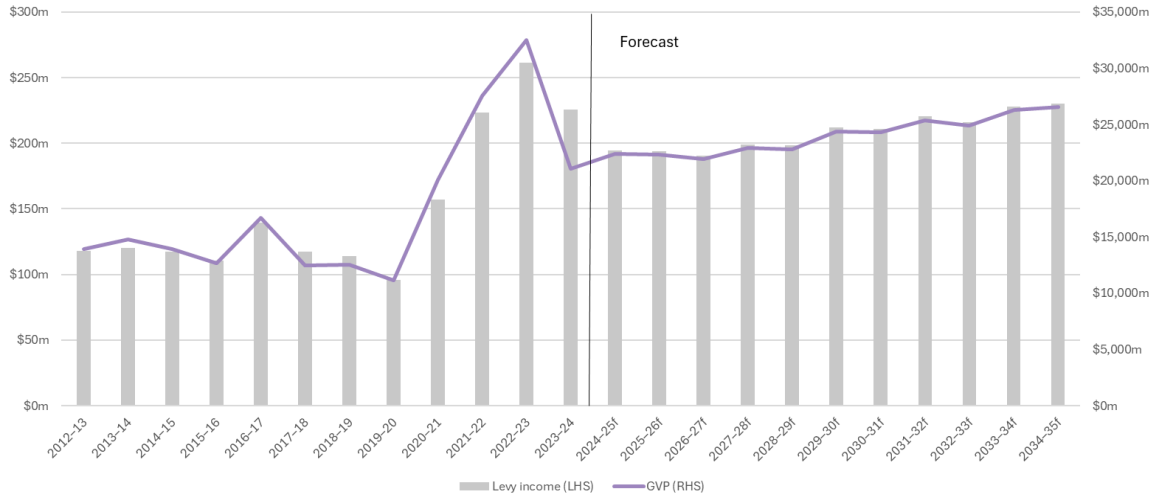
GRDC is part of the RDC model where industry RD&E is funded by agricultural levies with a matching Commonwealth contribution. The system is unique and relies on stakeholder support and levies to endure.

The ad valorem grain levies result in GDRC revenue reflecting growing and market conditions. This along with investment discipline have resulted financial reserves being significantly above the 45% target.

There is no mechanism to adjust future levy revenue on a temporary or dynamic basis beyond increasing reserves or expenditure on RD&E investments over the forecast period. The opportunity cost of holding additional reserves which could be invested in RD&E as part of a balanced portfolio is significantly greater than the financial return on investment.

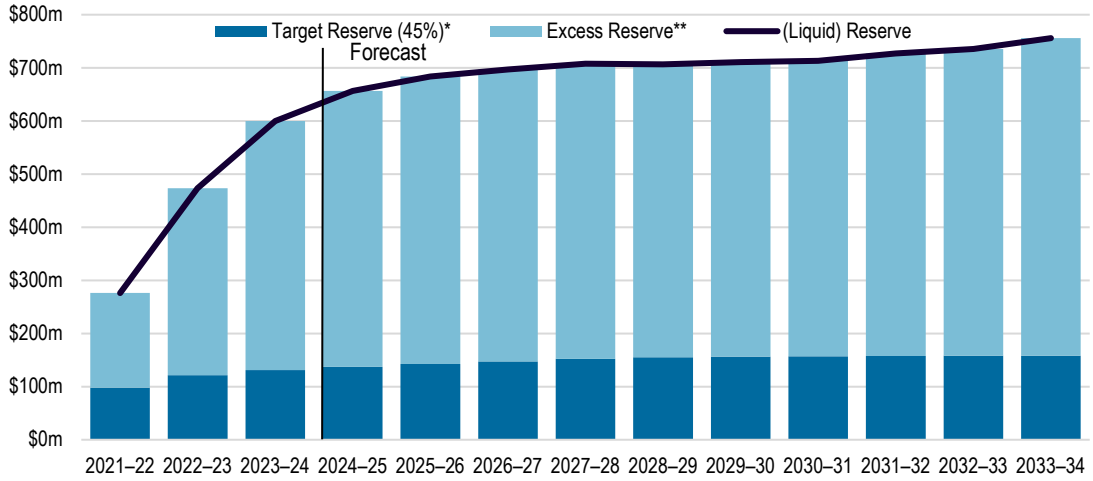
The opportunity cost of changing the levy is the time and expense of industry and government to legislate amendments. This is not within GRDC's remit and requires a business case to set and legislate the new levy rates. An overall reduction would result in GRDC having less funds available for RD&E investment on a permanent basis once reserves are expended to be on target.

Figure 2.1 Grains levy income and grains GVP (baseline scenario)



Source: ACIL Allen with data from GRDC

Figure 2.2 Baseline financial reserve forecast (by in policy vs excess)



* Target reserve is a percent of next year's total expenses

** Excess reserve is the difference between liquid reserve and target, excluding RD&E forward commitments ($525m at June 2025)

Source: ACIL Allen Levy Revenue Model forecast 2024

Figure 2.3 Initial impact on GRDC reserve position with RD&E investment, $m. Balance End of Year by Scenario (Grey = Baseline, Purple = Scenario)

