Australian Government
Grains Research and Development Corporation

GRDC™
GRAINS RESEARCH & DEVELOPMENT CORPORATION

ANNUAL REPORT 2022-23

GRDC

GRAINS RESEARCH & DEVELOPMENT CORPORATION

The Grains Research and Development Corporation (GRDC) is a corporate Commonwealth entity established to plan and invest in research, development and extension (RD&E) for the Australian grains industry.

Its primary objective is to drive the discovery, development and delivery of world-class innovation to enhance the productivity, profitability and sustainability of Australian grain growers and benefit the industry and the wider community.

Its primary business activity is the allocation and management of investment in grains RD&E.

Front cover: Jason Haywood with his father Barry and daughter Shanae inspecting wheat on their Goomalling WA property.
Evan Collis Photography

LETTER OF TRANSMITTAL

Friday, 29 September 2023

Senator the Hon Murray Watt
Minister for Agriculture, Fisheries and Forestry
Minister for Emergency Management
Parliament House
Canberra ACT 2600
By email: minister.watt@agriculture.gov.au

Dear Minister

RE: GRDC Annual Report 2022-23

It is my pleasure to present the annual report of the Grains Research and Development Corporation (GRDC) for the year ended 30 June 2023, in accordance with section 46 of the *Public Governance, Performance and Accountability Act 2013* (Cth) (PGPA Act) and section 28 of the *Primary Industries Research and Development Act 1989* (Cth) (PIRD Act).

GRDC is confident that its performance in 2022-23 has contributed to a sustainable, productive, competitive and profitable Australian grains industry.

This performance is consistent with GRDC's responsibility to plan, execute and report against the:

- objects of the PIRD Act as they apply to GRDC;
- planned outcomes of GRDC's 2018-2023 Research, Development and Extension Plan and Annual Operational Plan 2022-23;
- outcome and performance measures set out for GRDC in the Agriculture Resources Portfolio Budget Statements 2022-23; and
- core requirements of the Funding Agreement 2020–30, in particular the five performance principles.

The annual report was prepared under the direction of the Board and approved by a resolution of GRDC's directors on 20 September 2023.

Yours faithfully,

John Woods
Chairman

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1. OVERVIEW

ABOUT US

The Grains Research and Development Corporation (GRDC) is one of 15 Rural Research and Development Corporations (RDCs) responsible for planning, investing in and overseeing research, development and extension (RD&E) for 25 leviable grain crops.

Our purpose is to invest in RD&E to create enduring profitability for Australian grain growers:

- Invest – we invest to deliver a return on investment to grain growers.
- RD&E – we make investments in RD&E activities in line with the objectives of the *Primary Industries Research and Development Act 1989* (Cth) (PIRD Act).
- Create – we invest to develop innovative approaches to constraints and opportunities and facilitate their adoption.
- Enduring – we invest to drive long-term, sustainable impact on grain-growing businesses and their profitability.
- Profitability – we focus on grower profits, not just productivity.
- Australian grain growers – we exist to deliver value to Australian grain growers. While not all growers will benefit from every investment, we aim to deliver impact to all growers.

Our primary objective is to drive the discovery, development and delivery of world-class innovation to enhance the productivity, profitability and sustainability of Australian grain growers and benefit the industry and the wider community.

The resources available to GRDC for investment in RD&E predominantly arise from levies paid by grain growers and contributions made by the Australian Government, with additional income from interest, royalties and grants.

Enabling legislation

As a corporate Commonwealth entity we are governed by the PIRD Act.

GRDC's purpose

To invest in research, development and extension to create enduring profitability for Australian grain growers.

Minister

Senator the Hon. Murray Watt

Representative organisations

Grain Growers Limited
Grain Producers Australia

AUSTRALIAN GRAINS INDUSTRY AT A GLANCE

22,491
Number of levy payers in 2022-23[1]

1.67% growth
in total factor productivity of cropping farms, climate adjusted[2]
(1.54% TFP growth 2020-21)

$91.5 billion
Total value of farm production in 2022-23[3]
(up from $87.9B in 2021-22)

34%
Grains industry share of Australia's total gross agricultural 2022-23[3]
(32% share in 2021-22)

70.8 million tonnes
Grains produced in 2022-23[3]
(66.5M tonnes produced in 2021-22)

51.7 million tonnes
Volume of grains exported[3]
(44.7M tonnes exported in 2021-22)

4.5%
Average rate of return for Australian cropping farms (excluding capital appreciation) 2023[4]
(4.5% RoR in 2022)

$31.1 billion
Gross value of grain production in 2022-23[3] ($28.3B in 2021-22)

$29.7 billion
Value of grains exported[3]
($23.5B in 2021-22)

25.6 million hectares
Crop sown in 2022-23[3]
(25.4 million hectares in 2021-22)

Australia represents the following % of global exports

Sorghum[5]	Chickpea[6]	Canola[5]	Barley[5]	Oat[5]	Wheat[5]
35%	35%	34%	25%	22%	15%

1. GRDC (2023). Grains Levy Payer Register. Confidential (unpublished). Based on unique ABNs with a total value of production >$40,000 for financial year 2022-23.
2. ABARES, 2015-23, Farm Data Portal – Beta, 2023 data dashboard, Canberra, February. Updated 25/08/2023. Climate adjusted TFP was 1.67% for cropping Table C1 in productivity data 2021-22 v1.2.0.
3. ABARES 2023, Agricultural commodities: June quarter 2023, Canberra
4. ABARES 2022, ABARES Farm Data Portal – Beta Release, Canberra, March. CC BY 4.0. Updated 25/08/2023. 4.5% is the forecast RoR for cropping farms in 2023.
5. USDA, 2023. Downloadable data sets. Foreign Agricultural Service. PSD online.
6. FAO, 2023. FAOSTAT (2023) FAO of the United Nations. FAOSTAT Database. FAO data is in calendar years.

CHAIR AND MANAGING DIRECTOR'S REPORT

Often considered the quiet achiever in Australian agriculture, the grains industry notched up another impressive year in 2022-23 with the Australian Bureau of Agriculture Resource Economics and Sciences (ABARES) putting the sector's total value at $31.1 billion, with wheat earnings alone over $15.7 billion.

These figures overshadow the comparative earnings of the beef sector at $13.8 billion and wool at $3.1 billion. Of course, as an organisation close to our grain grower stakeholders, we are keenly aware these achievements have been helped by two consecutive record-breaking seasons with the 2022-23 crop of 70.8 million tonnes, coming on the back of a 66.5 million tonne crop in 2021-22.

However, we also understand that while favourable seasonal conditions have played a role, long-term strategic RD&E has also been critical to the steadily increasing gains and efficiencies in Australian grain production.

Even allowing for seasonal volatility, on-farm grain profits have grown as productivity gains, rather than broadacre expansion, drive grains industry growth across Australia.

These gains have been underpinned by strategic and tactical RD&E investments, which have been informed by industry and designed to meet the needs of our key stakeholders – grain growers. These RD&E investments have been developed in partnership with researchers, universities, government departments and commercial entities and managed by a highly experienced GRDC team.

To understand the impact and contribution of our RD&E investment compared with global investors, this year we commissioned an independent benchmarking study that compared international RD&E investment.

This ACIL Allen Grains International Benchmarking Study compared up to 30 years of data from major grain-producing nations and found Australia's long-term investment in grains RD&E led by GRDC had delivered world-leading gains for the nation's growers.

Despite Australia's public investment in grains RD&E being lower than the USA, India, Brazil and Canada, the study showed Australian grain growers enjoyed much higher total factor productivity (TFP) growth than any other country in the survey.

The researchers found Australian wheat TFP grew by an average of 2.75 per cent per year over the 30-year period of GRDC investments. In comparison, Argentina, the next-best performing country, experienced average annual wheat TFP growth of 0.98 per cent per year.

Rather than measuring simple yield tonnage or value, TFP compares total gross output with total land, labour, capital and material inputs. A growing TFP indicates total output is growing faster than total inputs.

The study also found Australia's yield growth over the past 10 years was remarkably consistent, while other countries experienced considerable yield volatility from season to season. Australia led the world in yield growth for wheat and barley over the decade, and ranked second for canola, oats and lupins. Chickpea yield growth ranked fourth, and lentil yield growth was fifth. This was despite Australia recording the lowest overall rainfall and considerable rainfall variability – including several periods of drought.

The study authors observed that the sustained growth was attributable to a long-term investment in RD&E delivering steady incremental improvements and found significant merit in Australia's levy-based funding system.

Although economies of scale and increasing farm size will improve TFP, the metric is mainly driven by enhanced farming practices such as more efficient input use, improved crop protection, higher yielding cultivars and better soil management.

Australian grain growers are innovative, resourceful and resilient. These qualities, combined with world class, cutting-edge RD&E equates to results, such as a national $31.1 billion in grain production (gross value).

GRDC's role is to support and grow this success by continuing to invest in RD&E that delivers a tangible difference on-farm and provides growers with the confidence to make practice changes. Our work aims to help drive the profitability and productivity of grains operations, ensure the industry's sustainability, improve market competitiveness, strengthen our partnerships and ultimately, deliver an impact.

We are at the forefront of cutting-edge RD&E as we work to understand how agricultural technology will inform decision-making, increase farm efficiency, examine the options for improved sustainability, and develop key partnerships to address the major challenges facing grain growers into the future.

This year we have invested $176.9 million in 833 RD&E investments: about 30 per cent are new investments and 70 per cent are ongoing. This division ensures we can invest in new, novel, transformational RD&E as well as ensure long-term support for critical RD&E that together delivers an impact and genuine dividends for growers.

Our 2022-23 expenditure is at investment levels comparable to the four-year period between 2015 and 2018. However, we are keenly aware that levy revenue varies significantly from year-to-year depending on the size of the harvest for our 25 leviable commodities. In contrast to current conditions, our levy income for the 2019-20 financial year was $95.8 million – a 12 year low.

As a result, we take a financially prudent, long-term view to ensure that research investments are consistent and not impacted by seasonal conditions or turned 'on and off' in response to national grain yields and prices. Seasonal variability means levy variability, and the GRDC Board is committed to investing in transformational or big impact investments to deliver value to Australian grain growers, alongside our core investments in on-farm agronomy, pests, weeds and disease investments right through to post-farmgate market intelligence.

Engagement with our key stakeholders remains an integral part of our operation. We connect through our established Regional Panels where 30 growers, advisers, researchers and industry stakeholders represent the sector to GRDC to inform RD&E investments. Panels ensure investments are developed in the best interests of growers and deliver impact to industry.

We also have a clear 'open door' policy through the National Grower Network (NGN) which we launched in 2020-21. The NGN ensures any grower, adviser, researcher or industry stakeholder can connect directly with us in a two-way engagement model that facilitates information and knowledge exchanges and helps inform our RD&E.

Reviewing where and how we invest on behalf of Australian grain growers and ensuring we continue to deliver RD&E that supports long-term grower sustainability and profitability remains GRDC's core purpose. This year we have undertaken extensive industry engagement and consultation to shape and inform our next five-year RD&E plan (2023-28), which will build on the strong foundations we have developed through 30 years of investment.

As part of our new ambitious, but well-informed, RD&E plan we will increase our annual investment levels to $230 million per year for the next five years – for a total spend of more than $1 billion. Our levels of reserves will ensure we can invest at this scale over the life of the plan, regardless of the volatility we have experienced historically and will continue to experience in the agricultural sector.

Critically, collaboration, co-operation and co-investment remain central to everything we do at GRDC. There is not a single GRDC RD&E investment that does not have the support and involvement of our research partners, growers or the broader industry. We also partner outside the grains sector to solve those challenges that are bigger than our industry. Strong relationships are at the heart of our business and make our RD&E investments possible, they also ensure and support the vital uptake of new technology and practice change on-farm.

In closing we would like to thank our fellow Board directors, the Regional Panel chairs and members, the Executive Committee and staff, who work together to ensure GRDC's continued investment in high-quality RD&E on behalf of Australian grain growers.

We are proud of the work that we do and the role we play in delivering improvements that result in greater profitability on-farm for Australian grain growers.

Yours sincerely,

John Woods (Chair) and
Nigel Hart (Managing Director)

GRAINS INDUSTRY CHALLENGES IN 2022-23

When it comes to the Australian economy it is safe to say that the grains industry is a clear front-runner in the rural stakes contributing close to a quarter of the total gross national agricultural production.

Australian grain growers are recognised nationally and internationally as innovative, resourceful and highly efficient.

Proven ability to adapt, economies of scale, a reputation for quality and proximity to growth markets are strengths the industry can build upon. The fundamental drivers of market demand present an exciting outlook for the Australian grains industry over the coming decades.

However, the industry is facing both significant opportunities and major challenges, but on the back of three decades of RD&E investment, GRDC is well positioned to play a key part in what comes next.

GRDC's extensive consultation with key stakeholders through 2022-23 identified climate variability, ongoing market risks, tight profit margins, high input costs, along with changing consumer preferences and community expectations as some of the major issues facing the sector.

Responding to these opportunities and challenges through effective RD&E investments remains a priority for GRDC.

INVESTMENT AND IMPACT 2022-23

$176.9 million

Total consolidated R&D investment ($177.1M in 2021-22)

833

Total number of active investments
(656 in 2021-22)

Investments by objective – value of investment (number of investments)

Objective 1	Objective 2	Objective 3	Objective 4	Objective 5
$66.3 million (242)	$11.6 million (43)	$50.7 million (220)	$2.5 million (14)	$9.0 million (24)

30%
New investments*

70%
Ongoing investments*

Intellectual property statistics

24 patent families across **44** countries

88 commercial agreements including **5** new agreements

121 plant breeder's rights (PBR) granted across **18** species

7 new PBR applications

39 investments across **22** portfolio companies

GRAININNOVATE

and for every dollar invested by GRDC a ratio of 1:24 of co-investment has been contributed by Artesian and other sources.

$6.5 million
royalty revenue

17
registered trade marks

* % of new versus ongoing investment. New investments are those with a start date between 1/07/2022 and 30/06/2023. Ongoing investments are those with a start date before 1/07/2022.

YEAR IN REVIEW

The 'Year in review' section highlights key achievements delivered through GRDC investments and work through 2022-23 that are national in scope and are significant due to their scale or value. More information is available at grdc.com.au.

Investing for the sustainability of Australian growers

In 2022, GRDC established the GRDC Sustainability Initiative to analyse sustainability issues and opportunities for the grains industry. It aims to create a pipeline of GRDC investments in RD&E that bolster the delivery of sustainability outcomes.

The Sustainability Initiative recognises that enduring profitability for Australian grain growers is intertwined with environmental, social and economic factors including: healthy soil, water and air; robust rural communities; and the trust of consumers, finance markets and governments.

A report commissioned in 2022 found around a quarter of GRDC's then investment portfolio had a direct environmental impact if the outputs and practices developed were adopted by growers. Off the back of these past investments that support sustainability outcomes and under the GRDC Sustainability Initiative, GRDC is now proactively positioning its investment in RD&E to further support sustainability outcomes focusing on greenhouse gas mitigation, carbon sequestration, social capital and environmental services based on land, water and biodiversity value.

Through the GRDC Sustainability Initiative, GRDC is now proactively positioning its investment in RD&E to further support grain growers.
Photo: Rowdy Travis

Integrated Grains Australia and AEGIC to deliver more efficient 'industry good' functions

Grains Australia and AEGIC combine forces to drive efficiencies and market gains for Australian grain growers.

Two of Australia's key grains industry entities, Grains Australia Limited (Grains Australia) and the Australian Export Grains Innovation Centre Limited (AEGIC) joined forces this financial year to deliver more efficient and effective 'industry good' services for Australian grain growers. The integration of activities and alignment between the two entities was driven by GRDC and the Government of Western Australia (WA).

Until now, Grains Australia and AEGIC operated as separate entities. AEGIC as an initiative of the Department of Primary Industries and Regional Development, WA (DPIRD) and GRDC; and Grains Australia as an initiative of GRDC.

This integration will drive collaboration, improve coordination and streamline and deliver efficiencies across the key areas of classification, trade and market access; market information and education; and customer insights and innovation for the Australian grains sector.

GRDC has also committed more than $17.5 million over four years to Grains Australia to bolster the competitiveness and profitability of the nation's grain sector across the value chain in domestic and international markets.

GrainInnovate $50M fund targets start-ups

Strategic GrainInnovate investments are driving innovation in the grains industry, helping growers to benefit from the latest in ag-tech.
Photo: Evan Collis Photography

The GrainInnovate initiative, a joint venture between GRDC and Artesian, established in 2019 is a $50 million fund dedicated to supporting start-ups in the grains industry. This support continued throughout 2022-23.

The GrainInnovate fund targets start-ups at various stages from seed to growth, with a keen interest in those developing software, hardware or innovative business models that aim to enhance the profitability and sustainability of the grains sector. Specific areas of focus for the fund include genetics, renewables, crop protection technologies and water efficiency.

The fund's investment structure is diverse, offering from $25,000 for seed-stage start-ups to up to $5 million for those reaching the Series A stage. As these start-ups mature, GrainInnovate has become instrumental in providing further investment opportunities, broadening distribution channels and fostering strategic partnerships. This initiative helps ensure that grain growers benefit from the latest technological advancements for on-farm productivity and sustainability.

$20M granted to build grains sector infrastructure capacity

GRDC infrastructure grants are designed to build and support national RD&E capacity.

In 2022-23, GRDC granted $20 million as part of a national infrastructure program to build Australia's grains research capacity. This dedicated program was designed to support research partners both large and small, in creating critical, long-term capacity and capability.

As an organisation, GRDC understands that its research partners need quality infrastructure to enable them to be able to deliver world-class RD&E and this was the core driver behind this program.

A total of 37 GRDC grants were awarded to 32 recipients across Australia's three cropping regions with successful recipients required to provide co-contribution. Grants spanned analytical equipment and plant growth facilities at universities through to machinery and drones for grower groups.

Co-investment boost strengthens strategic partnership to tackle crop disease

Discoveries made by the Centre for Crop and Disease Management are delivering options to growers to reduce the impact of crop diseases in their paddocks.
Photo: Nicole Baxter

This financial year, GRDC committed a further $30 million over five years to the Centre for Crop and Disease Management (CCDM), a research facility focused on discovering new ways to reduce the economic impact of crop disease for Australian growers. Established in 2014, CCDM is a major initiative of GRDC and Curtin University.

Recognised as a world leader delivering genuine solutions, CCDM's discoveries include identification of globally significant cases of fungicide resistance among barley diseases and finding the 'master gene' responsible for regulating infection by common wheat pathogens.

CCDM has played a vital role in reducing the economic impact of diseases for wheat, barley, canola and pulse growers across the country. The Centre has also delivered outstanding work identifying, developing and delivering barley germplasm that is resistant to powdery mildew with a total cost of research of $5.91 million, but representing a total benefit to the grains industry of $54.8 million.

$8.2M investment builds on decades of canola research

A new canola investment focused on crop establishment will build on significant investment by GRDC into genetic solutions for canola varieties.

An $8.2 million, four-year research investment announced in 2023 is designed to deliver new management packages to Australian grain growers to increase the reliability of canola establishment. It is a co-investment between GRDC and CSIRO.

Canola is Australia's third largest crop, with production forecast to reach a new record of 7.3 million tonnes in 2022-23. Poor establishment of canola is a widespread problem with, on average, only 50-60 per cent of seeds capable of germination successfully establishing. This research is national and builds on a 2019 investment of $13.2 million with CSIRO, which focused on genetic solutions to help canola breeders develop varieties that better establish in growers' paddocks.

These genetic solutions will now be paired with a comprehensive agronomic package, combining genetic, environmental and management factors that growers can use to improve their canola establishment and, ultimately, improve the profitability of this crop.

Two novel investments in frost

Two new investments in frost research will aim to develop innovative tactics for management and mitigation.

A GRDC and CSIRO $9.3 million co-investment announced in 2022 will determine the impacts of frost and heat risk on grain crops and develop tangible, commercial products that growers can use to mitigate risk. The research team will use both existing data and new research to gain a more precise understanding of how heat and frost events impact crops and how to mitigate risk prior to and during a growing season.

Yield loss from frost and heat events in wheat alone is estimated to cost growers more than $500 million annually, which is why GRDC has invested $6.2 million into this research to help growers better respond to damaging weather events.

In 2022-23, GRDC also invested in research to protect against or avoid frost damage in wheat, barley and canola crops by varying in-season agronomic practices. This $5.45 million, three-year co-investment between GRDC and a research consortium led by Field Applied Research (FAR) Australia will trial novel in-season approaches, across varying agro-ecological zones and multiple seasons to mitigate frost risk.

New fungus introduced to help fight a major production weed

CSIRO weed ecologist, Dr Ben Gooden, says flaxleaf fleabane was one of the most difficult-to-control weeds in grain cropping systems, the national investment is now delivering a biocontrol tool for growers battling the disease.

GRDC's involvement in a Rural Research and Development for Profit program helped deliver a new biocontrol tool to help fight one of Australia's most challenging agricultural weeds, flaxleaf fleabane (*Conyza bonariensis*).

The biocontrol tool was successfully introduced into Australia as a result of the investment 'Underpinning agricultural productivity and biosecurity by weed biological control' which was supported by AgriFutures Australia (AgriFutures) through funding from the Australian Government Department of Agriculture, Fisheries and Forestry (DAFF) as part of its Rural Research and Development for Profit program with co-investment from GRDC, CSIRO and the NSW Biocontrol Taskforce.

As a result of this research, in August 2022 Australian growers were given access to a fungus that originated from Columbia to help tackle one of the most difficult-to-control weeds in the grain cropping system, flaxleaf fleabane. This fast-spreading weed is estimated to affect nearly three million hectares of land in Australia and cause grain crop revenue losses of more than $43 million each year.

$12.7M for research into long coleoptile wheat agronomy

A new investment to understand agronomic best practice for long coleoptile wheat builds on decades of research.

This year GRDC announced a $12.7 million national research investment to support the integration of long coleoptile wheat into Australian farming systems.

Long coleoptile wheat could be a 'game changer' for growers in low-to-mid rainfall zones, extending options for early sowing to meet the challenges of increasing enterprise sizes and changing climates. The four-year investment is led by Australia's national science agency CSIRO along with research parties including the University of Melbourne (UoM), NSW Department of Primary Industries (NSW DPI), Queensland Department of Agriculture and Forestry (QDAF), SLR Agriculture, DPIRD, the University of South Australia (UniSA) and EPAG Research.

This investment builds on decades of research by CSIRO and previous GRDC investment of approximately $11.5 million to introduce new climate-adaptive traits into commercial wheat varieties. It seeks to fill identified knowledge gaps around how these genetics perform across contrasting production environments, soils and farming systems, and equip growers with the tools to better respond to changing climates and seasonal variability in their farming systems.

$30M national risk management initiative

RiskWi$e aims to give growers the tools to evaluate potential risks and rewards, and provide confidence in decision-making.

GRDC has invested in a five-year, $30 million national investment – RiskWi$e – to help Australian grain growers better manage risks, such as drought and market volatility. The investment is one of the largest ever grower-facing initiatives undertaken by GRDC. Led by CSIRO, it involves partnerships with more than 25 grower-based groups from across the country, along with the South Australian Research and Development Institute (SARDI), University of Queensland (UQ), University of Western Australia (UWA) and UoM.

RiskWi$e goes beyond analysing risk. It is based on engaging with the most important farm-level decision-making challenges raised by growers and advisers, and then jointly coming up with practical ways to inform and boost confidence when tackling those decisions.

Innovative new spray hazard warning system activated

Innovative spray hazard system offers real-time weather data about hazardous temperature inversions.
Photo: Mel Jensen

During 2022-23, a major milestone was reached in the effort to help minimise spray drift, with a hazardous weather warning system activated for Queensland and New South Wales (NSW) grain and cotton growers.

The system – named Weather and Networked Data or WAND – is the result of six years of collaborative research by GRDC and the Cotton Research and Development Corporation (CRDC) into meteorological conditions and the spray application of crop protection products.

To deliver this new technology to growers and spray applicators, GRDC and CRDC partnered with Goanna Ag in a $5.5 million investment. The innovative technology provides real time weather data about the presence and absence of hazardous temperature inversions.

STAKEHOLDER ENGAGEMENT SNAPSHOT

Grains Research Updates (GRUs)

31
GRU events

4,000+
Attendees
(growers, advisers and researchers)

Farm Business Updates (FBUs)

21
FBU forums
(face-to-face and online)

2,000+
Attendees
(growers, advisers and researchers)

National Grower Network (NGN)

57
NGN forums

61
Investments

83
Actions

$2.2million
NGN investments in 2022-23,
as part of investments worth $5.2million over life of projects.

Subscribers

33,790
GroundCover

25,940
Regional newsletters

Podcasts

65
Published*

81,544
Downloads**

Social Media

13.8+million
Impressions

573,201
Engagements

113,996
Post link clicks

4.1%
Engagement rate
(per impression)

84,346
Audience

3,919
Published posts

275,329
Video views

Breakdown of followers by profile

19,682
Facebook

3,217
Instagram

15,144
LinkedIn

40,343
Twitter
(inc. GRDC, West, South, North, NVT)

5,960
YouTube

Definitions:

Impressions: The number of times your content was displayed to users.

Engagements: The number of times users engaged with your content.

Post link clicks: The number of times users clicked on links from your posts

Engagement rate (per impression): The number of times users engaged with your content as a percentage of impressions. This indicates how engaged people are with your brand.

Audience: The number of users following your profile as of the last day of the selected time period.

Published posts: The number of posts published.

Video views: The number of times users viewed your videos.

* between 25/8/22 - 30/6/23 **a podcast download occurs when a smartphone or app downloads an audio file.

2. OUR BUSINESS

OUR ROLE

Our purpose is to invest in RD&E to create enduring profitability for Australian grain growers. These investments are developed to improve the environmental, social and economic position of grain growers, benefit the broader agricultural sector and contribute positively to the wider community.

Investment management

GRDC's investment decisions consider a broad range of factors and are informed by analysis and consultation, including advice from GRDC's three Regional Panels and engagement with industry through our NGN.

Decision-making starts with understanding constraints or opportunities; present and future situations; and the value proposition of possible solutions.

Responsible investment requires active management of our portfolio aligned to an agreed overall investment strategy.

We take this responsibility seriously and aim to ensure a balanced investment portfolio that considers both risk and return. Three key areas of risk are broadly considered in portfolio risks assessment by GRDC:

(a) Technical risk – Is the research investment technically feasible?

(b) Delivery risk – How will growers access the research outputs?

(c) Adoption risk – Will growers want to adopt the research outputs?

While it is recognised that a combination of multiple, incremental (or small) changes can result in significant improvements in profit, consultation with grain growers during the development of GRDC's RD&E plan 2023-28 confirmed an increased desire for investment to deliver transformational impact. Higher risk, higher reward investments often come with higher failure rates, but this can be mitigated through portfolio management, including the number of investments we make in a certain area. Transformational approaches often take longer to deliver tangible grower outcomes and may be less visible versus local development or extension investments.

In the context of GRDC's purpose, return is not focused on direct return on investment to GRDC, but the delivery of benefit to Australian grain growers and the broader community. We are focused on impact and consider the quantum (how much?), speed (by when?) and beneficiaries (who, where?) of impact from RD&E investment.

Our investment portfolio aims for a mix of investments that:

(a) align to grower need,

(b) deliver on the objectives of the RD&E plan,

(c) assess and mitigate technical, adoption and commercial risks,

(d) deliver equitable impact across time, geography and crop, and

(e) align to an agreed investment strategy.

Sources of funds

We are funded through an industry levy and matching Commonwealth contributions. Levies are collected at the first point of sale and based on a percentage of the net value of the following crops:

- wheat;
- coarse grains – barley, oats, sorghum, maize, triticale, millets/panicums, cereal rye and canary seed;
- pulses – lupins, field peas, chickpeas, faba beans, vetch, peanuts, mungbeans, navy beans, pigeon peas, soybeans, cowpeas and lentils; and
- oilseeds – canola, sunflower, safflower and linseed.

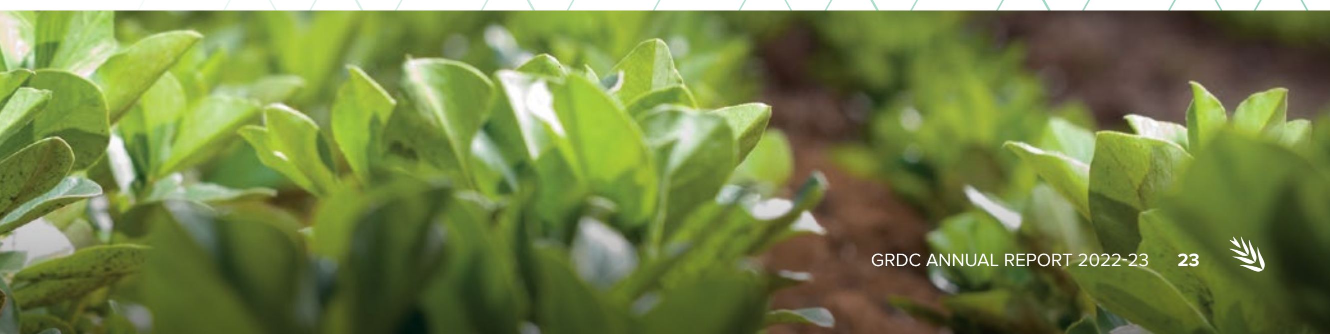
The Australian Government matches the levy contributions up to a limit of 0.5 per cent of the three-year rolling average of the gross value of production of the 25 leviable crops. Other sources, including interest, royalties and grants, contribute a smaller proportion of GRDC's income.

In 2022-23, Australian grain growers and the Australian Government co-invested $176.9 million (total consolidated R&D investment) through GRDC into grains RD&E across 833 investments in collaboration with our research partners.

Collaboration

Collaboration is critical for the effective delivery of RD&E outcomes, so we partner with researchers, research organisations, universities, governments, commercial companies, farming systems groups and growers to deliver RD&E investments, extend outcomes and maximise adoption on-farm.

Grain growers across all three GRDC regions directly contribute to RD&E through their levy contribution, but a significant number also provide their time, knowledge and expertise to contribute to on-farm trials or to inform future RD&E investments.



DETERMINING OUR RESEARCH PRIORITIES

We engage and consult widely with Australian grain growers, advisers and industry stakeholders to understand and prioritise the constraints and opportunities impacting farming businesses, and with the Australian Government to acknowledge its overarching agricultural RD&E objectives. We are also accountable to the grains industry through our representative organisations, Grain Growers Limited and Grain Producers Australia. This engagement helps shape our research priorities.

GRDC RD&E Plan 2018-23

We delivered on the GRDC RD&E plan (2018-23) for the financial year 2022-23. This plan was part of a long-term strategy to deliver on GRDC's purpose: To invest in RD&E to create enduring profitability for Australian grain growers. The plan worked to deliver enduring grower profitability with RD&E investment strategies, based on the profit drivers: improving yield, maintaining or improving price, optimising costs and managing risk.

Other key elements of the RD&E plan (2018-23) included:

- a flexible and responsive investment approach through a continuous investment cycle,
- greater focus on high reward, transformational research to drive competitiveness, and
- regional delivery.

GRDC RD&E Plan 2023-28

This year GRDC also undertook a substantive body of work and consultation to develop the organisation's new five-year plan that will guide RD&E investments from 2023-28.

To capture the breadth and diversity of views, the consultation process that took place during the 2022-23 financial year to develop the RD&E plan 2023-28 was the most extensive ever. A deliberative engagement strategy was implemented aligned to the Australian Government Department of Agriculture, Water and the Environment Best Practice Guide to Stakeholder Consultation and in accordance with the PIRD Act. Key insights and feedback were collected and considered over 10 months, including over 80 hours of grower interviews, round-table discussions, workshops, online surveys, social media campaigns and email feedback – giving everyone the chance to be heard.

Regional Panels

Each year we work closely with our three Regional Panels (Northern Panel, Southern Panel and Western Panel) to understand and determine regional and national RD&E opportunities and priorities. Our Regional Panels, consisting of grain growers, agribusiness practitioners, scientists, GRDC General Managers and other industry experts, provide a vital link between the broader grains sector and GRDC. They help to identify, prioritise and support RD&E investments that address regional constraints and opportunities impacting on-farm profitability.

The Regional Panel members' roles include engaging with and listening to growers, advisers, researchers and industry stakeholders to understand the different constraints and opportunities that are influencing farm returns and bring that information back to GRDC.

Regional Panels are also involved in reviewing investment proposals presented by GRDC staff and providing feedback and advice to GRDC. In partnership with GRDC staff, they also help to extend outcomes from GRDC's investments to industry and monitor the effectiveness and impact of RD&E.

The Regional Panels ensure investments are in the best interests of growers and deliver a return on investment (ROI) to each grain-growing region.

National Panel

The GRDC National Panel identifies RD&E priorities across our investment portfolio and reviews investment proposals that have gone to Regional Panels.

The National Panel includes the chairs of the three Regional Panels, GRDC's Managing Director and GRDC's General Managers.

National Grower Network

NGN refers to the community of growers and grains industry stakeholders across Australia's growing regions with whom GRDC directly engages to assist in developing locally relevant RD&E investments.

The NGN was established to:

- support meaningful engagement with grain growers,
- improve understanding of local issues, and
- assist in the development of investments that are locally relevant and have on-farm impact.

The NGN helps to capture ideas, issues, constraints and opportunities for RD&E to enhance grower profitability. To achieve this, GRDC engages with stakeholders through forums that are open to all growers, advisers, researchers and industry parties.

ACCOUNTABILITY

GRDC is accountable to the Australian Government through the Minister for Agriculture, Fisheries and Forestry. The Government communicates its expectations of GRDC through a Funding Agreement, Ministerial direction, policy and administration of the PIRD Act. In accordance with Government expectations, GRDC acts in three main ways: regular communication; compliance with Funding Agreement, policy and legislative requirements; and the development of RD&E plans, annual operational plans and annual reports.

GRDC is also accountable to grain growers, the grains industry representative organisations and the broader community.

Figure 1: Planning and reporting framework

Portfolio

Funding Agreement

Sets out the terms and conditions under which money paid to GRDC by the Commonwealth will be spent for ten financial years.

Corporate

RD&E Plan

Sets out GRDC's high-level goals, strategies and targets for investment in RD&E for a five-year period.

Portfolio budget statements

As part of the Australian Government budget process, summarise the planned outcomes, deliverables, performance information and financial statements for a given financial year and three forward years.

Annual Operational Plan

Specifies the annual budget, resources and research priorities that give effect to the RD&E plan during a given financial year.

Annual Report

Provides information on RD&E activities and their performance in relation to the goals set in the portfolio budget statements and Annual Operational Plan for a given financial year.

COLLABORATION AND CO-INVESTMENT

Collaboration, co-operation and co-investment are critical to GRDC's operations. Investments are developed with the support and involvement of our research partners, grain growers, industry stakeholders or the broader sector. While some of the challenges and opportunities facing grain growers are unique to the grains sector and best addressed from within the grains industry, many challenges and opportunities are shared among different agricultural commodities, requiring a concerted effort across agriculture.

Strategic partnerships

Strategic partnerships go beyond business as usual and require GRDC and its partner organisations to make a strategic commitment to invest in capacity and capability that delivers outcomes beyond those achieved by GRDC's standard RD&E investments. Strategic partnerships capture the strong advisory and technical expertise of our research partners, and sometimes create a new entity overseen by appropriate governance and agile management.

Strategic partnerships create an innovative platform, challenge the status quo, leverage international expertise and respond to industry opportunities and challenges. Through strategic partnerships, GRDC and its partners are investing for ambitious and clear outcomes, which may have longer lead times and higher risk. Strategic partnerships are also characterised by a co-design approach that ensures outcomes meet the strategic objectives of all partners, with co-contributions reflecting genuine commitment and alignment. Strategic partnerships are usually approved by the GRDC Board. Examples are:

Centre for Crop and Disease Management (CCDM)

CCDM creates enduring grain grower profitability through the delivery of innovative and adoptable fungicide resistance management and genetic resistance tools. Established in 2014, the Centre is based at Curtin University in Perth and involves the alignment of strategic objectives and co-investment of resources and human capability by GRDC and Curtin University. The current phase of GRDC's strategic partnership with CCDM started in June 2022 and is focused on increasing grower profitability in disease-challenged and fungicide-limited cropping environments.