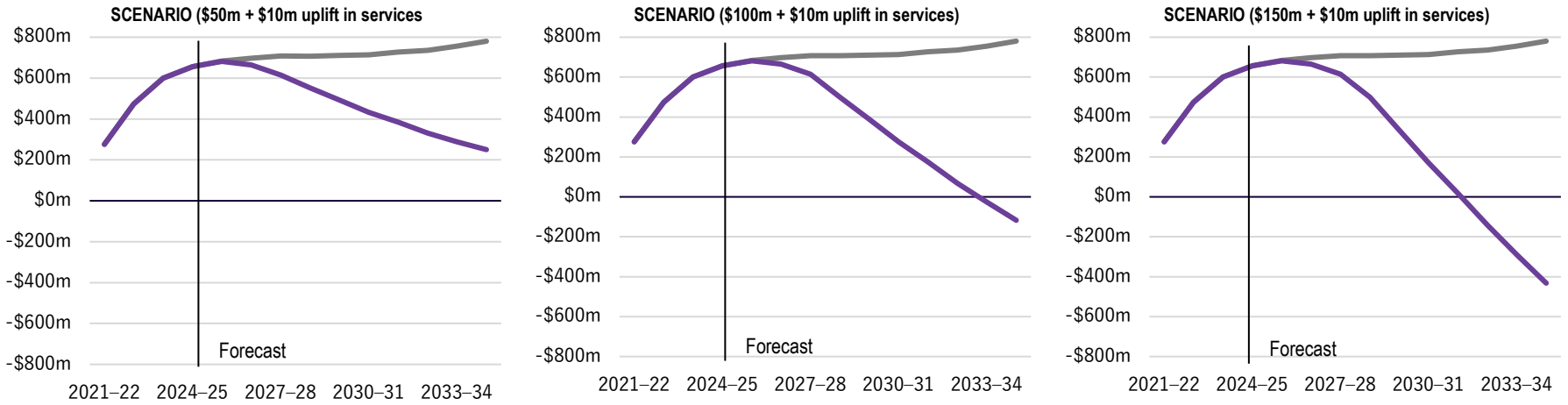
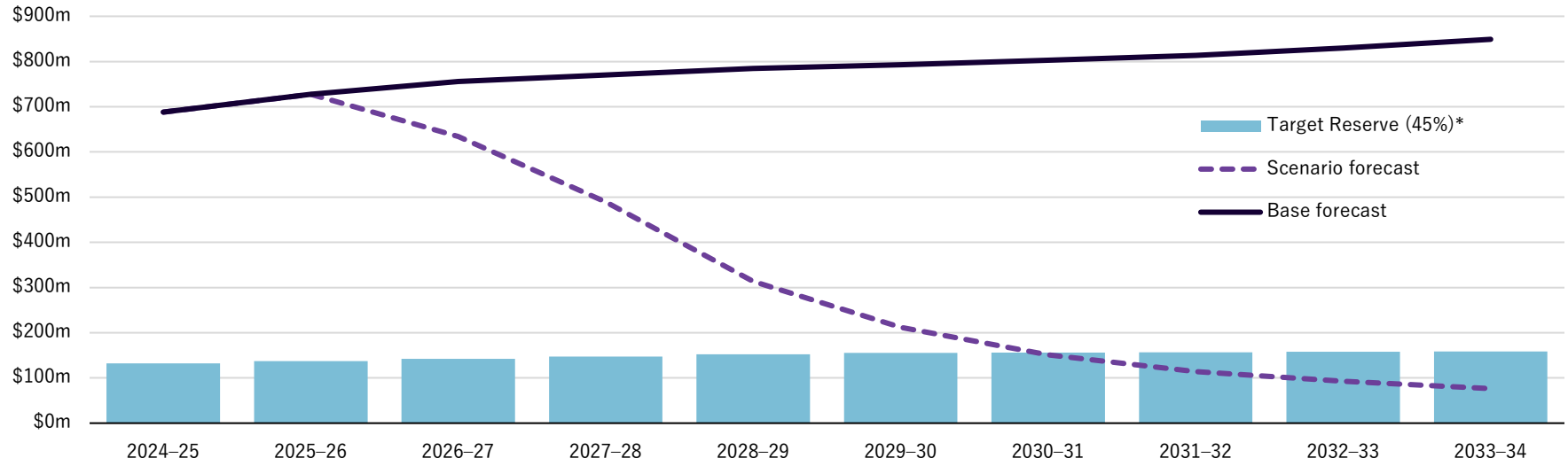


Figure 2.4 GRDC Financial Reserve Forecast, Baseline vs Drought Scenario



Source: ACIL Allen

3 Right-sizing investment

GRDC investments produce positive returns and there is more opportunity to increase strategic research investment

GRDC's Strategic Plan has priorities to harness existing potential and reach new frontiers through RD&E. Since 2010, GRDC's RD&E efforts have consistently focused on applied research, development, and adoption with less emphasis on strategic research and commercialisation (Figure 3.1).

GRDC's focus on applied research and development may suggest that GRDC is prioritising the immediate, practical outcomes of its research efforts and being responsive to stakeholder demands. This approach has clear benefits in terms of supporting growers with current, actionable solutions and delivering an median BCR of 6.43 to 1 (Figure 3.2) and NPV of $14.8 million (Figure 3.3).

There is opportunity for GRDC to consider allocating more RD&E resources toward strategic (basic or blue sky) research to generate the foundation for future RD&E and long-term industry growth and profitability. Strategic research will increase the risk (a proportion of) investments will not or take longer to generate expected industry impact and require sustained RD&E capacity and ability to adapt as required.

Grains RD&E is internationally competitive

In 2022, ACIL Allen undertook a data-driven international benchmarking study[1] for GRDC. The analysis provided comparative data and analysis for major crops in major grain producing nations (stretching back over three decades) assembled from different sources. Most of Australia's grain production increase over the past 30 years was found to be attributable to raising yield growth, as shown for wheat. Notably, this growth occurred within the context of significant drought in growing regions and an unprecedented rate of technology-driven grain production that has supported yield increases under water-limited circumstance. The study also analysed research intensity. Research intensity measures RD&E expenditure as a percentage of grain production value. It normalises changes in the size of a country's grains sector. This report finds that the Australian grains industry ranks first in grains research intensity (refer Figure 3.4, Figure 3.5 and Table 3.1), which is primarily due to the stable nature of its RD&E funding system.

Table 3.1 OECD Gross Domestic Expenditure by Type of RD&E and GRDC RD&E Profile

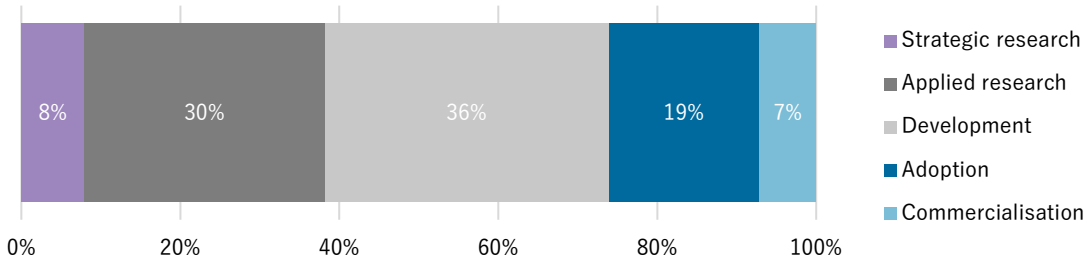
Type of RD&E	OECD 2015-18, average	OECD 2019-22, average	OECD overall, average	GRDC 2015-24	Comparison
Sector: Total					
Basic research	23.0%	21.7%	22.4%	8.3%	-14.1%
Applied research	35.2%	33.8%	34.4%	41.2%	+6.8%
Experimental development	41.8%	44.5%	43.2%	50.5%	+7.3%
Sector: Government					
Basic research	31.9%	32.5%	32.1%	8.3%	-23.8%
Applied research	45.6%	45.1%	45.4%	41.2%	+4.2%
Experimental development	22.5%	22.4%	22.5%	50.5%	+28.0%

Note: This analysis assumes that the OECD's definition of experimental development corresponds with 'Development' as a type of RD&E.

Source: OECD Data Explorer. 2024. Gross domestic expenditure on R&D by sector of performance and type of R&D

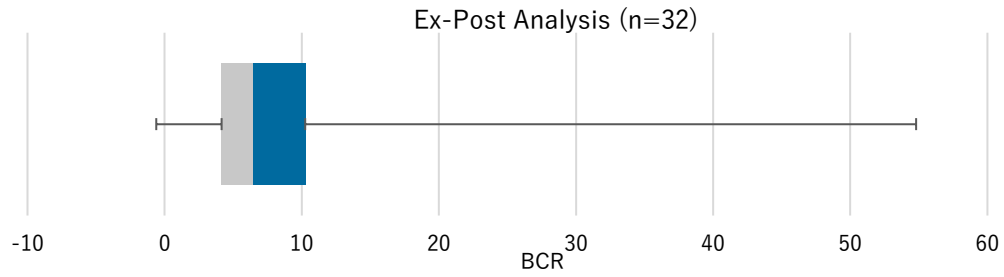
[1] ACIL Allen. 2023. International benchmarking study

Figure 3.1 Proportionate GRDC Investment by RD&E Type, 2010–2024



Source: ACIL Allen; GRDC contracts database

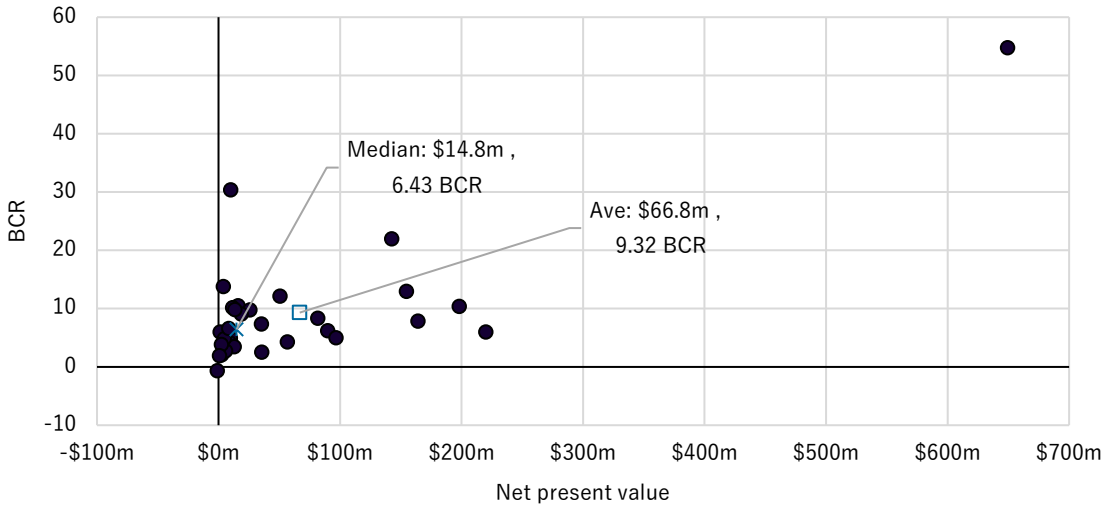
Figure 3.2 Ex-post analysis of GRDC investments: Benefit-Cost Ratios



Note: Q1: Quartile 1; Q2: Quartile 2 (Median); Q3: Quartile 3, where Q1-Q2 = grey; Q2-Q3 = blue.