Australian Grains Genebank (AGG)

The AGG unlocks the genetic potential of grain crops in Australia by accelerating cereal, oilseed and pulse crop improvement for the benefit of Australian grain growers. The facility was opened in 2014 as a significant long-term commitment between GRDC and the Victorian Government and is located at the Grains Innovation Precinct in Horsham. The AGG has a mandate to acquire, conserve, maintain and distribute genetic resources to plant breeders and researchers to underpin the development of more resilient and productive grain crop varieties for the benefit of the Australian grains industry. The current phase of the AGG started in 2022 with a $30 million joint investment between GRDC and Agriculture Victoria within the then Victorian Department of Jobs, Precincts and Regions.

Analytics for the Australian Grains Industry (AAGI)

AAGI is a five-year strategic partnership aimed at harnessing analytics to drive the Australian grains industry's profitability and global competitiveness. A co-investment between GRDC and strategic partners Curtin University, UQ and University of Adelaide (UoA), the initiative aims to unleash the potential of statistics, machine learning, data fusion and analytics for Australian grain growers. GRDC has committed $36 million over five years to AAGI, which complements a $56 million co-investment from the initiative's three strategic partners.

National Grains Diagnostics and Surveillance Initiative (NGDSI)

NGDSI is a strategic partnership with co-investment from GRDC, along with five state departments: DPIRD; SARDI of Primary Industries and Regions South Australia (PIRSA); NSW DPI; QDAF and the Department of Energy, Environment and Climate Action, Victoria (DEECA). NGDSI has co-investment worth approximately $50 million over the next six years.

This initiative has been developed to deliver investment across four biosecurity and diagnostics themes:

- Adoption of modern quantitative polymerase chain reaction (qPCR) and high throughput sequencing (HTS) platforms as diagnostics standards for the Australian grains industry.
- In-field or near-field diagnostics systems advanced and implemented for near real-time identification of biotic threats.
- Biosecurity risk profiles – pests and communities. The gathering of global and local intelligence and understanding of climate variability to model changes in risk profiles of exotic and endemic species; and understanding grain communities' preparedness and acceptance of biosecurity measures.
- Forecasting seasonal occurrence, magnitude and distribution of diseases and pests.

Unlocking Soil Potential Strategic Partnership (USP)

The USP investment is a $15 million strategic partnership between GRDC and NSW DPI over five years (2023-28) and is designed to lift and shift the grains production frontier by 'unlocking' access to water and nutrients in constrained NSW cropping soils. This partnership aims to improve soil management through the use of existing knowledge and traditional technologies, combined with the development and commercialisation of next generation soil technologies, (currently at various stages of technology-ready levels), to address multiple soil constraints across six sub-regions.

Herbicide Innovation Partnership (HIP)

HIP is an initiative of GRDC and the crop science division of Bayer. Its key objective is to provide Australian growers with new technologies to manage herbicide resistance. The private-public partnership was formed in 2015 and, since then, has delivered promising results in the identification of chemistry candidates for new sustainable herbicide modes of action. HIP's objectives are long-term, as it takes a minimum of 10-12 years to bring any compound through the pipeline to commercial development, which then takes an additional 3-5 years.

HIP's second phase commenced in 2021 with an additional $36 million in GRDC investment until 2025. The second phase has continued the search for new modes of action, along with field testing at various global locations, including Australia, to ensure efficacy under Australian conditions. As part of this phase, 10 Australian weeds have been subject to testing by Bayer under glasshouse conditions, while additional species are taken into account within field testing in Australia.

RiskWi$e

RiskWi$e (the National Risk Management Initiative) is a new five-year, $30 million national investment by GRDC to help Australian grain growers better manage risks such as drought and market volatility. Established in April 2023, it is one of the largest ever grower-facing initiatives undertaken by GRDC. The program is being led by CSIRO, in partnership with more than 25 grower-based groups from across the country, along with SARDI, UoM, UQ and UWA. This investment was developed in response to grower needs. RiskWi$e aims to give growers and their advisers the tools to evaluate potential risks and rewards, and develop holistic and integrated approaches to risk management.

Data Partnerships Initiative

The valuable data generated from hundreds of RD&E investments supported by GRDC – across a range of topics – is the target of GRDC's Data Partnerships Initiative. The Initiative brings together 11 of GRDC's largest research partners as well as Federation University to ensure the RD&E data from GRDC investments is FAIR: findable, accessible, interoperable and reusable.

Historically, data generated from across GRDC's investment portfolio has been maintained by individual organisations and managed in diverse ways. This has limited how easy that data is to find, access and re-use. The Data Partnerships Initiative aims to change that by improving data management so it is readily available under the internationally recognised FAIR principles. The 18-month, $2.8 million Data Partnerships Initiative consists of two streams of activity. One, a 'data discovery' stream, has focused on locating valuable data from GRDC co-investments over the past 10 years with its metadata to be included in a GRDC Data Catalogue. The second, an 'organisational alignment' stream, will ensure partners are positioned to use best practice data governance and common standards around data collection and storage.

WA Agricultural R&D Collaboration (WAARC)

WAARC was launched in 2022 with the aim of developing a successful, efficient research collaboration that delivers positive outcomes for WA growers and agriculture more broadly. WAARC will target some of WA's unique challenges and opportunities, with GRDC leveraging its grower networks to ensure every investment under WAARC is aligned to grower needs and driving enduring profitability.

WAARC is a joint initiative of DPIRD, CSIRO, Curtin University, Edith Cowan University, Murdoch University, UWA and GRDC. With WAARC, GRDC has been working towards investing an additional $10 million for WA-focused grains research from 2022 to 2025 on investments that meet grower objectives and are good value propositions.

Industry good organisations

GRDC invests in industry good initiatives where there are significant benefits for the grains industry, including more efficient industry operation, improved connectivity across the value chain and improved industry influence in domestic and global markets.

Grains Australia

Established in 2020, Grains Australia is a company limited by guarantee to deliver 'industry good' functions for the benefit of Australia's grain supply chain. Grains Australia receives funding from GRDC as its sole member under a multi-year Funding Agreement. Grains Australia's core functions are to establish and maintain a grain variety classification system; provide services that maintain and improve trade and market access; develop long-term market and consumer analysis and product awareness to support longer term demand and value creation and, lastly, ensure that technical support and training are available for customers of, and participants in, the Australian grains industry. In 2022–23, Grains Australia established commodity councils for pulses and oats, and established the Grains Market Access Council. These councils comprise industry expertise from across the value chain to provide insight and direction for Grains Australia in the execution of its core functions.

Australian Export Grains Innovation Centre (AEGIC)

AEGIC is an independent, not-for-profit company limited by guarantee and established in 2012 to increase value in the Australian grains industry. AEGIC is an investment of Australian grain growers and the Australian Government through GRDC and the WA Government through DPIRD. AEGIC increases value in the Australian grains industry by gathering, analysing and sharing market intelligence the industry needs to breed, classify, grow and supply grain that markets prefer.

Grains Australia and AEGIC join forces

In April 2023, GRDC announced that Grains Australia and AEGIC were joining forces to deliver more efficient and effective 'industry good' services for Australian grain growers. The integration is designed to drive collaboration, improve co-ordination and streamline and deliver efficiencies across the key areas of: classification, trade and market access; market information, education and customer insights; and innovation for the Australian grains sector. As part of the integration, GRDC will step down from its role as a member of AEGIC and Grains Australia will join AEGIC as a member. Future GRDC investment in AEGIC will go through Grains Australia.

Major initiatives

GRDC major initiatives are investment and activities that align with GRDC's vision of investing in RD&E to create enduring profitability for grain growers. These initiatives can span various areas and involve partner organisations from sectors beyond grains and agriculture.

Infrastructure initiative

The development of critical infrastructure aligns with GRDC's purpose to drive the discovery and delivery of innovative, world-class RD&E for Australian grain growers. In September 2022, GRDC opened an infrastructure grants program with the aim of investing $20 million over the next three years into infrastructure that builds Australia's long-term research capacity and supports the enduring profitability of the nation's grain growers. Through this initiative, GRDC grants were available for grains RD&E infrastructure projects located in Australia. To be eligible, applicants had to provide a minimum co-contribution of 20 per cent for investments up to $1 million and of 30 per cent for investments above $1 million.

GrainInnovate

The $50 million GrainInnovate fund was established by GRDC and Artesian. It was launched in February 2019 and invests in start-ups to help drive the future profitability and sustainability of Australia's grain growers. The fund invests from seed to growth stage in start-ups from Australia, and globally, in start-ups that fit the fund's investment mandate. The fund has invested in 21 start-ups to date.

Cross-sector partnerships

There are many common issues facing Australia's agricultural commodities and much of Australia's agricultural production is undertaken by mixed farming businesses. This creates the opportunity for GRDC to collaborate with other RDCs and research partners across different agricultural commodities to deliver the innovation required by Australian grain growers. This is particularly the case for innovation that will contribute to Australia's national interest.

Cross-sector partnerships are an efficient way to solve issues faced by multiple production systems, to reduce duplication of effort and to ensure there is the scale of investment that is necessary to resolve difficult problems. Examples of cross-sector partnerships in 2022-23 include:

Agricultural Innovation Australia (AIA)

AIA was launched in September 2020 to harness the collective power of all 15 RDCs with a whole-of-sector approach to agricultural innovation. Activities undertaken by AIA were to focus on areas with greatest impact across multiple agricultural industries.

GRDC invested in two AIA collaborative projects in 2022-23:

- Agri-Climate Outlooks to enhance seasonal outlook services to support better decision-making and greater resilience for Australian primary producers.
- Know and Show your Carbon Footprint to develop a whole-of-farm carbon calculator that is easy to use by farmers and accepted by the financial sector and other markets.

Emerging National Rural Issues (ENRI) Forum

AgriFutures hosts the ENRI Forum to explore collaboration opportunities across the whole agricultural system. To do this, ENRI brings together representatives from each of the rural RDCs, DAFF and the National Farmers Federation (NFF) to discuss cross-sectoral issues and scope projects for co-investment. GRDC is a participant of ENRI and part of the ENRI steering committee. Projects funded under ENRI have the following scope:

- Issue is emerging and 'future thinking'.
- Issue is central to agriculture, spans across multiple industries and has the potential to deliver high impact.
- Issue is of national and global significance.
- There has been little investment to date by RDCs.

Community Trust in Rural Industries Program (CTRI)

CTRI is a collaborative partnership involving 11 RDCs, NSW DPI and NFF. It was developed to build the capacity and capability of the food and fibre industries to actively engage with the broader Australian community. The aims of the program are to:

- Develop capability across the sector to monitor, anticipate and respond to shifts in the levels of trust the community has in Australia's rural industries.
- Build a common language and collective national narrative around the community trust challenge.
- Identify common best practice approaches, strategies and interventions for building, rebuilding and maintaining community trust.

Rural Safety and Health Alliance (RSHA)

RSHA is a partnership led by AgriFutures in collaboration with GRDC and seven other RDCs. RSHA provides cross-sector leadership and action on farm safety RD&E, working together to:

- Co-develop and jointly invest in cross-sector RD&E projects.
- Champion and help align workplace health and safety RD&E in the agricultural sector.
- Share resources and ideas between RSHA members.

Since 2022, the primary focus of the RSHA has been to explore pathways to a sustainable capacity for producing reliable, fit-for-purpose farm safety metrics. In 2022-23, RSHA worked on two main projects, Reducing Serious Injury from Mobile Plant and Developing the Ag Safety Data Net Concept.

Australian Pastures Genebank (APG)

The APG was established in 2014 to protect the nation's pasture and forage genetic resources in line with Australia's obligations under the International Treaty on Plant Genetic Resources for Food and Agriculture. The APG acquires, documents, conserves, maintains and distributes plant genetic material for pasture and forage species in the form of seed and associated data. The APG is delivered by SARDI at the UoA's Waite Campus with operational funding through five RDCs (GRDC, Meat and Livestock Australia, Australian Wool Innovation, Dairy Australia and AgriFutures).

Plant Biosecurity Research Initiative (PBRI)

The PBRI supports cross-sectoral RD&E to minimise the damaging consequences caused by biosecurity threats to Australian plant industries. This includes endemic and exotic pests, diseases and weeds that affect Australia's plant industries, community and the environment. The PBRI was established in 2018 to provide leadership and coordination to ensure plant biosecurity research is well-targeted and innovative. PBRI member organisations are DAFF, AgriFutures, GRDC, CRDC, Forest and Wood Products Australia, Hort Innovation, Plant Health Australia, the Council of RDCs, Sugar Research Australia and Wine Australia.

3. OUR PERFORMANCE

MEASURING PERFORMANCE

Figure 2: Performance framework

Our Purpose

To invest in RD&E to create enduring profitability for Australian grain growers.

Key Performance Indicator

A minimum of 6 per cent average farm business Rates of Return (RoR) by 2023.

Our Objectives and Targets

1. Improve yield and yield stability

1a. Minimum yield increases equivalent to 1% p.a. for cereals, 2% p.a. for pulses and 1.5% p.a. for oilseeds, achieved while identifying and investing in technology for transformational improvement in yield potential and yield stability.

1b. By 2023, a minimum 20% closure of the gap between potential and actual yields.

2. Maintain and improve price

2a. Identification of potential new products that attract premium prices.

2b. Identification of opportunities for product differentiation.

2c. Defence of current market access programs.

3. Optimise input costs

3a. Maintain increases in chemistry costs below the 5-year trend (2018-23), equivalent to $85.50/ha or a ratio of input costs crop revenue of 0.166.

3b. Maintain increases in fertiliser costs below the 5-year trend (2018-2023), equivalent to $84.30/ha or a ratio of input costs crop revenue of 0.164.

4. Reduce post-farmgate costs

4a. Timely RD&E-based submissions to government to support policy decision-making.

4b. Timely addressing of technical barriers to trade issues.

5. Manage risk to maximise profit and minimise losses

5a. The number of growers undertaking business training.

5b. Establishment of a behavioural economics initiative to research grower decision-making.

Enabling Frameworks

Data management & analytics	Biosecurity	Grower communication & extension	Capacity & ability

Impact

GRDC invests on behalf of Australian grain growers to improve the profitability and sustainability of the Australian grains industry across a diverse portfolio that spans regions, farming systems, time-frames and crop types. Measuring impact allows us to effectively assess the value of GRDC RD&E to the Australian grains industry, communities and the broader economy.

GRDC plans and executes its investments against statutory and policy frameworks, which include the PIRD Act, the PGPA Act, a Funding Agreement with the Commonwealth, and internal policies that direct investment portfolio decision-making, monitoring and reporting.

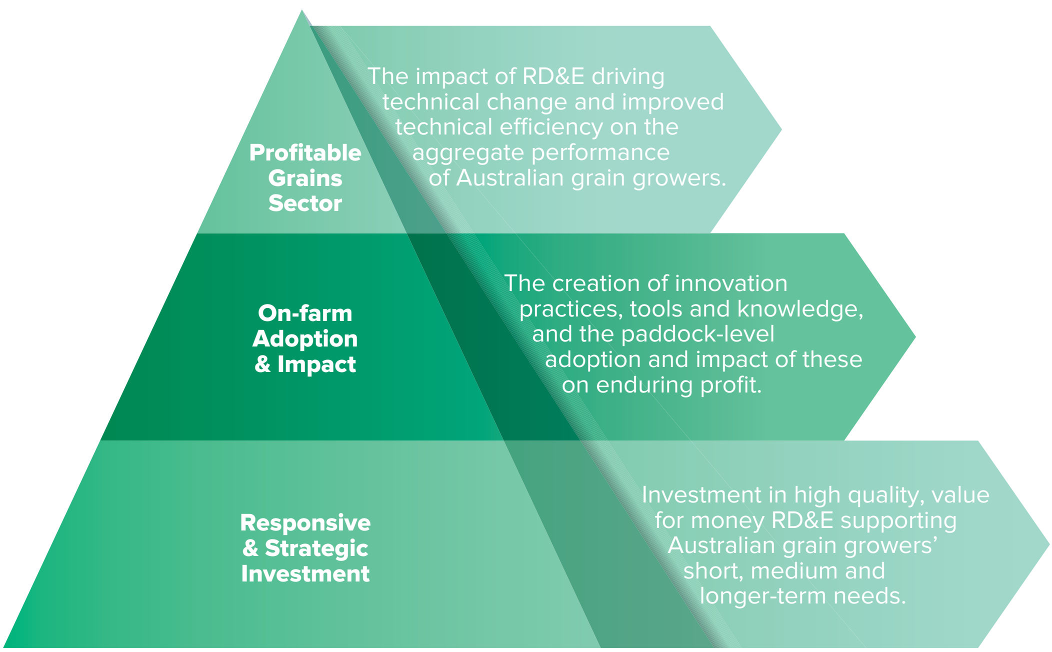
In particular, the Funding Agreement stipulates that RDCs need to demonstrate positive outcomes and delivery of RD&E to levy payers and the broader community. RDCs may demonstrate those outcomes by reporting on investments that have effectively achieved specific RD&E outcomes and priorities. To support reporting of outcomes, GRDC measures the impact of investments and implements improvements based on these evaluations.

Importantly, impact assessment demonstrates accountability for grain grower and public money; allows for analysis on how to effectively invest in RD&E activities; facilitates planning for future RD&E investments; and offers insights into how to maximise return on investments.

GRDC's RD&E investment portfolio is complex, with short, medium and long-term investments over many scientific disciplines. The stakeholders for communication of impact are diverse and include growers, government and the broader community, who may have differing needs and requirements. For example, levy payers are generally interested in the impact of RD&E outcomes on their farming business or within their region. Other stakeholders may be interested in macro-economic performance indicators, such as the contribution of RD&E to environmental and social outcomes. Others may use impact data to monitor the execution of the RD&E strategy.

GRDC's Impact Framework is segmented into three broad areas measuring GRDC's investment level impact; the on-farm adoption and impacts of investment outputs; and ultimately, cumulative impacts aggregated at a grains sector level.

Figure 3: RD&E Impact framework



ANNUAL PERFORMANCE STATEMENTS

Accountable authority statement

I, John Woods, on behalf of the Board, as the accountable authority of the Grains Research and Development Corporation (GRDC), present the 2022-23 annual performance statements, as required under paragraph 39(1)(a) of the *Public Governance, Performance and Accountability Act 2013* (Cth) (PGPA Act) and section 28 of the *Primary Industries Research and Development Act 1989* (Cth) (PIRD Act).