Source: ACIL Allen analysis; GRDC CBA library

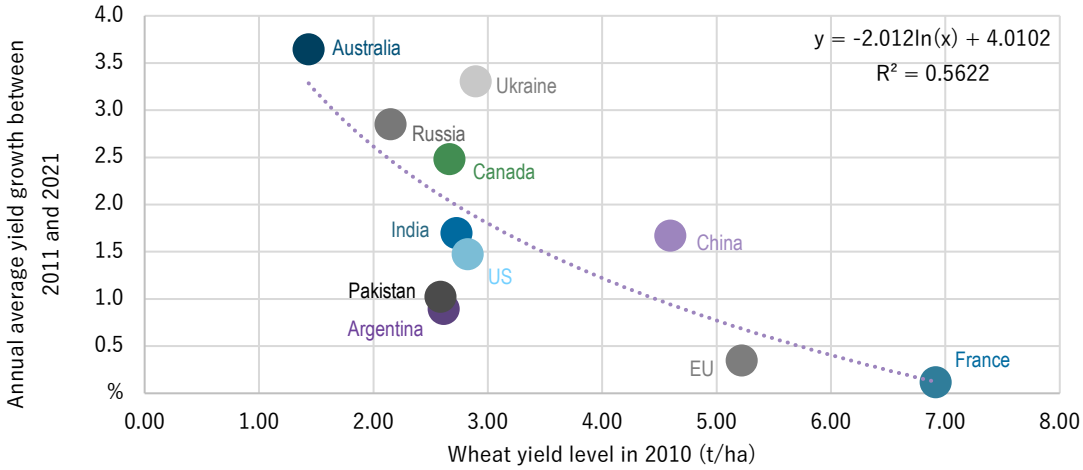
Figure 3.3 Ex-Post Analysis: Benefit-Cost Ratio and Net Present Value of Benefit of Selected GRDC Investments



n = 32.

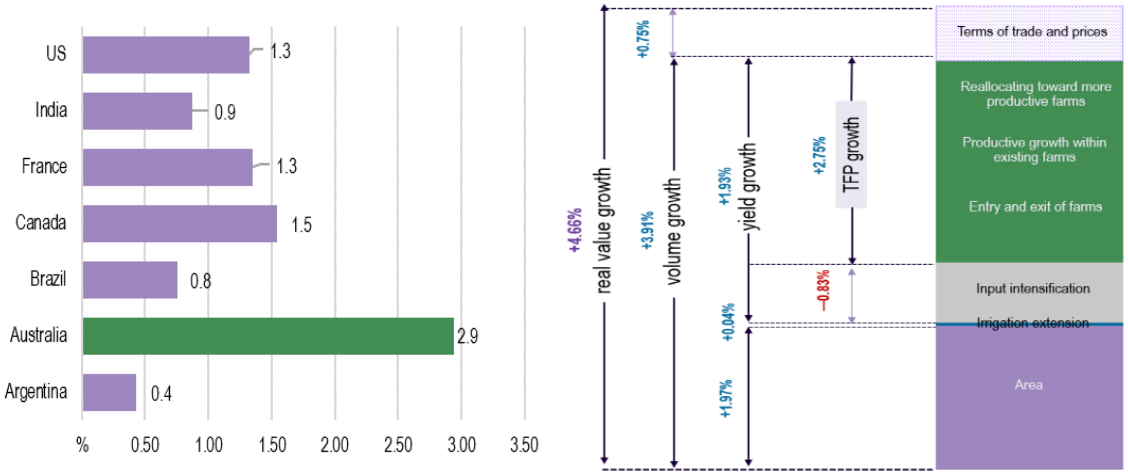
Source: ACIL Allen analysis; Ex-post analysis of GRDC investments.

Figure 3.4 Wheat yield level and growth rate (2011-2021)



Source: ACIL Allen, Based on USDA PSD Database and FAO database

Figure 3.5 Grains public RD&E research intensity (5 year average, LHS) and Australian wheat value growth over the past 30 years (RHS)



Source: ACIL Allen, 2023, International benchmarking study

Productivity and profits are only part of the benefits story

Yield, input intensification (costs) and area expansion (crop substitution) and price/terms of trade will remain significant productivity and profitability drivers for growers and RD&E investment priorities. However, there is scope for inclusion of broader beneficiaries (e.g. communities) and benefits (non-market values) in other approaches if the current systems are perceived to be reaching productivity frontiers. It is important to:

- recognise that profit results from yield times price less the full cost of doing business including addressing environmental and social/community (or broader industry good) needs
- realise future gains through sustaining research intensity
- shift away from business-as-usual approaches that stay within the existing boundaries and instead explore beyond the frontier through strategic (new) research
- change the RD&E agenda and communicate a clear narrative around the reality of the nature of (strategic) research investment building tolerance for failure and lagged benefits realisation.

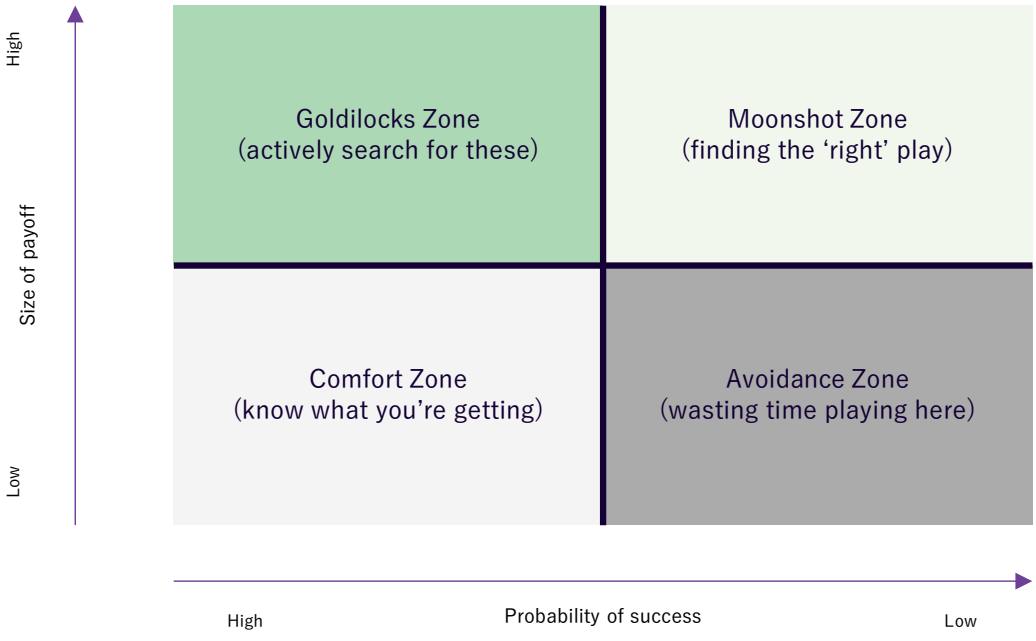
Value needs to be assessed in different ways

GRDC operates in a complex space where RD&E investments rarely lead to direct, measurable returns, and outcomes are often uncertain and long term. Many benefits—such as environmental improvements, social value and RD&E capacity—are difficult to monetise at the grower level but are essential to the sector's purpose, social licence, and enduring value.

The importance and potential value of investments in this space requires multiple tools. These have data and insight constraints at the portfolio budget allocation phase. The best approach is for GRDC to utilise a defined set of rigorous tools systematically and repeatably using qualitative and quantitative rubrics.

An approach to thinking about these decisions is to consider the Expected Value of research activities and capacity (refer Figure 3.6). Expected value considers decisions through the lens of their size of gain (or loss) and the likelihood of realising this gain (or loss).

Figure 3.6 Research funding and Expected Value



Source: ACIL Allen

4 Right-sizing capacity

Capacity and ability are critical, changing and challenged

Australian grains RD&E capacity is a national priority and necessary to retain existing platforms and support increased investment. The Grains RD&E Capacity & Ability Assessment Project underway identified the majority of GRDC's investment are with state government departments, universities and CSIRO with a network of more than 600 businesses ranging from local SMEs to multi-national corporations playing an integral role in delivering the RD&E required, individually or in collaboration (refer Figure 4.1).

Preliminary findings from this on-going assessment are that the scope and scale of GRDC's investment has a material influence on RD&E and providers.

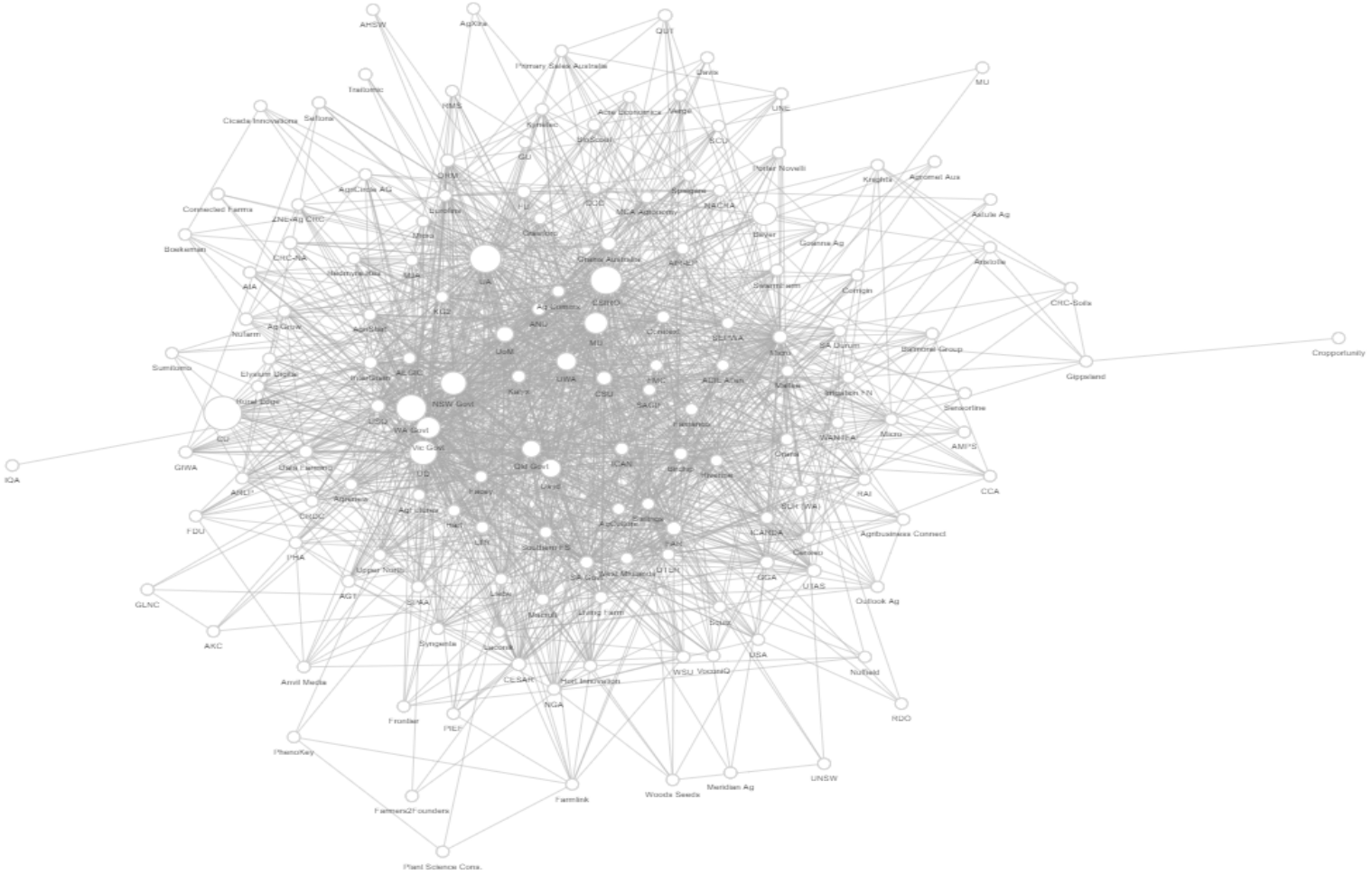
RD&E is incremental in well-established industries like grains. More strategic Research (and Adoption) is needed to define, find and realise the transformational investments GRDC, industry and partners are seeking rather than relying solely on traditional approaches.