It is the Board's opinion that these annual performance statements are based on properly maintained records, accurately reflect the performance of GRDC, and are in accordance with subsection 39(2) of the PGPA Act.

Summary of performance

The results against GRDC's performance criteria in the portfolio budget statements and annual operational plan for 2022-23 are outlined on pages 40-46

Analysis of our performance against targets is on pages 48-52.

John Woods
Chair, GRDC Board

GRDC PERFORMANCE AGAINST PORTFOLIO BUDGET STATEMENTS MEASURES

Purpose:

To invest in RD&E to create enduring profitability for Australian grain growers.

Target:

A minimum 6% average farm business RoR by 2023.

Methodology/Unit of measurement

ABARES: https://www.agriculture.gov.au/abares/data/farm-data-portal#daff-page-main

2022-23 Results

RoR (excluding capital appreciation) for cropping farms is forecast to remain constant at 4.5% in 2023.

Progress

RoR (excluding capital appreciation) increased from 3.7% in 2021 to 4.5% in 2022. It is forecast that the RoR will remain constant at 4.5% for 2023. While income was relatively high, the higher cost of inputs affected returns.

Not achieved

Objective 1:
Improve yield and yield stability

Target 1a:

Minimum yield increases equivalent to 1% p.a. for cereals, 2% p.a. for pulses and 1.5% p.a. for oilseeds, achieved while identifying and investing in technology for transformational improvement in yield potential and yield stability.

Methodology/Unit of measurement

ABARES: https://www.agriculture.gov.au/abares/research-topics/agricultural-outlook/data#australian-crop-report-data

2022-23 Results

The 5-year average wheat yield to 2022-23 was 2.31 t/ha (target 2.19 t/ha)

The oilseed yield was 1.66 t/ha (target 1.46 t/ha).

The weighted average national pulse yield was 1.55 t/ha (target 1.63 t/ha).

Progress

The 5-year average wheat yield target was exceeded by 5.6% in 2023.

Canola yields increased by 13.4% above the target.

Weighted average pulse yields were 5% below the target.

Lower chickpea and faba bean yield reduced the result.

Achieved

Target 1b:

By 2023, a minimum 20% closure of the gap between potential and actual yields.

Methodology/Unit of measurement

Yield gap is measured between maximum attainable yield and the actual yield achieved. This is typically measured at paddock scale. The National Variety Trials (NVT) are used to estimate this measure.

2022-23 Results

The weighted national yield for wheat in 2018 was 1.69 t/ha and the equivalent measure for 2022-23 was 3.04 t/ha. Therefore, the yield gap has been reduced by more than 20% from the 2018 measure and the target was achieved.

The yield gap in the five years to 2017-18 was 62 kilograms. In the 5 years to 2022-23 the gap relative to 2017-18 was 48 kilograms. The yield gap was therefore reduced by 26.9% which was 6.9% above the target.

Progress

Yield data from the 2021-22 and 2022-23 seasons show yields increased to record levels. Growers invested more in fertiliser and chemicals to achieve higher yields and strong prices indicated that they would be rewarded for these investments; however, water use efficiency results indicated that yields were not optimised for production.

Optimising yield may not be compatible with risk management or maximising gross margins, whole farm profits, or sustainability objectives and therefore yield gap needs to be considered within a suite of measures.

Achieved

Objective 2:
Maintain and improve price

Target 2a:
Identification of potential new products that attract premium prices.

Methodology/Unit of measurement

Active and ongoing investments that deliver improved support for grain prices.

2022-23 Results

Maintenance of market-driven grains variety classification systems performed by Grains Australia including:

- Seamless transition of technical functions for classification of wheat and barley.
- Establishment of a national classification framework for oats and pulses (an industry first).
- Establishment of commodity councils for wheat, barley, oats and pulses.

AEGIC (AEG1207-001OPX) and Grains Australia (GAL2106-002OPX, GAL2210-001SAX)) technical support and training of customers and stakeholders including market education around the fit and value of Australian feed and weather damaged grain in South-East Asia.

GRDC, Grains Australia and the Federal Government investment to develop market indices to identify future wheat and barley market opportunities as part of the Agricultural Trade and Market Access Cooperation (ATMAC) program 2022 (GAL2306-003FAX).

GRDC, Grains Australia and the Federal Government investment to better understand the use and relative competitiveness of Australian grain in South-East Asian aquaculture production systems through market engagement and research as part of the ATMAC program 2022 (GAL2306-004FAX).

Achieved

Target 2b:

Identification of opportunities for product differentiation.

Methodology/Unit of measurement

Current investments in understanding market opportunities.

2022-23 Results

Ongoing provision of market and consumer analysis and insight to understand demand and identify priorities through a broad range of activities delivered by AEGIC (AEG1207-001OPX) and Grains Australia (GAL2106-002OPX, GAL2210-001SAX) including:

- Opportunity analysis around a sustainable market for Australian canola meal to New Zealand.
- Services agreement to provide quarterly market updates for pulses.

Investment to develop pathways for the Australian grains industry to capitalise upon emerging opportunities for grain produced with Clean, Healthy, Ethical, Sustainable or Safe (CHESS) attributes in key markets (AEG2205-003RTX).

Achieved

Target 2c:

Defence of current market access programs.

Methodology/Unit of measurement

Current disease mitigation and market access investments.

2022-23 Results

GRDC core funding of services provided by Grains Australia to maintain or improve trade and market access including:

- Establishment of the Grains Market Access Council enabling a coordinated, strategic, whole-of-industry approach to trade and market access matters.
- Supporting industry and government agencies in bilateral and multilateral trade agreements and negotiations, including submissions to help overcome trade disputes.
- Participation in the Grain and Plant Products Export Industry Consultative Committee, consulting with the Federal Government around export inspection and certification, export market access and other issues.
- Funding and oversight of the National Working Party on Grain Protection to coordinate and provide industry views on chemicals in use for grains and associated products.

GRDC's investment in obtaining Minor Use Permits and Registered product label extension ensures market access by providing growers with effective crop protection options that have suitable Maximum Residue Limits established in key domestic and international markets. 2022-23 results:

- Renewal of 9 Australian Pesticides and Veterinary Medicines Authority (APVMA) Minor Use Permits.
- Granting of 16 new APVMA Minor Use Permits.
- Granting of 8 registered product label extension in collaboration with the chemical registrant.
- A further 4 submissions currently under review by the APVMA.
- Completion of 30 replicated field studies (14 crop safety, 16 good laboratory practice (GLP) Residues studies).

Achieved

Objective 3:
Optimise input costs

Target 3a:

Maintain increases in chemistry costs below the 5-year trend (2018-23) equivalent to $85.50/ha or a ratio of input to crop revenue of 0.166.

Methodology/Unit of measurement

ABARES

2022-23 Results

Ratio of chemistry input to crop revenue was 0.124.

Progress

Chemical costs increased from $204/ha to $222/ha and the ratio was 0.124 relative to the target of 0.166.

Achieved

Target 3b:

Maintain increases in fertiliser costs below the 5-year trend (2018-23) equivalent to $84.30/ha or a ratio of input to crop revenue of 0.164.

Methodology/Unit of measurement

ABARES

2022-23 Results

Ratio of fertiliser input to crop revenue was 0.148.

Progress

5-year average costs for fertiliser increased from $112/ha to $138/ha in 2022-23. Crop income increased from $834/ha to $932/ha. The fertiliser cost to income ratio was therefore 0.148 against a target of 0.164.

Achieved

Objective 4:
Reduce post-farmgate costs

Target 4a and 4b:

Timely RD&E-based submissions to government to support policy decision-making. Timely addressing of technical barriers to trade issues.

Methodology/Unit of measurement

ABARES 2023 Farm Data Portal https://www.agriculture.gov.au/abares/data/farm-data-portal#data-download

2022-23 Results

In 2022-23 GRDC established a new investment to improve industry knowledge around the current state of the Australian grain supply chain and understand opportunities and challenges for efficiency gains, thereby reducing post farmgate costs for supply chain stakeholders (AEG2304-003RTX).

GRDC also had an ongoing investment to inform grower investment in grain storage infrastructure and help manage grain storage pests effectively using best management practices (PRB2011-001SAX).

Progress

Grain handling and marketing costs increased from $47,480 per farm in 2021 to $86,500 in 2022. The 5-year average expense increase from $39,908 to $47,408 or 18.79%. On a dollars per tonne basis handling and marketing costs increased from $10.21 per tonne in 2021 to $14.80 per tonne in 2022. The 5-year average cost per tonne increased from $11.27 per tonne to $11.89 per tonne which was a 5.48% increase.

Expenditure on freight increase from $59,330 in 2021 per farm to $78,300 per farm in 2022. The change pushed the 5-year average from $49,278 to $54,262 which was a 10.11% change. Freight costs increased from $12.87 per tonne in 2021 to $13.40 in 2022 which was an increase of 63 cents per tonne. The 5-year average cost increased from $14.04 per tonne in 2021 to $14.17 in 2022 which was a 0.91% increase.

Not achieved

Objective 5:
Manage risk to maximise profit and minimise losses

Target 5a:

The number of growers undertaking business training.

Methodology/Unit of measurement

Farm Business Update (FBU) data (for financial year 2022-23) and the Review of the GRDC FBUs (Dec 2022).

2022-23 Results

14 FBUs held face-to-face with 823 attendees, including 398 growers and 344 advisers.

Attendee feedback:

- 95.6% said they increased their knowledge and awareness
- 57.1% identified actions to apply
- 8.7/10 (average relevance)
- 8.6/10 (average quality)

7 online FBUs held with 1193 attendees (including 588 growers, 378 advisers and other industry stakeholders, including researchers).

Attendee feedback

- 90.1% said they increased their knowledge and awareness
- 71.1% identified actions to apply
- 8.7/10 (average value)

The December 2022 'Review of the GRDC Farm Business Updates' reported that since its commencement in 2000, approximately 7,700 participants will have attended by mid 2023 and a higher proportion of women compared to Grains Research Updates. Also:

- 79% of stakeholders expressed positive sentiment towards the Updates.
- 92% of post-event survey respondents reported increasing their knowledge due to attending an Update.
- 17% reported developing a strategy, discussed at an Update, to address a business constraint or concern. A further 8.5% identified the first steps towards implementing that strategy.

Progress

The purpose of the Updates is "to raise awareness around key decision points which can have a large impact on profit in grain production businesses and assist people to identify areas where they should seek further information to make informed business decisions". Therefore, they tend to focus on raising awareness around key profit-making decisions rather than disseminating research findings.

Achieved

Target 5b:

Establishment of a behavioural economics initiative to research grower decision-making.

2022-23 Results

As part of RiskWi$e, UWA has developed a team to conduct behavioural economics research. This research spans several industries. GRDC is examining grains specific requirements in addition to whole farm needs. This group aims to provide information that is relevant to effective decision-making and methods that can be employed to remove information barriers.

Achieved

Note: Objectives 1-5 and targets detailed on pages 40-46 are defined under 'Performance measures' and 'Expected performance results' respectively in the Agriculture Portfolio Budget Statements 2022-23 pages 275–277, and GRDC Annual Operational Plan 2022-23, page 1.

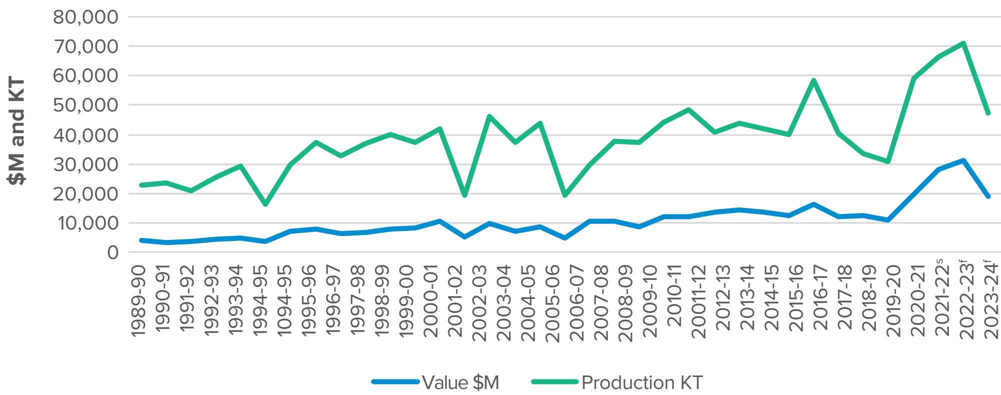
Any survey results are taken from the most recent survey in which the target was measured.

ANALYSIS OF PERFORMANCE AGAINST TARGETS

Profitability – RoR

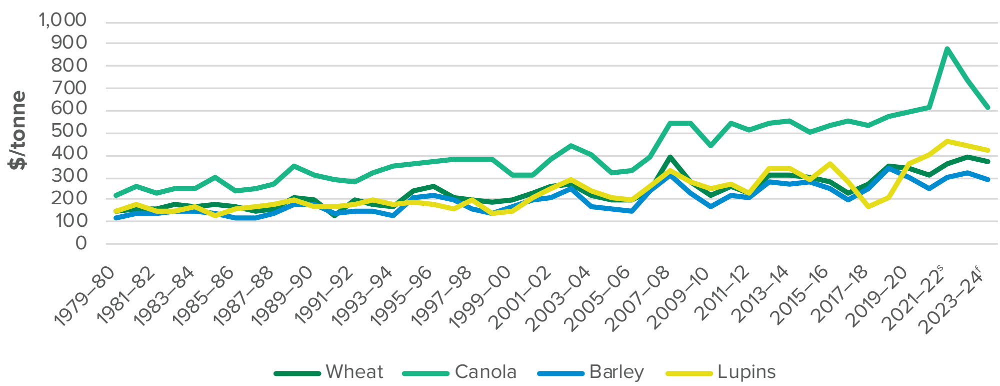
The 2022-23 harvest achieved a record 70.8 million tonnes and $31.1 million in value. Grain production increased by 2.8 million tonnes or 6.4 per cent and value increased by $4.28 billion or 9.96 per cent from the previous record 2021-22 season. Crop production increased in most regions, however, several regions in NSW and Victoria were affected by floods. The record crop value was due to the large Australian crop and relatively higher crop prices. Prices were generally higher due to the northern hemisphere drought particularly in the United States and Europe and the increased demand for canola oil as a result of the Russia-Ukraine war.

Figure 4: Production and Value by year



Source: ABARES 2023 Commodity Statistics (Tables 12 & 13)
www.agriculture.gov.au/abares/research-topics/agricultural-outlook/data#agricultural-commodities

Figure 5: Long run average grain prices



Source: ABARES 2023 Commodity Statistics (Table 10)
www.agriculture.gov.au/abares/research-topics/agricultural-outlook/data#agricultural-commodities

The RoR for cropping farms is forecast to remain constant at 4.5 per cent for 2023. Crop returns have increased, however so have input costs for fuel, chemicals and labour, holding the RoR constant. One of the largest cost increases was interest on new crop land acquired for broadacre production.

State comparison for RoR is based on data from 2022. Grain growers in NSW achieved the highest RoR at 6.8 per cent whereas growers in WA achieved a 5.7 per cent RoR. Growers in Victoria achieved 3.0 per cent, whereas growers in Queensland achieved 2.8 per cent. SA growers achieved a 2.3 per cent RoR and there were insufficient observations to report a RoR value for Tasmania in 2022.

Figure 6: RoR by State

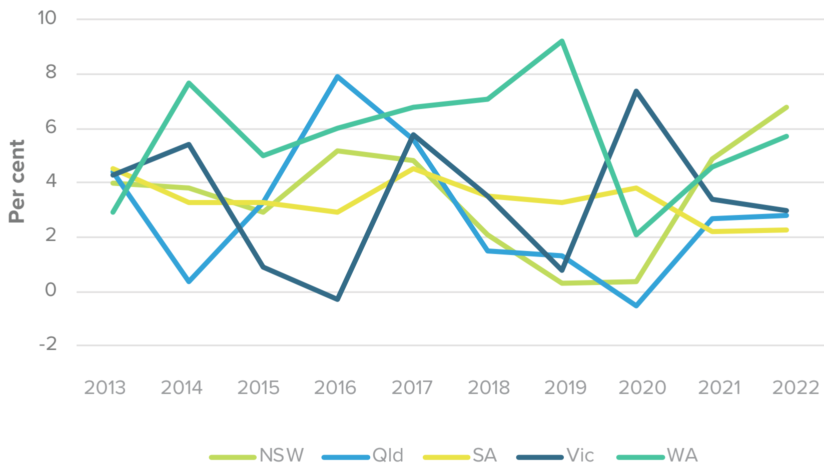
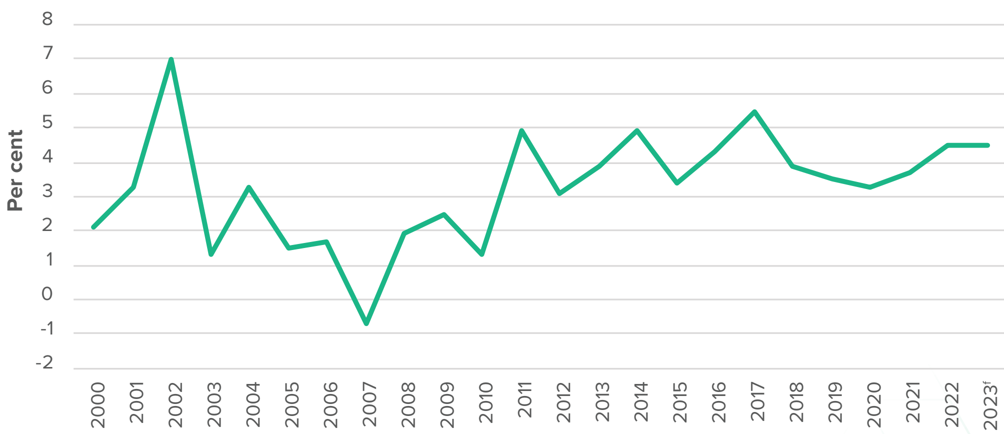
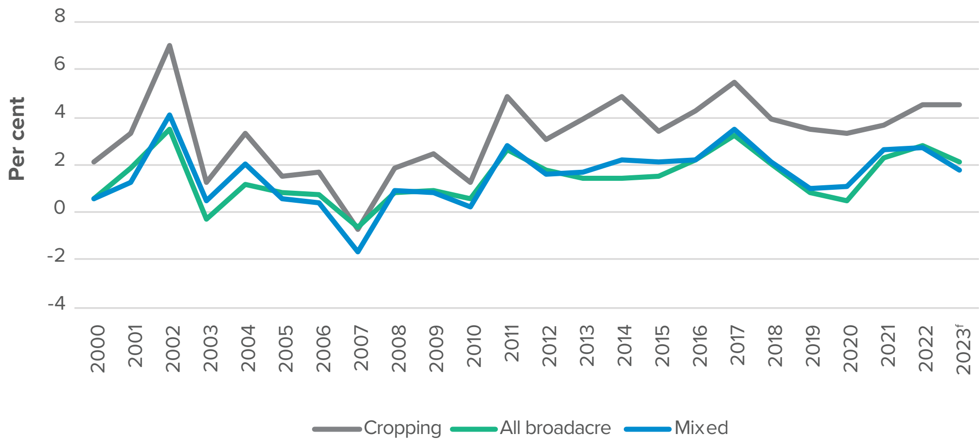


Figure 7: RoR 2000-23 Cropping Farms



Cropping farms produced higher RoRs relative to all broadacre and mixed farms. The RoR for all broadacre and mixed farms is forecast to be 2.1 per cent and 1.8 per cent respectively in 2023.