In particular greater research intensity is needed to place continued "pressure on the problem" to deliver on current and emerging priorities. Using the provider network's advantages is key to sustaining research utilisation, rather than being held back by structural barriers, contractual constraints and resulting challenges some providers and RD&E clusters face. Detailed information on RD&E capacity in the northern, southern and western zones will be available by the end of 2025 through a separate GRDC project to assist.

Providers (and GRDC) are looking for RD&E capacity and ability to be better supported through more agile systems including procurement, contracting and management processes (e.g. partnership models and structures), improved co-investment models and integrated RD&A program design. These are integral to developing workforce strategies and career pathways needed above and beyond GRDC and providers' existing capacity programs.

As the construct of balanced portfolio extends beyond grain commodity value pools and program areas and shifts towards new approaches to investment, partnerships will be central to realising value. GRDC and providers need time and capacity to plan, prepare, partner and deliver more RD&E.

Figure 4.1 The GRDC provider network (relationship between providers based on active GRDC contracts, May 2025



Source: ACIL Allen

5 Right-sizing options for the way forward

Realising opportunities requires change

The main levers GRDC can use to realise the opportunity to increase RD&E investment are through:

— its approach to market including the areas where it can directly influence the RD&E ecosystem: setting direction (with industry) and contractual arrangements with RD&E providers

— managing its portfolio adaptively and with more strategic and longer-term investments at scale

— changing its risk appetite and risk assessment frameworks which currently constrain high risk RD&E

— further increasing research intensity to ensure enduring access to RD&E capability when and where required (i.e. invest in Strategic Research and RD&E services).

Ten options were identified based on allocating additional investment over the next decade, through investing more in projects (business as usual) arrangements, research collaboration, strategic research fund or services (capacity) individually or in combination. A base case (maintain current investment in real terms) and options to reduce investment or the levy rate were included for completeness and comparative analysis. Each option was assessed for its potential expected value using multiple financial and research outcome criteria (Table 5.1).

Proposed way forward

1. GRDC should invest an additional $60 million dollars per annum for a decade in R&D ($50m) and Services ($10m)
2. GRDC should structure these investments as a strategic fund focused on sustaining the research intensity required to realise production and broader industry and societal goals with partners (i.e. investment mix). This should include targeting additional strategic research and investing in services to build capacity.
3. GRDC should update investment and risk assessment policies to better evaluate, target and demonstrate the value of investments for GRDC, partners and levy payers in the future.

Table 5.1 GRDC right-sizing options analysis

Options		Financial (GRDC)			Research Outcomes				
		Financial sustainability	Financial flexibility	Administration and overhead cost impact	Investment portfolio risk	Potential RD&E impact	Potential for new research providers	Creating future research optionality	Bidding up costs
1	No Change (maintain RD&E investment in real terms at current levels)								
2	Reduction in RD&E Investment								
3	Invest More (More Projects)								
3A	Invest More (More Projects) + More Services								
4	Invest More (Strategic Research Fund)								
4A	+ More Services								
5	Invest More (Research Collaboration)								
5A	+ More Services								
6	Invest Much More (More Projects & Strategic Research Fund)								
6A	+ More Services								
7	Invest Much More (Spend More & Research Collaboration)								
7A	+ More Services								
8	Invest Much More (Strategic Research Fund & Research Collaboration)								
8A	+ More Services								
9	Invest Much, Much More (all increase options simultaneously)								
9A	+ More Services								

Source: ACIL Allen

Legend	Greater negative effect	Negative effect	No change	Positive effect	Greater positive effect

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Appendices

A Key findings

#	Finding	Description
GRDC's purpose and plan		
1	GRDC is an industry services company investing in industry and government funds.	GRDC is an industry services company legislated to receive and invest industry and government funds under a broad definition of R&D to improve the grains industry. The company's goal is to provide demonstrable outcomes to levy and taxpayers against an agreed-upon plan.
2	The current plan is stakeholder agreed and based on investing $230-240 million per annum.	The current RD&E Plan identifies and allocates funding to four strategic pillars areas and enablers. The plan emphasises the need to improve how GRDC invests with RD&E partners.
GRDC investment phases and levers		
3	GRDC's key influence is through setting direction and investments contracted.	For GRDC, the investments contracted, and RD&E direction/type are equally influential. Whilst GRDC can influence capability, it is not directly in control as RD&E capacity is owned and under the management of its partners.
RD&E investment portfolio		
4	Investing in strategically in Strategic Research to strengthen the RD&E Pipeline	As a statutory RDC, GRDC's key performance and accountability framework is outlined in the funding agreements signed with the Commonwealth. Performance principle 2 states that research, development, and extension activities should be strategic, collaborative, and targeted to improve profitability, productivity, competitiveness, and preparedness for future opportunities and challenges through a balanced portfolio. Since 2010, GRDC's RD&E portfolio has consistently focused on applied research, development, and adoption, with less emphasis on strategic research and commercialisation. While GRDC collaborates with various partners to facilitate commercialisation, it is not a primary focus compared to its emphasis on applied research, development activities, and the adoption of new technologies to help improve farming practices and industry profitability. GRDC's focus on applied research and development may suggest that GRDC is prioritising the immediate, practical outcomes of its research efforts, potentially at the expense of foundational/ long term strategic (basic) research. This approach has clear benefits in terms of, supporting growers with current, actionable solutions, and maintaining confidence in GRDC as a solution focused investor of industry funds. However, there is an opportunity for GRDC to consider allocating more RD&E resources toward strategic (basic or blue sky) research to re-fill the RD&E pipeline, which could provide a foundation for long-term growth and industry profitability. Such investments require time and therefore sustained investment and adaptive management to realise the potential benefits and mitigate the associated technical risks. Such investments are an important part of the overall balanced investment portfolio and risk appetite and need and communicated as such to enhance rather than detract from GRDC's reputation.
5	Services are an important GRDC investment category, indirectly benefiting industry	GRDC currently invests in services, including capacity building, which benefit levy payers indirectly, which is within its remit but has cost-shifting risks. Grower-technocentric RD&E investment logic and a distributed/ nested investment structure limit their valuation, transparency, and development.
6	Research costs are increasing (and the average project size is decreasing).	Between 2010 and 2024, ACIL Allen estimates that the cost of delivering strategic research and commercialisation has cost GRDC between 20 and 40% higher per investment compared to applied RD&E. Providers are using commercial principles to contract based on actual costs. Opportunities for (financial) leverage are reduced when GRDC/provider objectives are not aligned. This trend is expected to continue. The large number of projects creates an administrative burden (and cost) for GRDC and providers.

<table>
<tr><th>#</th><th>Finding</th><th>Description</th></tr>
<tr><td>7</td><td>An expanding active RD&E portfolio, supported by growth in leveraged funding attributable to the top 25 partners</td><td>GRDC has a significant number of active contracts, with an increasing number and value of investments adding pressure to its active investment portfolio. Investment in 2023–24 will further increase the number of active commitments in the near future, leading to a larger and more complex portfolio.

Between 2015 and 2024, leveraged funding accounted for approximately 40% of total investment, adding approximately $0.67 for every dollar invested by GRDC (including GRDC in-kind).

Over 90% of GRDC research funding is allocated to universities, government entities, SMEs and CSIRO. Most leveraged funding is connected to larger public entities, such as universities, government bodies, and CSIRO, while third-party contributions are linked to universities. Most of the leveraged funding is attributable to GRDC's largest 25 investment partners by contract value.</td></tr>
<tr><td>8</td><td>Risk Appetite + Risk Assessment Framework constrain HIGH risk RD&E investment</td><td>The current Appetite and Risk Assessment Framework investment criteria are too vague to practically inform investment decisions.

GRDC and its stakeholders need to be willing to accept a significant proportion of HIGH-risk investments will not realise expected value. Operationally GRDC needs to ensure arrangements are in place to avoid disincentivising HIGH risk investments. Key areas requiring better criteria are shown in the table below
<table>
<tr><th>Risk</th><th>Description</th></tr>
<tr><td>Impact (financial)</td><td>Willing to allocate up to X% of the annual budget to high-risk, high-reward research (i.e., benefit not realised on a significant proportion of HIGH-risk investments)</td></tr>
<tr><td>Operational</td><td>Open to exploring new methodologies, technologies, and partners, even if they involve significant learning curves</td></tr>
<tr><td>Reputational</td><td>Willing to engage in controversial or pioneering research areas that could position the organisation as a leader in the field</td></tr>
<tr><td>Compliance</td><td>Open to navigating complex regulatory environments if the potential benefits justify the effort</td></tr>
</table></td></tr>
<tr><td colspan="3">RD&E investment stakeholders</td></tr>
<tr><td>9</td><td>Grain growers are the primary but not only beneficiary of GRDC investments.</td><td>GRDC investments can and should benefit grain growers (levy payers), the grains industry, society, and researchers. The four beneficiaries share strategic intent (improved RD&E and the grains industry) but have individual priorities that do not always align. The associated market and non-market valuations need to be considered in defining value pools and estimating expected value.</td></tr>
<tr><td>10</td><td>Capacity to plan, partner and deliver RD&E is a priority which requires change and time to realise</td><td>RD&E capacity is a national priority and necessary to retain existing platforms and support increased investment. Industry and public goods are an appropriate use of GRDC funds but benefit levy payers indirectly. Strategic R is an opportunity nested inside priorities and providers. Partnerships are central to realising value. Providers face challenges in the timing, resourcing and (financial) commitment required to respond to and scale individually and through partnership initiatives.
– GRDC is a systems regulator – which materially influences RD&E and partners
– R&D is incremental in mature industries – no agreed dominant transformational investments
– R&D requires intensity + agility
– Emergent technologies enable + constrain
– Capacity utilisation and costs are equally important
– Workforce is a partial constraint

The construct of a balanced portfolio needs to extend beyond grain commodity value pools and program areas and differing investment approaches.</td></tr>
</table>