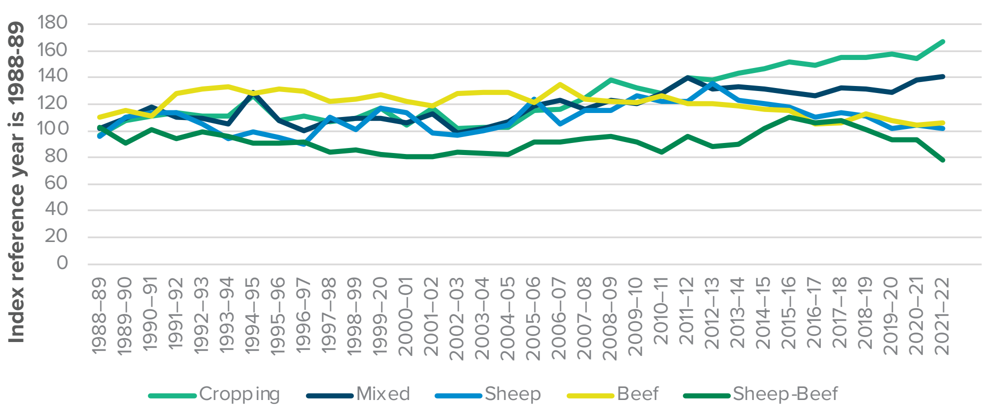
Figure 8: RoR by enterprise type



Productivity

TFP is a measure of the change in the relative use of inputs to create outputs. TFP can be measured on a volume or dollar value. In this case the dollar values of input relative to outputs are measured. Climate adjusted TFP takes into account climate inputs, including rainfall and temperature. This then measures the gain from other factors of production, which excludes changes due to climate events. Climate adjusted cropping TFP increased to an index value of 167 with 1988-89 as the base year. The index value was higher than mixed cropping which had a value of 140, and sheep and beef which returned to an index value of 100.

Figure 9: Climate adjusted productivity by industry



Source: ABARES Climate Adjusted TFP estimates, by Industry, Australia, 1988-89 to 2021-22: Table C1.

The cropping industry increased its use of land in producing grain by 0.9 per cent whereas the use of land by sheep and beef enterprises had decreased. Labour use decreased by 1.1 per cent for cropping enterprises, however mixed cropping and sheep-beef used significantly less labour which is in proportion to the reduction in land use. Capital use in the grains industry decreased by 0.4 per cent. The reduction in capital use was larger in sheep and sheep-beef relative to grains. Material costs in grains have increased by 3.8 per cent, which is well above the costs incurred by beef at 1.9 per cent and mixed operations at 0.5 per cent. The sheep industry reduced its material costs by 0.3 per cent. Services costs have also increased for grains by 1.5 per cent, which was double beef at 0.7 per cent. Notably sheep reduced its services costs by 1.7 per cent. These values are shown in the table below.

Table 1: Broadacre average annual input growth, by industry, 1977-78 to 2021-22

	Cropping	Mixed	Sheep	Beef	Sheep-beef	All industries
Land	0.9	–1.3	–2.7	0	–3.1	–0.8
Labour	–1.1	–3.0	–2.8	–0.9	–3.0	–2.1
Capital	–0.4	–2.9	–3.7	0.2	–2.9	–1.5
Materials	3.8	0.5	–0.3	1.9	–0.1	1.7
Services	1.5	–1.1	–1.7	0.7	–1.6	–0.2

Source: ABARES 2023. Productivity data, table 46.

Crop yields

Crop yields were highest in Victoria in 2022-23 at 3.6 tonnes per hectares (t/ha). SA produced the next highest yield at 3.34 t/ha. The wheat yield in WA was 2.95 t/ha and Queensland had a yield of 2.65 t/ha. These represented record yields for these states. The yield in NSW was 2.85 t/ha which was well below its 3.33 t/ha record from 2021-22, due to flooding in various regions.

The percentage change column represents the change in the five-year average yield 2017-18 to 2012-22 relative to the five-year period 2018-19 to 2022-23. Comparing the two periods shows that Queensland experienced the largest gain with yields increasing by 20 per cent. The yield changes for SA, NSW and WA ranged from 13.14 per cent for SA to 10.15 per cent for WA. The yield gain for Victoria was 8.14 per cent of the two five-year periods. The tonne weighted average yield change was 10.77 nationally.

Table 2: Average wheat yield by tonnes and state (2019-2023)

Wheat Yield	18/19	19/20	20/21	21/22	22/23	5-year average	Percentage Change
NSW	0.78	0.83	3.21	3.33	2.85	2.20	11.86
Qld	1.00	0.95	1.65	2.36	2.65	1.72	20.33
SA	1.66	1.56	2.17	2.37	3.34	2.22	13.14
Vic	1.62	2.60	3.20	2.94	3.60	2.79	8.14
WA	2.28	1.41	2.00	2.74	2.95	2.28	10.15
Average	1.69	1.46	2.52	2.84	3.04	2.31	10.77

Water use efficiency (WUE)

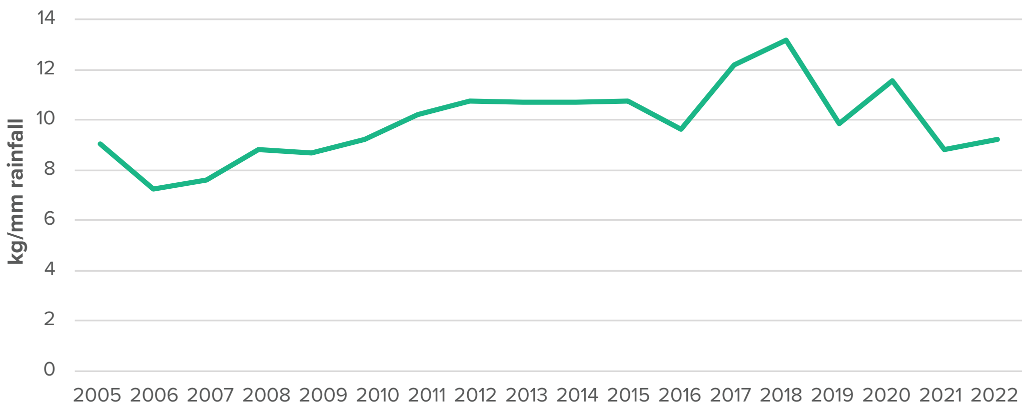
WUE is calculated using the formula:

WUE= (yield (t/ha)/1000) x [(0.3 x January to March rainfall (mm)) + (0.7 x April to October rainfall (mm))].

The long-term average for Australia was 10 kgs/mm. In general, WUE is higher in dry years and lower in wet years.

When years are wet then a lower WUE indicates that the plant did not build sufficient biomass to convert into a higher grain yield. This result could be from soils being too wet to move spray equipment or fertiliser application machinery. In 2023 the WUE value was 9.2 kgs per mm, which was up slightly from 8.81 kg/mm in 2021.

Figure 10: National WUE (wheat)



Summary

This performance statement provides commentary on progress against the Key Performance Indicators (KPI) in the 2018-23 RD&E plan. The 2018-23 RD&E Plan was firmly focused on the profitability of Australian grain growers and the KPIs are proxy measures of that profitability.

GRDC has published its RD&E Plan (2023-28). The focus on profitability will remain but additional performance metrics that underpin profit KPIs will be developed to better demonstrate GRDC's impact on grower profitability. Other KPIs and metrics that track productivity and sustainability of grain growers over time will also be incorporated into the new RD&E plan.

BENEFIT COST ANALYSES OF SELECTED INVESTMENTS

GRDC undertakes Benefit Cost Analysis (BCA) to measure and evaluate the effectiveness and impact of RD&E and demonstrate the outcomes of investments. GRDC adopts an ex-ante and ex-post approach to predicting and measuring impact. Ex-post analyses use the framework developed by the Council for Rural RDCs.

Adoption rates are calculated using the ADOPT tool developed by the Farming Futures Cooperative Research Centre and updated by CSIRO with financial support from GRDC. GRDC uses a 25-30 year investment period. Net Present Value (NPV) is calculated as the present value of benefits, less the present value of the investments. BC Ratio is calculated as the ratio of benefits to cost of the investment. The Present Value of Investment (PVI) is calculated as the value of the investment 25 years from today discounted to the present.

The following BCAs are relevant for 2022-23 showcasing progress against the objectives in the 2018-23 RD&E Plan.

Genetic solution to crown rot in barley

GRDC contract code:
CSP1606-005RTX

Date of analysis:
28/02/2023

Collaborators/partners:
CSIRO Agriculture and Food

Background:
Crown rot is an economically important disease of barley and other cereals across Australia. By restricting the plant's access to water, crown rot can reduce crop yield, particularly during times of water stress. Currently, growers rely on limited control methods, namely crop choice and timing, as well as stubble management. GRDC has invested in research to understand crown rot resistance in barley and identify potential genetic solutions to the disease.

Barley varieties that are resistant to crown rot would improve yields for growers. This investment has demonstrated that it is feasible to breed crown rot-resistant barley. Promising lines have already been provided to Australian barley breeders for commercial testing.

Year of commencement	2015-16
Year of completion	2021-22
Present Value of Investment (PVI)	$2.3 million
Present Valued of Benefits (PVB)	$87.5 million
Net Present Value (NPV)	$85.1 million
Benefit Cost Ratio	38
Objectives	• Develop diagnostic markers conferring crown rot resistance. • Characterise additional sources of crown rot resistance and develop suitable genetic stocks for generating diagnostic markers identified from these new sources of resistance. • Develop breeding lines with enhanced resistance to crown rot for each of the three GRDC regions.
Outcomes	• Crown rot-resistance in barley genes were identified and mapped. • Field trials have demonstrated that it is feasible to breed barley cultivars with high resistance to crown rot without a yield cost. • In field trials, barley cultivars with high resistance to crown rot had a yield loss improvement of 47 per cent under crown rot conditions compared to local varieties. • Promising breeding lines have already been sent to Australian barley breeders for further testing.
Environmental benefits	This investment will primarily result in a change of variety used by growers. There may be some limited environmental benefit through reduced input wastage on failed crops but this has not been measured.
Social benefits	Reduced yield loss from disease would benefit growers through improved income stability. This investment strengthens Australia's reputation as a major barley producer globally.
Change in price/yield/cost (%)	2.35 per cent increase in yield
Total GM change ($/ha)	$12.12/ha

Improving weed management in high break crop intensity farming systems

GRDC contract code:
UOA1703-022BLX

Date of analysis:
19/04/2022

Collaborators/partners:
The University of Adelaide

Background:
The cost of weeds including yield reduction, control measures and price penalties due to grain contamination with weed seeds, has increased by more than 2.3 times – from $1.4 billion in 2000 to $3.3 billion in 2015. The intensive use of herbicides in minimal tillage continuous cropping systems has led to the rapid development of multiple herbicide resistances in many weed species and is the main reason for increased weed control costs.

The introduction of herbicide-tolerant break crop options including XT lentil, Clearfield® canola, TT canola, and PBA Bendoc have broadened the weed control options in these crops, especially for broadleaf weeds. Traditionally, break crops were included once every three to six years in the crop rotation, however the frequency has now increased and in some regions has become equal to cereal crops.

The increased break crop intensity has produced an increased reliance on Group A chemistry (fops and dims) to control annual ryegrass, and Group B herbicides for broadleaf weed control. Increased reliance is accelerating the development of resistance to these herbicide group.

These challenges highlight the importance of adopting integrated weed management strategies, that includes rotating herbicides with different modes of action, and emphasises the need for a holistic, whole-of-system approach rather than a focus on weed control in individual crops.

This investment developed improved weed management practices through two complementary approaches: survey of focus paddocks with high intensity break crop rotations, and by targeted research trials from 2017-19. These practices are capable of reducing herbicide resistance issues in both ryegrass and broadleaf weeds, thereby increasing herbicide longevity.

Year of commencement	2017
Year of completion	2020
Present Value of Iinvestment (PVI)	$5.0 million
Present Valued of Benefits (PVB)	$8.1 million
Net Present Value (NPV)	$3.0 million
Benefit Cost Ratio	1.60
Objectives	• Provide SA farming systems groups, growers and their advisers with successful and sustainable weed management strategies of the major weeds in high break crop intensity (HBCI) rotations. • Build and retain regional agronomic capacity in weed management research based at Clare in the Mid-North and Yorke Peninsula regions of SA and support other regional agronomists to deliver RD&E outcomes for all regions of the state.
Outcomes	• Annual ryegrass detected to have started developing resistance to Group J and K herbicides can cause $74-133 million loss to the industry due to yield penalties in SA alone. • Adopting improved management practices will increase longevity of Group D, J and K grass herbicides and reduce this loss. • A yield increase of 32-43 per cent in lentil, and up to 44 per cent in Group B faba bean can be achieved by adopting improved broadleaf weeds control practices developed in this investment. • A yield loss of up to 13 per cent and 27 per cent in Group B tolerant lentil and faba bean, respectively, and totalling up to $55 million, can be avoided by using registered imidazolinone herbicides.
Environmental benefits	Effective weed management strategies will allow for the utilisation of best herbicide management options, safe weed control and long-term herbicide resistance management. Improved weed control practices capable of delaying resistance build-up will be crucial for avoiding the need to use excessive herbicides to manage resistant weeds.
Social benefits	Adopting improved weed management strategies will delay resistance build up in weeds, increase yield stability across multiple crop rotations and increase reliability of whole-farm income.

OBJECTIVE 1: IMPROVE YIELD AND YIELD STABILITY

A goal to close the gap between actual and potential yields is clearly a worthwhile objective. However, delivering enduring profitability to grain growers will also require investments aimed at further extending the yield potential and yield stability of all Australian grain crops. Extending yield potential can be achieved by increasing the genetic yield potential and by limiting the impact of yield constraints (e.g. frost, hostile soils and heat).

Maintaining yield stability under the impacts of various environmental factors is an important consideration in limiting exposure to production risk and underpins stability of supply. Investments in this area may involve relatively high risks and long timeframes to delivery.

Objective 1: 2022-23 investment summary

RD&E	Number of investments	Value of investments
New	48	$11.2 million
Ongoing	194	$55.1 million
Total	242	$66.3 million

Key achievements

Milestones achieved in rust research

ACRCP's work has been paddock and outcome-focused, building on world-leading resources on both the gene discovery and pathogen monitoring fronts.

The fourth phase of the Australian Cereal Rust Control Program (ACRCP) emphasised gene discovery and understanding the interactions between rusts and their cereal hosts. Now complete, it also focused on adult plant resistance genes and their potential to deliver more durable forms of resistance.

In 2022, the value of this investment in genetic-based resistance to rust diseases was highlighted when two new stripe rust races combined with wet conditions to produce high inoculum levels that reached epidemic proportions earlier in the season and prevented growers getting to their crops to spray fungicides. Without rust resistance genes, crops would have failed in 2022 highlighting that genetic resistance underpins the system.

As a result of ACRCP, almost (if not) all of Australian wheat and barley cultivars have at least some resistance to each of the three rust diseases. The resistance saves the wheat and barley industries an estimated $1.1 billion per year.

GRDC farming systems research now national

Farming systems projects extended across Australia to deliver whole-of-farm outcomes to growers.

In July 2022 GRDC announced a $20.4 million investment to give WA growers in low and medium rainfall zones new insights into farming systems practices that increase profit, manage risk and consider greenhouse gas (GHG) emission options.

The WA Farming Systems project, a joint five-year investment between GRDC and DPIRD, uses a whole-of-farm research approach that has already been successfully established and applied in GRDC farming systems projects in the northern and southern regions of Australia. For this WA work, GRDC is contributing a total of $8.4 million, while DPIRD has committed an additional $12 million.

GRDC farming systems investments are a response to growers needing integrative R&D that considers whole-of-farm implications of elements, such as different crop rotations and agronomic management practices. This work is now underway in every Australian cropping region. In Queensland and NSW, growers have been benefitting from farming systems project insights for eight years with outcomes pushing the boundaries of what is known and understood about sustainable cropping.

Deep ripping delivers yield boost in sandy soils

GRDC's support and research into new and innovative practices continue to empower growers, ensuring they have access to techniques that enhance productivity and sustainability.

In 2022, facing challenges with declining crop production on sandy soils in the Victorian Mallee, GRDC took the lead in researching and promoting the benefits of deep ripping.

The research opportunity was validated when a deep-ripping trial on Alistair Murdoch's farm in Kooloonong revealed that wheat sown into ripped soil yielded 1.6t/ha, compared to 0.9 t/ha on unripped soil. After additional research and support for the technique, deep ripping has become a widely adopted practice in the Victorian Mallee region.

Beyond cereals, the research outcomes also indicate that pulse crops such as chickpeas also benefit from deep ripping, with some yields doubling or even tripling.