#	Finding	Description
Performance impact assessments		
11	Ex post assessments are important but not determinant.	GRDC RD&E investments deliver a return per dollar invested broadly consistent with ABARES analysis. Existing methods are not sufficiently accurate to properly estimate and demonstrate returns in a cost-effective, repeatable manner due to data and non-market technique availability constraints. The question of where GRDC is facing diminishing marginal returns is a matter of perspective and context. A complete portfolio analysis using other methods could be undertaken to determine whether there are diminishing marginal returns as investment increases and whether different types of RD&E generate different rates of return. This may provide a more definitive answer but will not address all aspects of the value GRDC is expected to invest in. The grains industry and R&D are established so diminishing marginal returns are to be expected. Sustaining the RD&E effort along with improved (new) problem statements that integrate new technologies and partners will yield returns in time.
12	Yield and inputs are important by crop while expansion and price are important by the industry's markets. Both involve sustaining research intensity/pushing frontiers	Yield, input intensification (cost) and area expansion (crop substitution) and price/terms of trade will remain significant for productivity and profitability drivers. The latter needs to be developed through an industry rather than individual grain commodity lens (i.e., industry good function). Sustaining Australia's research intensity is important to realising future gains. When systems are reaching productivity frontiers, emphasis should shift to strategic (new) research. This will require reformulation of the research agenda and capacity to focus investment with partners and building stakeholder support for the associated lag in benefits realisation.
Levies and RDCs		
13	Grain levies reflect industry conditions. Case for change must be industry driven.	The ad valorem grain levies result in RD&E revenue reflecting growing season and market conditions. Changes to grain levies requires a business case and widespread stakeholder support that needs to consider equivalence and equitability across each levied commodity and the reliant industry services. Grain levy reform falls outside GRDC's remit and the scope of this work.
Financial situation		
14	GRDC revenue is forecast to exceed planned expenditure	GRDC's financial reserves will be significantly above its Target Reserve level of 45% over the forecast period. This provides opportunity to increase investment against current and future priorities to deliver additional benefits.
15	Opportunity cost of reserves, include and extend beyond financial terms	The opportunity cost of holding additional reserves which could be invested in RD&E is significantly greater than the financial return on investment or their present value. Determining the quantum and mechanism of function requires portfolio analysis of investment using non-market values through multiple lenses.
16	Current reserves are sufficiently resilient to withstand significant revenue shocks	Modelling demonstrates GRDC would have sufficient time *to respond* to a significant revenue shock, with financial reserves remaining above the target level until 2030-31 – some six budgets away.
Trends and drivers		
17	The major drivers are known and will continue to disrupt at an unknown rate.	Various studies, plans and policies all highlight sustainability, productivity, markets, technology, and workforce are and will continue to be major societal and grains (industry) drivers requiring on-going RD&E. While productivity remains as GRDC's core remit, stakeholders will look for (co-)investments which address other drivers first and subsequently realise grains productivity gains.
18	Climate change impact requires on-going adaptive investment management.	As climate change exacerbates extreme weather events, it is likely that volatility in GVP will result in fluctuating levy revenue contributions from grain growers (downside scenario). Adaptation strategies and innovations help stabilise production and overtime levy revenue may become more stable (upside scenario). Ongoing uncertainties surrounding climate risks require GRDC to adapt its funding strategies, including use of reserves.

#	Finding	Description
Assessing value		
19	GRDC needs multiple repeatable investment tools.	The importance and potential value of investments requires multiple tools. These have data and insight constraints at the portfolio budget allocation phase. The best approach is for GRDC to utilise a defined set of rigorous tools systematically and repeatably using qualitative and quantitative rubrics.
20	Focus investment where Expected Value is greater than financial costs	As a research organisation, the concept of Expected Value is critical to helping determine where and how to invest in the future. Expected Value is the concept that future returns are a function of the size of the return and the probability of realising it. The key is finding projects which can deliver Expected Value greater than financial cost. GRDC should have investments across the matrix. This includes "avoidance" projects which need to be reviewed as to whether they should be terminated or transitioned.
Assessment approach		
21	Expected Value needs to be assessed on investments within focus areas + enablers	Expected Value needs to be assessed within strategic focus areas (and enablers) to provide a portfolio overview of the distribution of returns and probabilities of realising them against costs.
22	Portfolio assessment criteria need to be limited, enduring and adaptable to be viable	Expected Value (and other comparable techniques) requires assessment criteria that can be repeatedly applied to all GRDC investments. The assessment can draw on but not fully replace other assessment tools. A set of enduring criteria have been developed for testing and further refinement.
Assessment of investment options		
23	GRDC needs to simultaneously assess the value of outcomes and improved functions	GRDC generates value through targeting RD&E priorities and the way it structures investments to attract and deploy the capability required. Assessing all investments using Expected Value will surface where and to what degree investments are focused on higher returns and the probability of realising them.
24	A Strategic Research Program, Large Multi-Year Mission and Coordinated Up-lift in Service Option has highest Expected Value from additional investment	The review of the research landscape identified the grains industry is ripe for a renewed focus on basic research (Strategic R'), and in tackling big picture problems with large research missions which may involve significant investments in a handful of research providers. GRDC's current and anticipated future financial capacity means these initiatives could proceed alongside a continuation of current activities. On balance, the analysis suggests Option 8A presents a pathway forward for additional GRDC investment. This option would see GRDC develop a Strategic Research Program, a large, multi-year research mission and a coordinated uplift in Services expenditure.
Financial scenario modelling		
25	Modelling and historic performance indicates investing an additional $60m p.a.	ACIL Allen's modelling suggests if a $7.82:1 investment outcome is expected from every additional dollar of research, GRDC could target investing up to an additional $66.4 million p.a. (using the profile of Scenario 1, being 50% uplift to this value in Year 1 and 100% of the value thereafter) and expect to maintain its liquid reserve within its policy targets. This would realise an additional $5,178.1 million of benefits over ten years – assuming the $7.82:1 ratio was reasonable.

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