Objective 1: Improve yield and yield stability

Key achievements

Double break crop sequences a game changer for weed and disease control

A GRDC investment is setting new benchmarks in weed and disease control. Photo: Nicole Baxter

During 2022-23, the efficacy of double-break crop sequences in weed and disease control was demonstrated in a GRDC farming systems investment led by CSIRO. These crop sequences, involving two consecutive broadleaf crops followed by a cereal phase, have been shown to reduce the population of weeds and disease pathogens.

In a detailed study near Eurongilly, NSW, paddocks heavily infested with ryegrass were treated with a lupin/canola/wheat sequence that proved the best and most economic method for controlling the weed. Additionally, diverse rotations incorporating a double break, such as faba bean/canola/wheat, have been shown to reduce crown rot inoculum levels, offering an additional solution for disease management in regions like Urana, NSW.

WA expansion galvanised by Chickpea Breeding Australia

CBA has lead chickpea innovation and expansion in WA for 2022-23. Photo: Anvil Media

Chickpea Breeding Australia (CBA), a collaboration between GRDC and NSW DPI, has been at the forefront of enhancing chickpea productivity and expanding Australian chickpea production areas.

CBA's focus on delivering for WA grain growers was evident, with the establishment of six major chickpea evaluation and selection sites across the state. These sites span from Scaddan in the south-east to Northampton in the north-west. The initiative's primary goal is to introduce high-yielding, disease-resistant chickpeas with improved harvestability attributes.

CBA Captain, the first desi chickpea variety released by CBA, showcased improved adaptation to WA environments, offering a yield advantage over the previously popular variety, Genesis™ 836. In 2022, 60.3 tonnes of CBA Captain were sold to 17 WA growers, indicating a promising uptake and potential for further expansion in the region.

Determining profitability of harvester set-up to reduce losses

GRDC is empowering growers with harvester best practice knowledge to help maximise yield.

In 2022-23, GRDC's investment into harvester set-up practices revealed that a suboptimal harvester configuration could lead to losses of around three per cent of a canola crop, translating to notable financial costs for growers.

By adopting GRDC's recommendations, such as using grain collection trays to measure and adjust for grain losses, growers have reported significant savings and reduced post-farmgate costs.

A grower from WA saved $58,000 across a 500-hectare canola program by fine-tuning his machinery based on these insights.

iMapPESTS drives future of airborne pest surveillance

iMapPESTS elevates yield stability with real-time pest surveillance. Photo: iMapPESTS

The iMapPESTS initiative, with GRDC's $1.8 million contribution, has set a global standard in airborne pest surveillance. Over six years, this project has developed a comprehensive system combining automated sentinel traps, advanced genetic diagnostics, and a user-friendly cloud platform.

This integrated approach provides growers with actionable insights into potential airborne threats. In 2022-23, the system detected significant migrations of oat aphid and high concentrations of blackleg, chocolate spot, and Septoria tritici blotch spores, impacting local canola, pulse and cereal crops in SA and Victoria. These precise alerts facilitated prompt interventions, ensuring crop safety and directly bolstering yield stability.

Objective 1: Improve yield and yield stability

Key achievements

NVT notification service enhances grower access to trial results

The new NVT notification service is facilitating prompt trial insights for growers across Australia.

The NVT program, an initiative by GRDC, has introduced an email notification service, improving the way growers access independent crop yield data. Launched in 2022, this service promptly alerts growers about new trial results as they are published online.

With a focus on efficiency, the service offers notifications for single site analysis results, providing an initial snapshot of variety performance, followed by a subsequent alert for the comprehensive multi-environment trial analysis results, essential for informed variety selection. This efficient approach has reduced the time between results being uploaded and growers accessing them, with site results being made available as swiftly as 13 days post-harvest.

The NVT subscription service, now available to all subscribers, ensures that growers receive timely, independent yield data, aiding them in making optimal varietal choices tailored to their specific environments.

Grower case study:

Tasmanian grower triumphs in agronomy awards

Hyper Yielding Crops national extension co-ordinator Jon Midwood from TechCrop Services.

"Tasmania's top 20 per cent of high-yielding paddocks averaged 12.7t/ha in 2021, which is phenomenal, the average yield of that group in 2020 was 10.9t/ha."

A Tasmanian wheat crop secured the top spot in GRDC's 2021 Hyper Yielding Crops awards. The irrigated RGT Accroc wheat crop, cultivated by mixed farmer Frank Archer from Cressy, yielded an impressive 13 tonnes of grain per hectare, surpassing its estimated potential yield of 10.59 tonnes by more than 25 per cent.

This award-winning crop was part of GRDC's Hyper Yielding Crops initiative, led by FAR Australia, which spans high-rainfall areas across Victoria, SA, Tasmania, NSW and WA. The initiative aims to bridge the gap between actual and potential yields of wheat, barley and canola.

OBJECTIVE 2: MAINTAIN AND IMPROVE PRICE

Maintaining current market positions will depend on maintaining the premium quality of Australian grain. Important functions driving the maintenance of premium quality include Australia's grain classification systems as well as the effective and prompt management of trade and market access issues as they arise.

Traceability and demonstrated food safety are also likely to remain key customer requirements and are expected to increase in importance in the short-to-medium term. While the export of bulk commodities will remain a significant part of future Australian grain trading, opportunities to change the functionality and/ or composition of traditional commodities will underpin future increases in demand and prices.

Objective 2: 2022-23 investment summary

RD&E	Number of investments	Value of investments
New	19	$3.7 million
Ongoing	24	$7.9 million
Total	43	$11.6 million

Key achievements

Supporting AEGIC to harness pulse potential in global markets

Pulse protein innovation for enhanced market value in 2022-23. Photo: AEGIC

AEGIC has been exploring the untapped potential of Australian pulses as a rich source of plant protein for global markets. With the plant protein market in Australia projected to reach a value of $3.2 billion by 2030, and a growing demand in Asia, there is a clear opportunity for GRDC to support Australian pulse growers.

AEGIC's research has been focusing on faba beans, yellow peas, red lentils and mungbeans for their potential to be processed into protein concentrates. These concentrates find applications in a variety of products, from protein powders to plant-based meats and even instant noodles.

In 2022-23, GRDC invested $567,000 into this area as part of a national infrastructure grants program, enabling the establishment of a new pilot pulse protein processing plant. This facility supports dry processing of pulse protein, a method that's both energy and water-efficient and provides potential to maintain and improve the market price of these commodities.

Project focused on market options for oats

GRDC is enhancing Australian oat marketability through research and collaboration. Photo: Paul Jones Photography

In collaboration with AEGIC, GRDC has focused on expanding market opportunities for Australian oats and introducing new oat-based products. This partnership aims to leverage scientific advancements to meet the growing dietary preferences for oats globally.

A 2022-23 GRDC investment with Murdoch University resulted in a comprehensive understanding of the oat genome. This knowledge is expected to improve oat yields, enhance grain quality and bolster disease resistance across the industry.

Partnering with SARDI and CSIRO, GRDC has also addressed specific agronomic challenges, such as managing Septoria and crown rust in oats, and explored new herbicide options. Through these efforts, GRDC aims to equip Australian oat growers with the tools and knowledge to thrive in a competitive global market.

Grower case study:

Lentil market has plenty of room for Eyre Peninsula growers

SA grower, Bill Long.

"Demand should easily exceed our ability to supply. Developing long-term stable relationships with these trading partners allows us to make decisions about the investments needed to ramp-up lentil production in our difficult soils."

Bill Long was one of the first growers to plant lentils around Tooligie Hill in the middle of SA's Eyre Peninsula. His first lentil crop there, planted in 2017, was hardly a promising beginning. That season's low rainfall meant planting occurred late – not a good combination for pulses – and subsequent yields were very low.

"Five years down the track, lentils are now a significant part of the rotation for most of us in the region," Bill says. He is buoyant about lentil market opportunities. The vast majority of Australia's production is exported to South Asia (particularly India, Pakistan and Bangladesh), where lentils constitute a major protein source for a large proportion of the world's population.

OBJECTIVE 3: OPTIMISE INPUT COSTS

International comparison of average input costs per tonne confirms that Australian growers have relatively high costs of production.

A wide range of opportunities exist that can lead to incremental and transformational reductions in input costs while optimising productivity. The challenge is to identify and prioritise the incremental opportunities to match costs with production at a regional scale, while also identifying transformational opportunities on a national scale.

Objective 3: 2022-23 investment summary

RD&E	Number of investments	Value of investments
New	76	$10.8 million
Ongoing	144	$39.9 million
Total	220	$50.7 million

Key achievements

New national study to improve understanding of nitrogen cycle

GRDC is advancing research to optimise nitrogen use and reduce input costs for growers.

In 2022-23, GRDC prioritised a deeper understanding of nitrogen (N) behaviour in soils, aiming to mitigate its losses and optimise input costs for growers. Launching an $11.9 million project titled 'Predicting N cycling and losses in Australian cropping systems', GRDC sought to provide insights into N dynamics across diverse soil and environmental conditions.

The research has identified how these losses are influenced as opposed to identifying the loss pathways, which are well known and include denitrification, ammonia volatilisation and nitrogen leaching. These losses can be influenced by factors such as soil type, climate and land management practices.

With field trials conducted across 12 national locations, the project tracks the journey of N in the soil-plant system over three growing seasons. The insights from this initiative aim to guide growers on when and how N losses occur, helping them maximise fertiliser efficiency and manage input costs effectively.

Research provides growers with clear lime budget guidance

Strategic lime application delivers improved soil pH and yield benefits for growers. Photo: Evan Collis

GRDC's emphasis on strategic lime application has provided clear lime budget guidance to growers, especially in regions grappling with soil acidity. In collaboration with the Dryland Legume Pasture Systems project, GRDC has highlighted the limitations of the 'vegemite strategy' – spreading lime thinly over vast areas. Instead, the focus has shifted to treating specific hectares with higher lime rates and, where necessary, incorporating the lime to depth.

This approach, backed by data from iLime scenarios, has shown that treating a smaller area properly can lead to sustained yield improvements. In 2022-23, the outcomes of this strategic approach were evident, with growers experiencing improved soil pH levels, better crop yields and optimised input costs.

Research findings assist growers with phosphorus decisions

Optimising phosphorus application provides improvements to soil health and cost efficiency.

During 2022-23, GRDC focused on the intricate behaviour of phosphorus (P) in soils to assist growers in optimising input costs. Research findings highlighted the contrasting behaviours of P, even in soils that appear similar.

One of the primary challenges identified was 'sorption', where P attaches to soil surfaces, limiting its availability to crops. It was also found that when P is applied in concentrated bands, there is a risk of it becoming insoluble, rendering it inaccessible to plants.

This knowledge has led to the recommendation of a balanced P application approach. By applying P in a way that maximises crop access while minimising adverse reactions, growers can achieve better nutrient management and cost savings.

Objective 3: Optimise input costs

Key achievements

Crop sequencing profitability and the machinery factor

Pioneering research to align crop sequencing with machinery use for cost savings.

GRDC's strategic support into input cost research has empowered growers to optimise machinery costs by aligning them with effective crop sequencing. In 2022, a GRDC investment led by CSIRO found that machinery costs, which form a substantial part of farm expenses, can vary by up to $60 per ha based on the farming system.

A diverse cropping sequence, blending summer and winter crops, can be more cost-effective by $30 to $50 per ha compared to a winter crop-dominated sequence, due to the even distribution of machinery uses throughout the year in diverse crop mixes.

Conversely, research found a heavy focus on winter crops can lead to machinery use overlaps, especially during sowing and harvesting. GRDC's insights in this area are guiding growers to make informed decisions, ensuring machinery is used efficiently and input costs are optimised.

Grower case study:

Clocking up a week's work in just one day

Queensland grain grower Tom Coggan (right).
Photo: Tom Coggan

"For example, the robot-sprayed paddocks are cleaner than the human-sprayed ones because that is the robot's job – whereas staff only work Monday to Friday and will often get called out to do another job, like fixing a fence. The robots don't."

GRDC's commitment to fostering innovation in farming practices was evident in the support for robotic advancements in 2022-23. Northern grower Tom Coggan showcased the impact of integrating robots into daily farming operations.

By employing two SwarmFarm-operated WEED-ITs, Mr Coggan was able to achieve what would typically amount to a week's work in just a single day. These robots, operating independently, effectively managed tasks like spot spraying, covering vast areas without human intervention. Cost-wise, the robots are about the same as a normal sprayer, but Mr Coggan says they are cost-efficient and effective.

OBJECTIVE 4: REDUCE POST-FARMGATE COSTS

GRDC will continue to support RD&E into understanding the variables that drive supply chain costs, to inform policy on these issues.

In addition, GRDC will consider transformational investments with the capacity to disrupt current freight dynamics, as well as developing extension packages that assist growers in minimising post-farmgate costs.

Objective 4: 2022-23 investment summary

RD&E	Number of investments	Value of investments
New	7	$1.1 million
Ongoing	7	$1.4 million
Total	14	$2.5 million

Key achievements

Multi-faceted approach to combat snails in grain crops and improve market opportunities

Research into effective snail management is also investigating ways to improve market opportunities for affected crops. Photo: Evan Collis

A $4.6 million national research project is set to provide Australian grain growers with new tools and management techniques to combat snails, aiming to minimise losses and improve market opportunities for affected crops.

The four-year project has investment from GRDC and is led by UoA in collaboration with SARDI, working with UniSA, CSIRO, DPIRD and other research partners.

Exotic snail species established in Australia as early as the 1920s have become major pests of grain crops. In addition to attacking crops, snails climb crop plants in spring and contaminate harvested grain, resulting in substantial management costs, grain yield and value losses, opportunity costs and market risks.

Lead researcher, Dr Kym Perry, says that snail management has improved over the years through the concerted efforts of growers, researchers and funding bodies working together, but snails remain a costly and difficult target for management.

Crop damage, harvest delays, and grain value downgrades at delivery, are common occurrences for growers in affected areas. Mediterranean snails create substantial pre- and post-farm gate costs for affected growers and reputational risks for Australian grain that can affect international trade.

Objective 4: Reduce post-farmgate costs

Key achievements

Grower case study:

Improved on-farm grain storage enables diverse selling strategies

Horsham grain grower, Tim Rethus.
Photo: Chris Warrick

"If buyers are willing to pay for grain of a specific quality or grown in a particular way that's difficult to achieve through a bulk handler."

Following a grain storage workshop at the Rethus' farm in 2019, grain storage extension team leader, Chris Warrick, reconnected with Tim Rethus from Horsham, Victoria. Tim and his family have since become advocates for modern grain storage practices.

Their strategic adoption of advanced storage solutions has enhanced their operations, prioritising grain quality and fine-tuning post-harvest logistics. The Rethus family's use of grain collection trays for precise grain loss measurement and their investment in four large, flat-bottom silos for cereals, complemented by 24 cone-bottom silos for seeds and legumes, reflect their commitment to storage efficiency.

This approach not only streamlines the harvest process but also provides marketing versatility, enabling diverse selling strategies year-round.

OBJECTIVE 5: MANAGE RISK TO MAXIMISE PROFIT AND MINIMISE LOSSES

Risk is an important part of the profit equation. Risk management that is too conservative can limit profit in above-average production years, while approaches that are too aggressive can expose the grower to equity issues that adversely impact profit and future operations. In addition, grower attitude to risk is a key determinant of the speed and scale of uptake of new technology.

Objective 4: 2022-23 investment summary

RD&E	Number of investments	Value of investments
New	17	$4.9 million
Ongoing	7	$4.1 million
Total	24	$9.0 million

Key achievements

Frost and heat risks quantified with new major project

Advancing tools to navigate frost and heat challenges, safeguarding grower profits.

GRDC's commitment to managing risk to maximise profit was a key consideration in the launch of a new investment addressing the challenges grain growers face from frosts and hot weather during sensitive crop stages. Collaborating with CSIRO and the University of Sydney, the project aims to bridge the gap between researchers and agricultural technology companies, delivering next-generation decision-support tools.

These digital tools are designed to simplify growers' decision-making, particularly in the aftermath of frost or extreme heat events. The tools will also give growers and advisers useful information to guide their choices at sowing time and in the spring, immediately after frosts and heat-stress events and after for wheat, barley, canola, lentil and chickpea crops. The tools will factor in crops' growth stage and soil moisture levels for specific paddocks in individual seasons.

Objective 5: Manage risk to maximise profit and minimise losses

Key achievements

New winter wheats add agility in low-rainfall regions

The GRDC- supported research exploring the role and performance of long- season wheats aims to help growers in central and southern NSW interested in earlier sowing. Photo: Central West Farming Systems

Research into long-season wheats for the lower-rainfall areas of central and southern NSW is expected to significantly increase the management agility needed to accommodate changing seasonal conditions.

The research and trials from this project confirmed the risk-management value, and potential production gains, from varieties able to be sown early and with vernalisation traits that delay flowering until after the frost risk period.

The objective for the project, 'Improving grower profits through longer-season wheat crops', was to demonstrate the performance of different varieties to counter the declining frequency of the traditional autumn break. It was also in recognition of the opportunities arising from related agronomic advances and practice changes.

Grower case study:

Study tour reveals big difference between frost strategies

Pingelly, WA, grower Geoff Poultney (centre in photo).

"I learned there are definitely no silver bullets, but instead that it's important to be honest with yourself and know which areas of your farm are at the most risk of frost and manage them accordingly. The big takeaway is that there is no cure for frost in the short term, so it is up to each farmer to manage their own risk the best they can."

Yield loss due to frost is a major issue in WA, with the costs estimated at up to $400 million annually. As part of the DPIRD approach to frost education, a frost study tour of SA and Victoria took place in September 2022, in collaboration with the Grower Group Alliance (GGA) and with GRDC support.

Fourteen WA growers from three grower groups located in the central wheatbelt, Great Southern and Esperance regions learned about the latest frost research during visits to the UoA, the Frost Learning Centre at Clare in SA and the main Birchip Cropping Group trial site. They also met Kenton Porker, formerly from FAR Australia. FAR Australia is the lead research organisation for the latest national GRDC frost project.

FRAMEWORK PERFORMANCE – BIOSECURITY

The Biosecurity Framework aims to invest in RD&E that is strategic, collaborative and co-ordinated to minimise grains biosecurity threats to production and trade in the context of common cross–industry objectives.

This Framework aims to contribute to the optimal management of grains industry plant biosecurity risks across the pre and post boundary continuum at national, state, regional and farm levels with regard to pests, weeds and diseases that are either exotic (not yet established in Australia) or established (present in Australia).

Biosecurity Framework: 2022-23 investment summary

RD&E	Number of investments	Value of investments
New	9	$1.1 million
Ongoing	15	$1.2 million
Total	24	$2.3 million

Key achievements

Investment in diagnostics pays dividends for grain growers

Khapra beetles, while not yet present in Australia, are a potential threat and a focus of projects within the Boosting Diagnostic Capacity for Plant Production Industries' project. Photo: Tomasz Klejdysz

Recognising the potential financial and production impacts of exotic pests and diseases on the grains industry, GRDC, in collaboration with CSIRO and the University of Sydney, developed the 'Boosting Diagnostic Capacity for Plant Production Industries' project.

This investment, supported by DAFF, focuses on high-priority exotic pests and diseases. It aims to train more scientists and develop faster, more efficient methods for detecting and diagnosing these threats.

Key outcomes in 2022 included the development of diagnostic tools for pests such as Khapra beetles, exotic nematodes, begomoviruses, and poleroviruses. Partnerships with institutions like SARDI and QDAF have led to advancements like imaging and genetic sequencing for Khapra beetle detection and field-ready tests for exotic viruses. These efforts ensure that, should these threats ever reach Australian shores, the grains industry is well-prepared to respond and mitigate potential damages.

Grower case study:

Grower groups encourage widespread uptake of WAND

Mungindi agronomist Jo Weier.

"We'll see a real difference if everyone is using the data to identify inversions and actively choosing not to spray when damage can occur. It's innovative technology that growers can easily use, so we're trying to make sure everyone's aware they have access to it."

During 2022-23, grain and cotton growers have been embracing the active WAND stations across NSW and Queensland, with spray applicators encouraged to make use of the reliable system to avoid spray drift incidents.

WAND is a $5.5 million investment being rolled out by GRDC, CRDC and Goanna Ag that has seen a network of weather stations installed across growing regions to provide real-time weather data that identifies and measures the presence of hazardous temperature inversions.

This is a free network that all growers and spray applicators can access via their smartphone. The WAND system is the first to accurately measure the presence of hazardous inversion conditions.

FRAMEWORK PERFORMANCE – CAPACITY AND ABILITY

The Capacity and Ability Framework defines the intent and broad principles for GRDC's approach to develop and maintain the people, infrastructure and delivery pathways to ensure the continued success of the Australian grains industry.

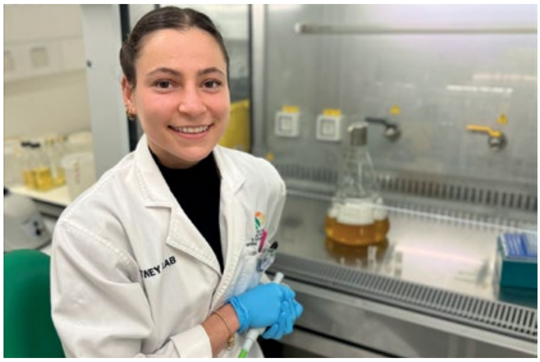
This Framework refines the statutory scope of GRDC's investment in capacity and ability to provide strategic focus to deliver identified capacity and ability priorities.

Capacity and Ability Framework: : 2022-23 investment summary

RD&E	Number of investments	Value of investments
New	86	$11.5 million
Ongoing	93	$3.1 million
Total	179	$14.6 million

Key achievements

GRDC Research Scholarships attract top students



GRDC continues to support outstanding university students to undertake PhD's in areas aligned with GRDC RD&E investment strategy. PhD candidate Tanya Skinner is a scholarship recipient. Photo: ANU/GRDC

GRDC Research Scholarships attract and support the best university students to undertake PhD research in areas strategically important to GRDC and the Australian grains industry. This top-up scholarship program has been a key component of GRDC's capacity building strategy for more than 20 years. The scholarships ensure Australian growers continue to be supported by world-class researchers with the skills, knowledge and understanding of the grains industry.

GRDC evaluated 73 eligible applications for the 10 available scholarship positions in the 2023 program. The quality of applications received was exceptionally high, so another seven scholarship positions were supported. This increase in quality scientific capacity means more researchers will be available to GRDC in key research areas to deliver world-class RD&E for growers in the future.

GRDC currently has 33 active GRDC Research Scholarships, with another eight to be contracted early in 2023-24.

GRDC awards celebrate outstanding contributions to grains industry

GRDC Chair John Woods (lt) with Seed of Gold recipient Terry Enright (rt) – GRDC Seed of Gold awards recognise outstanding contribution to the industry and an unprecedented three were awarded in 2023.

In 2022-23 GRDC presented three prestigious Seed of Gold awards nationally. These awards recognise the outstanding contribution, dedication and commitment of outstanding individuals to the Australian grains industry.

In the western region, former Great Southern grain grower and livestock producer Terry Enright was recognised for more than 40 years dedicated to the direction and management of agricultural research, including as chair of GRDC, the Australian Livestock Export Corporation (LiveCorp), Grains Australia and AEGIC.

In the northern region, renowned plant pathologist Dr Kevin Moore was recognised for his impactful 55-year career in crop protection, with his research outcomes and pulse disease management strategies continuing to improve grower profitability.

In the southern region, South Australian grain grower and former plant breeder and researcher Andrew Barr was recognised for his 50 years as a plant breeder with UoA, during which time he developed 24 varieties of oats, barley and wheat, including the well-known Echidna and Commander lines, which offered growers higher yielding and disease resistant options.

Grower case study:

GRDC grower study tour delivers insights on hybrid canola

Mount Barker grower Ashley Hudson with other WA growers on tour in Victoria. Photo: Elders Cranbrook

"Seeing the lengthy work that goes into breeding canola in person was an eye-opener for me. I now have a better understanding of why varieties take eight years from development to commercialisation, as now I know the stages the breeding has to go through."

Fifteen growers from the Cranbrook region of WA participated in a GRDC grower study tour to Horsham to gain a deeper understanding of the pathways for bringing hybrid canola seed to market.

The tour, organised in collaboration with Elders Cranbrook, addressed the high demand for canola seed in WA and the challenges surrounding seed supply. Participants visited Nuseed and BASF's canola seed technology sites, learning about the journey of canola seed from 'laboratory to bag'.

The group also engaged with leading researchers on diseases affecting canola and explored the intricacies of hybrid canola breeding. Feedback from growers emphasised the value of the tour in demystifying the complexities of hybrid canola seed production and the reasons behind seed retention recommendations.

FRAMEWORK PERFORMANCE – DATA MANAGEMENT AND ANALYTICS

The Data Management and Analytics Framework aims to enable researchers and growers to capture and exploit data relevant to the grains industry, including RD&Eexperimentation, paddock and farm, production, and economic and environmental characterisation data.

There are six strategic elements: capture valuable data; make data accessible and actively share data and learnings; invest in analytics to create innovative insights and value; measure investment impact; ensure we have a workforce that has the necessary data and analytics skills and capacity; and apply governance for effective data usage.

Data Management and Analytics Framework: 2022-23 investment summary

RD&E	Number of investments	Value of investments
New	17	$9.1 million
Ongoing	33	$6.0 million
Total	50	$15.1 million

Key achievements

Analytics for the Australian Grains Industry (AAGI)

This new AAGI investment will ensure RD&E investments are supported by rigorous, statistical and analytical capability critical to convert raw data into meaningful knowledge for growers. Photo: Paul Jones Photography

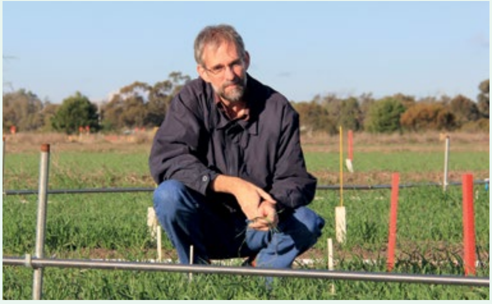
AAGI is a co-investment from GRDC with Curtin University, UQ and UoA developed to unleash the potential of statistics, machine learning, data fusion and analytics for Australian grain growers to support unconstrained adoption of analytics-driven decision-making. GRDC has committed $36 million over five years to AAGI, which complements a $56 million co-investment from the initiative's three strategic partners.

Over a decade ago, GRDC identified the value of investment in statistics for the Australian grains industry and AAGI is a significant step change in that approach.

This new research builds on the foundational work done under the GRDC's $23.8 million Statistics for the Australian Grains Industry 3 (SAGI3) investment, which delivered vital information for the grains sector between 2016 and 2023. During this period SAGI13 provided statistical expertise to more than 210 GRDC projects worth more than $490 million. As a result of these investments, growers now benefit from better germplasm selections in pre-breeding programs, clearer research-driven agronomic recommendations, and tools that use data to support on-farm decision-making.

Grower case study:

GRDC Data Partnerships Initiative builds capacity



Agriculture Victoria crop agronomy research leader Associate Professor Glenn Fitzgerald is managing the department's involvement in the Data Partnerships Initiative. Photo: Felicity Pritchard

"We'll see a real difference if everyone is using the data to identify inversions and actively choosing not to spray when damage can occur. It's innovative technology that growers can easily use, so we're trying to make sure everyone's aware they have access to it."

A goldmine of data generated from thousands of RD&E projects supported by GRDC on a range of topics including yield, soils, genetics and climate, is the target of GRDC's Data Partnerships Initiative. Collaborating with 12 Australian research organisations, the initiative seeks to centralise data from diverse GRDC projects, ensuring it is both accessible and reusable.

Agriculture Victoria crop agronomy research leader Associate Professor Glenn Fitzgerald is managing his department's involvement in the initiative. He says that improved data findability and accessibility, as well as improved internal management systems developed alongside the initiative, will help advance complex research projects.

FRAMEWORK PERFORMANCE – GROWER COMMUNICATIONS AND EXTENSION

The Grower Communications and Extension Framework builds on the significant progress that GRDC has made to date in communicating RD&E outcomes to growers, while increasing focus on extension that leads to increased technology adoption and practice change on farm.

This Framework also reflects GRDC's recognition of the changing extension landscape in Australia and aims to leverage and strengthen existing extension channels.

Grower Communications and Extensions: 2022-23 investment summary

RD&E	Number of investments	Value of investments
New	8	$0.6 million
Ongoing	21	$6.1 million
Total	29	$6.7 million

Key achievements

GroundCover™ reaches more than 33,000 stakeholders

GroundCover™ is used by more than 94 per cent of grain growers surveyed in 2022 and is consistently rated highly by growers, making it a trusted source of grains RD&E news. Photo: Nicole Baxter

Since 1993 GRDC has been producing GroundCover™, the organisation's flagship news publication. GRDC produces six hardcopy GroundCover™ newspaper editions per year, complemented by a custom-built website (groundcover.grdc.com.au) enabling GRDC to update stories daily. It ensures Australian grain growers, advisers and other industry stakeholders are kept informed of the latest grains RD&E news or industry issues.

Each hardcopy publication is delivered to more than 33,000 stakeholders nationally, the majority identifying as grain growers. The website received in excess of 300,000 pageviews in the 2022-23 financial year and continues to grow its audience year-on-year.

While serving as GRDC's primary news channel, GroundCover™ also raises awareness of additional resources available to readers, enhancing grower and adviser knowledge and supporting the adoption of research outputs on farm.

Grower case study:

Grains Research Updates deliver vital RD&E information to growers

Dr Lizzy Lowe, lead extension scientist, Cesar Australia.

> *"The most important thing is that our research gets back to growers, there's no point in doing it otherwise. The [Grains Research Updates] are one of the best forums for growers to hear about RD&E outcomes."*

Every year GRDC runs more than 30 Grains Research Updates nationally to extend the latest resource outcomes to growers, advisers and industry stakeholders. With more than 4000 attendees the events are a 'who's who of Australian agriculture and beyond' according to Tony Craddock, manager ag production and adoption, Pinion Advisory.

"I think I have attended all the Updates since its instigation," says Mr Craddock. "I really enjoy it as a professional development activity. I'm working with clients and this is my chance to be updated on the technical aspects of cropping."

In 2022, GRDC commissioned a review of the Grains Research Updates, which reported 70 per cent of participants expressed positive sentiment towards all formats of the updates, suggesting a high level of satisfaction and little need for substantial alterations to what appears to be a successful formula.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4. OUR ORGANISATION

PEOPLE AND GOVERNANCE

GRDC's purpose is to invest in RD&E to create enduring profitability for Australian grain growers.

We invest in and manage RD&E investments to deliver new and improved varieties, farming practices, technologies and capability to the Australian grains industry. These investments drive the discovery, development and delivery of world-class innovation.

Our role includes coordinating and investing in RD&E activities; monitoring, evaluating and reporting on the impact of R&D activities on the grains industry and the wider community; and facilitating the dissemination, adoption and commercialisation of the results of RD&E.

Figure 11: GRDC functional organisational chart at 30 June 2023.

Managing Director

Applied RD&E Group	Genetic Technologies, Biosecurity & Regulation Group	Strategy & Business Development	Managing Director's Office	Operations Group
Crop Protection	Genetic Technologies	IP and Licensing	Human Resources	IT Architecture and Operations
Sustainable Cropping Systems	National Variety Trials	Business Development	Communications Industry & Government Relations	Finance
Regional Management West	Biosecurity and Regulation	Economics	Legal and Governance	Business Programs
Regional Management North		Strategy, Insights and Planning		Digital
Regional Management South		Enabling Technologies		Portfolio Coordination

Board and Executive

GRDC's Board is responsible for the stewardship of GRDC and oversees corporate governance within GRDC. The Board's functions include setting strategic direction and monitoring the ongoing performance of the business and the Managing Director. More information on the Board is provided on page 91 of this report.

The Executive Committee is comprised of the Managing Director and the General Managers of GRDC's business groups, along with the General Counsel and Company Secretary, Head of Human Resources and Head of Communications. The Executive Committee leads GRDC's business activities, advises the Board and implements the Board's decisions. It meets regularly to ensure that GRDC's operations are monitored and managed efficiently and effectively.

Business groups

At 30 June 2023, GRDC had five business groups with subgroups as follows:

Applied RD&E Group

- Crop Protection
- Sustainable Cropping Systems
- Regional Management West
- Regional Management North
- Regional Management South

Genetic Technologies, Biosecurity and Regulation Group

- Genetic Technologies
- National Variety Trials
- Biosecurity and Regulation

Strategy and Business Development

- IP and Licensing
- Business Development
- Economics
- Strategy, Insights and Planning
- Enabling Technologies

Managing Director's Office

- Human Resources
- Communications
- Legal, Governance and Reporting

Operations Group

- IT Architecture and Operations
- Finance
- Business Programs
- Digital
- Portfolio Coordination

Investment planning and assessment are performed by cross-functional teams involving input from relevant units across GRDC, while individual investment contracts are negotiated and monitored by managers within relevant units.

Board

At 30 June 2023, the Board comprised nine directors, of which eight are non-executive directors (including the Chair) and one is an executive director (the Managing Director).

The Board has combined expertise in business management; commodity production, processing and marketing; economics; finance; management and conservation of natural resources; environmental and ecological matters; RD&E administration; science and technology; technology transfer; communication and public administration.

John Woods, Chair
BAppSc, MAICD

Appointed as Director (non-executive): 8 March 2012 to 30 September 2016

Appointed as Chair (non-executive): 1 October 2016 to 30 September 2023

Member: Remuneration People and Performance Committee

John is partner and manager of a broadacre agribusiness based in northern NSW and southern Queensland. He has responsibility for all business aspects including financial management; production and crop husbandry; marketing and logistics; resource management; and work health and safety. He is also chair of R&R Hire Services in Queensland, and immediate past chair of the Council of Rural RDCs 2019-2022.

John has a history of working collaboratively with a range of public and private organisations in the investment, development, extension and adoption of new technology and innovation.

He was chair of the Science Advisory Group of the National Agricultural Monitoring System (NAMS) between 2005 and 2009, and a member of the NAMS Advisory Reference Group and Steering Committee. He also spent six years, to 2005, on the National Rural Advisory Council.

John was chair of ChemCert Training Queensland from 2002 to 2004 and has held positions with Cotton Australia and Farmsafe Queensland.

Nigel Hart, Managing Director
FAICD

Appointed: 28 March 2022

Nigel grew up in southern NSW and has spent more than 25 years working in executive and leadership positions in large scale infrastructure, port, warehousing and supply chains operations for the grains sector, both within Australian and internationally.

Nigel has worked as an expert consultant on a range of projects in the grain supply chain from international benchmarking of bulk and container supply chains, plant protein manufacturing, hybrid wheat commercialisation, digital strategies for supply chain optimisation and the design and development of a 1.3mmt grain export terminal.

He was previously Global Director (Ports) at Archer Daniels Midland where he led the development of a global port's growth and productivity strategy across Asia, Europe, South America and the USA.

Prior to this he spent 15 years at GrainCorp culminating in his position as group general manager – Storage and Logistics where he led the storage and logistics operations, grain accumulation and domestic customer management teams across the east coast of Australia.

Nigel has a bachelor's degree in agriculture from Western Sydney University, is a fellow of the Australian Institute of Company Directors (AICD) and successfully completed the Advanced Management Program at Harvard Business School in 2013.

Richard Dickmann
BForSci (Hons), MAgrSc, GAICD

Director (non-executive)

Appointed: 1 October 2020 to 30 September 2023

Growing up on a southern Victorian farm, Richard obtained a bachelor's degree in Forest Science at UoM and a Master of Science in Agriculture at the University of Sydney. Richard worked in state government agricultural extension in NSW and Victoria and the crop insurance industry. Richard then undertook a 20-year international career in agribusiness, with postings to France, Singapore, Japan, China and Germany. Richard gained broad experience in research prioritisation, marketing, global product management and commercial operations.

Returning to Australia in 2009, Richard undertook roles in new business development and public and government affairs. Richard worked to identify new business opportunities combining the innovation power of Australian and international organisations. Richard is currently managing his own consulting business focusing on innovation, commercialisation and sustainability strategies and is the interim executive director of the Australian Plant Phenomics Facility.

Richard is a graduate of the AICD and currently sits on the advisory board of the ARC Centre of Excellence for Plant Success in Nature and Agriculture. Richard was formerly a director of Cotton Grower Services Pty Ltd and a member of the Bayer Australia Ltd Board.

Roseanne Healy
LLB, BA(Econ), MBA, MBR(Com), GAICD

Deputy Chair

Director (non-executive)

Appointed: 4 November 2014,
reappointed to 30 September 2023

Chair: Audit and Risk Committee

Member: Remuneration, People and Performance Committee

Roseanne has more than 20 years' experience in strategic advisory and investment banking. She worked early in her career at JBWere, the Australian and New Zealand investment house working with investment banks such as Goldman Sachs in the initial public offering and alternative asset teams.

Since then, she has held chief executive officer, executive and advisory positions in public, private, and private equity backed organisations as well as regulatory positions including tribunal member and presiding member.

She is currently the managing director of Australian corporate advisory and boutique private equity firm Enterprise Corporation and an accomplished director and board chair for several companies.

Roseanne is also currently a non-executive director on the Murray-Darling Basin Authority, Dairy Australia, and VeroGuard Systems, chair of Cashflow Manager and Dairysafe, and deputy chair of GRDC.

Roseanne is also a graduate of the AICD (International).

Richard Heath
BSc (Hons), GAICD

Director (non-executive)

Appointed: 1 October 2017,
reappointed to 30 September 2023

Chair: Remuneration People and Performance Committee (from 9 December 2020)

Richard grew up on a family farm on the Liverpool Plains in north-west NSW. He managed the cropping operations of the farm for nearly 20 years, overseeing production of wheat, barley, chickpea, faba beans, canola, sorghum, sunflowers, mungbean and cotton. Richard has been an early adopter of new farming technologies and travelled on a Nuffield scholarship in 2003 to research precision applications of fertiliser.

Richard is the executive director of the Australian Farm Institute (AFI), an independent agricultural policy research organisation. Prior to this role, Richard was associate professor of Agronomy and Farm Management at the University of Sydney, with responsibility for the management of the university's north-west farms group, including the Plant Breeding Institute (PBI) at Narrabri.

Richard was a member of GRDC's Northern Panel from 2005 to 2011 and was a director of Nuffield Australia Farming Scholars from 2011 to 2017. He is currently a member of the external advisory committee of CSIRO Agriculture and Food.

Bob Nixon
MAICD

Director (non-executive)

Appointed: 1 October 2020 to 30 September 2023

Member: Audit and Risk Committee (from 9 December 2020)

Bob manages a family farming business in the 300mm annual rainfall north-eastern wheatbelt of WA. The family grow wheat, barley, canola, lupins, field peas and serradella cover crop. He has a strong interest in crop agronomy, soil health and resilient farming systems and communities.

Bob is past Chair of the Grain Industry Association of WA (GIWA) from 2017 to 2020 and past member of the GRDC Soils Constraints West steering committee. He currently sits on the WA Soil and Land Conservation Council and is an active member of his local Liebe Grower Group. He completed a Nuffield Scholarship in 2014 looking into 'Mitigating Risk in a Dry and Variable Climate' in response to the drying out and increase in seasonal variability of the WA cropping belt. Bob was awarded the GRDC Seed of Light in 2019 for his work in managing soil constraints.

Andrew Spencer
BAgSc, GAICD

Director (non-executive)

Appointed: 1 October 2020 to 30 September 2023

Member: Audit and Risk Committee (from 9 December 2020)

Andrew is the manager of his own consulting business in the Monaro region of NSW. He has previously been a senior executive of diverse agriculture and agribusiness organisations, spanning more than 35 years in four countries.

From 2005 to 2019, Andrew was the chief executive officer of Australian Pork Limited, the industry services and representative body for Australia's pork producers.

Prior to this time, he worked in the agricultural biotechnology, chemical and seed business in Australia, Europe and Africa particularly working in crops such as cereals, cotton, canola and rice. His roles included country management, global product management, crop business management and business development.

Andrew is chair of the Australian Farm Institute, Sheep Producers Australia Ltd and PorkScan Pty. Ltd., a small technology company in the pork industry. He is also a director of the Red Meat Advisory Council Ltd.

Andrew studied agricultural science at UoM.

Sharon Starick
BAgSc, GAICD

Director (non-executive)

Appointed: 30 November 2018, reappointed to 30 September 2023

Member: Audit and Risk Committee (from 9 December 2019 to 30 September 2020 and then from 9 December 2020).

Since 1993, Sharon and her husband have been producing grain and pork in the Mallee region of SA. Her extensive knowledge of sustainable primary production was developed through a degree in Agricultural Science through Adelaide University, her own on-farm practices and past participation in Mallee Sustainable Farming and the SA No-Till Farmers Association.

Through Sharon's strong interest in policy development and collaboration within Australian agriculture, she currently holds the positions of chair of Animal Health Australia, director of the Regional Investment Corporation and committee member of Murray Plains Farmers. She also has a passion for natural resource management and conservation that is reflected in her past involvement as chair of the SA Murray-Darling Basin Natural Resources Management Board and as a member of SA's Natural Resources Management Council, the Australian Landcare Council, and the Community Advisory Committee for the Murray-Darling Basin Ministerial Council. As a past director of Land & Water Australia, Sharon has experience in strategic planning for research and extension.

Sharon is a past participant in the Murray-Darling Basin Leadership Program and was awarded the RIRDC Rural Women's Award for South Australia in 2003. Sharon is also a graduate of the AICD.

Gemma Walker
BAgrBus, MAICD

Director (non-executive)

Appointed: 1 October 2020 to 30 September 2023

Member: Remuneration, People and Performance Committee (Appointed December 2022)

Gemma and her husband run a cropping property near Munglinup, in WA's south-east. In addition, she has worked for many years managing farming systems groups to deliver development and extension activities. These included Mallee Sustainable Farming and the Southeast Premium Wheat Growers Association.

Gemma is passionate about empowering all stakeholders in the grains industry to work together to build a sustainable and progressive supply chain which enables Australian growers and processors to profitably produce high quality goods for new and existing domestic and international markets.

Gemma is currently a non-executive director on Rural Edge Limited Board (formerly Partners in Grain), non-executive director on Esperance Organised Primary Producers and is a committee member of the Southern Biosecurity Group. Her board roles have included national and deputy chair of Partners in Grain .

She has previously served as a GRDC Western Panel member for seven years and as a board or committee member on Muresk Institute of Agriculture Board, the Wheatbelt Area Consultative Committee, Grains West Reference Group, and the Rural Media Association (WA) Committee.

Board selection

Members of the GRDC Board are selected and appointed in accordance with the PIRD Act. Under the PIRD Act, the Minister is responsible for the selection and appointment of the Chair of the GRDC Board. The Managing Director is selected by the Board and holds office at the Corporation's pleasure.

All other Board members are selected by a Selection Committee, appointed by the Minister under the PIRD Act, in consultation with the industry representative organisations declared under the PIRD Act. The Selection Committee is responsible for nominating five to seven candidates to be appointed as GRDC Directors. Nominations are made to the Minister and formal appointment of Directors is made by the Minister.

The current GRDC Board's term ends on 30 September 2023. As at 30 June 2023, the selection process to appoint the new GRDC Board is in progress and a new Board will be appointed later in 2023, with the term of the new Board to commence on 1 October 2023.

Committees

At 30 June 2023, the Board had two Committees, as described in Table 3. The Board receives formal reports from the Committees, and any decisions that the Board makes in relation to those reports are recorded in the minutes of the subsequent Board meeting.

Table 3: Board Committees

ROLE	MEMBERSHIP
Audit and Risk Committee	
Reviews and makes recommendations to the Board on matters relating to: • External financial reporting and controls; • Performance reporting; • Risk management framework; • System of internal controls; • Internal audit; • External audit; • Statutory reporting; and • Managed fund investments.	At least three (3), and not more than (5), non-executive Directors appointed by the Board.
Remuneration People and Performance Committee	
Reviews and make recommendations to the Board on matters relating to: • the recruitment, remuneration, development, performance and retention policies of GRDC including strategic workforce planning and organisational development; • a performance culture; • the selection, remuneration and performance of the Managing Director; • the development and performance of the Board; and • the appointment of nominee directors to external boards.	Chair, the Deputy Chair and up to two other Directors appointed by the Board.

Policies and practices

The Board Charter sets out the responsibilities and processes of the Board, including the code of conduct for Directors. The Board reviews this document at least once a year.

Key policies and practices of the Board include:

1. Independent professional advice:

With the Chair's approval, Directors may obtain independent professional advice, at GRDC's expense, on matters arising in the course of their duties.

2. Performance monitoring:

The Board sets out a detailed plan for the Corporation at the start of each year and reviews the Corporation's performance against the plan throughout the year. This is a key factor in determining the level of any performance bonuses paid to GRDC staff.

Meetings

During 2022–23 the Board held 9 meetings.

Each Director's attendance at meetings during the year is set out in Table 4.

Table 4: Attendance at Board and Committee meetings, 2022-23

MEMBERS	BOARD		REMUNERATION PEOPLE AND PERFORMANCE COMMITTEE	
	Meetings attended	Meetings held and eligible to attend	Meetings attended	Meetings held and eligible to attend
Richard Dickmann	9	9	n/a	n/a
Nigel Hart	9	9	4	4
Roseanne Healy	9	9	4	4
Richard Heath	9	9	4	4
Bob Nixon	9	9	n/a	n/a
Andrew Spencer	8	9	n/a	n/a
Sharon Starick	9	9	n/a	n/a
Gemma Walker	9	9	2	2
John Woods	9	9	4	4

Audit and Risk Committee

GRDC's Audit and Risk Committee reports to the Board. Membership of the Audit and Risk Committee is comprised of four GRDC Directors that are appointed by the Board. The work of the Audit and Risk Committee is articulated in an annual workplan, and the Terms of Reference of the Audit and Risk Committee are included in the Board Charter which is published on GRDC's website: https://grdc.com.au/about/who-we-are/our-structure/our-board

Table 5: 2022-23 Audit and Risk Committee membership and meetings

Membership of GRDC's Audit and Risk Committee in 2022-23	**Ms Roseanne Healy** Appointed: Chair from 6 December 2017 to 30 September 2020 and then from 9 December 2020.	
Member's experience • LLB, BA(Econ), MBA, MBR(Com) • Graduate of Australian Institute of Company Directors, GAICD (International) • Over 20 years' experience in strategic advisory and investment banking. She worked early in her career at JBWere, the Australian and New Zealand investment house working with investment banks such as Goldman Sachs in the International Public Offering (IPO) and alternative asset teams. Managing Director of Enterprise Corporation Pty Ltd, and Non-Executive Director, Murray-Darling Basin Authority, Dairy Australia and VeroGuard Systems, Chair of Cashflow Manager and Dairysafe and Deputy Chair of Grains Research and Development Corporation.	**No. of meetings eligible to attend**	7
	No. of meetings attended	7
	Remuneration for the period 2022–23 (as per the Remuneration Tribunal Determination)	$16,770
Membership of GRDC's Audit and Risk Committee in 2022-23	**Mr Bob Nixon** Appointed: 9 December 2020	
Member's experience • Member of Australian Institute of Company Directors, MAICD • Manages a grain farming business in Western Australia • Past Chair of the Grain Industry Association of WA (GIWA) from 2017 to 2020. • Currently sits on the WA Soil and Land Conservation Council and is an active member of the local Liebe Grower Group • Nuffield Scholarship in 2014.	**No. of meetings eligible to attend**	7
	No. of meetings attended	6
	Remuneration for the period 2022–23 (as per the Remuneration Tribunal Determination)	$8,390
Membership of GRDC's Audit and Risk Committee in 2022-23	**Mr Andrew Spencer** Appointed: 9 December 2020	
Member's experience • BAgSc • Graduate of Australian Institute of Company Directors, GAICD • Senior leadership positions in diverse agriculture and agribusiness organisations, spanning more than 35 years in four countries • Former Chief Executive Officer of Australian Pork Limited (2005-2019) • Current Chair of the Australian Farm Institute, Sheep Producers Australia, and PorkScan Pty. Ltd. • Director, Red Meat Advisory Council Ltd	**No. of meetings eligible to attend**	7
	No. of meetings attended	6
	Remuneration for the period 2022–23 (as per the Remuneration Tribunal Determination)	$8,390

Membership of GRDC's Audit and Risk Committee in 2022-23	**Ms Sharon Starick** Appointed: December 2019 to 30 September 2020 and then from 9 December 2020

Member's experience

- Graduate of Australian Institute of Company Directors, GAICD
- Grain and pork producer in Mallee region of South Australia
- Chair of Animal Health Australia
- Director of the Regional Investment Corporation
- Committee member, Murray Plains Farmers
- Past Chair of the South Australian Murray–Darling Basin Natural Resources Management Board
- Previously, a member of South Australia's Natural Resources Management Council, the Australian Landcare Council and the Community Advisory Committee for the Murray–Darling Basin Ministerial Council
- Past Director of Land and Water Australia
- AgriFutures Rural Women's Award for South Australia in 2003.

No. of meetings eligible to attend	7
No. of meetings attended	7
Remuneration for the period 2022-23 (as per the Remuneration Tribunal Determination)	$8,390

Advisory Panels

Four advisory panels provide input on priorities and proposals for RD&E investment.

The National Panel:

- assesses national RD&E priorities across GRDC's investment portfolio and makes recommendations on investment priorities and investment proposals to the Managing Director; and
- assists the Managing Director to maintain links with grain growers, advisers and research partners.

There are three Regional Panels, one for each grain growing region: Northern Panel, Southern Panel and Western Panel. Each panel is comprised of grain growers, agribusiness representatives, industry stakeholders, researchers and a GRDC General Manager. The Regional Panels provide advice and input to GRDC staff and the National Panel.

More information on the advisory panels is provided on the GRDC website, at grdc.com.au/about/what-we-do/regional-panels.

ACCOUNTABILITY AND GOVERNANCE

Legislation

GRDC was established in 1990 under the PIRD Act and the Grains Research and Development Corporation Regulations 1990 (Cth).

As a corporate Commonwealth entity, GRDC is subject to the requirements of the PGPA Act and other Commonwealth legislation.

Accountability to the Australian Government

GRDC is part of the Australian Government's Agriculture portfolio.

Senator the Hon. Murray Watt is the current Minister for Agriculture, Fisheries and Forestry and Minister for Emergency Management and was sworn in on 1 June 2022.

Ministerial directions

GRDC fully complies with relevant directions made by Ministers under the PIRD Act, the PGPA Act or other Commonwealth legislation.

Under section 143 of the PIRD Act, the Minister for Agriculture may give written directions to GRDC as to the performance of its functions and the exercise of its powers. No such directions were given in 2022-23.

Under section 22 of the PGPA Act, the Minister for Finance may give written directions to the Corporation regarding complying with the general policies of the government. No directions were given in 2022-23.

Funding Agreement

Section 33(4) of the PIRD Act allows the Minister to enter into a Funding Agreement with GRDC. A Funding Agreement with the Commonwealth was negotiated and agreed in April 2020. The Funding Agreement is underpinned by Performance Principles to guide GRDC's performance against the requirements of the Funding Agreement.

Significant events

The Chair of the GRDC Board writes to the Minister after each Board meeting, outlining all key decisions. Significant events in 2022-23 reported to the Minister were:

- Approval by the GRDC Board of the 2023-28 RD&E Plan.
- Updates in respect of the review of performance of the GRDC Board and individual Directors by an independent consultant.
- Meetings with representatives from the Department of Agriculture, Fisheries and Forestry to discuss the Australian grains industry, issues affecting grain growers and the Department's priorities.
- Appointment of directors to the Boards of Grains.
- Australia Limited, Australian Grain Technologies Pty Ltd and Australian Export Grains Innovation Centre Limited.
- Decisions by the GRDC Board to invest up to $20m over three years into infrastructure to build Australia's long-term research capacity and support the enduring profitability of Australia's grain growers.
- Results from GRDC's 2022 Corporate Grower Survey, noting that results were positive overall with some areas producing the best results since the Survey's inception in 1993.
- Numerous stakeholder and regional visits undertaken by the GRDC Board.

Government RD&E priorities

GRDC's RD&E investment strategies, as articulated in each five-year RD&E plan, are designed to address the Australian Government's Science and the research priorities in the National Agricultural Innovation Policy Statement. GRDC's RD&E investments to meet the priorities are detailed in Appendix C.

Accountability to the grains industry

GRDC is accountable to the Australian grains industry through the industry's representative organisations, as described in the PIRD Act, and consults widely with other industry organisations and grower groups.

Representative organisations

Grain Growers Limited and Grain Producers Australia Limited are the declared representative organisations under section 7 of the PIRD Act. GRDC meets with the industry representative organisations at least once every six months and provides a formal opportunity for them to review GRDC's performance annually.

GRDC paid $6,250.00 to Grain Growers Limited and $7,289.30 to Grain Producers Australia Limited for industry consultation costs during 2022-23, in accordance with section 15 of the PIRD Act.

Business relationships

Many of GRDC's business relationships are governed by research agreements, licence agreements to commercialise resulting intellectual property, and agreements which procure services.

In some cases, the formation of companies and joint venture partnerships (for profit or not for profit) is the most effective way to deliver technologies, services, information and policy advice to Australian grain growers and the wider grains industry.

Table 6 describes the companies in which GRDC had shares or membership at 30 June 2023. In most cases GRDC also nominated one or more directors to the relevant company's board.

Table 6: Companies in which GRDC had shares or membership at 30 June 2023

NAME	ACTIVITY	GRDC ROLE
Companies limited by guarantee		
Agricultural Innovation Australia Limited ACN 644 777 293	Facilitates joint investment and collaboration in cross-industry agricultural issues of national importance.	Is a member of the company. Does not nominate a director.
Australian Export Grains Innovation Centre Limited ACN 160 912 032	Provides research and development related to the Australian export grains industry.	Is a member of the company. Nominates a director.
Grains Australia Limited ACN 637 983 487	An industry good company with functions to enhance the competitiveness and profitability of the Australian grains industry across the value chain in domestic and international markets.	Is the sole member of the company. Does not nominate a director but approves appointment of all directors.
Companies limited by shares		
Australian Grain Technologies Pty Ltd ACN 100 269 930	Undertakes commercial wheat and barley breeding.	Is a 39.11% shareholder. Nominates three directors.
InterGrain Pty Ltd ACN 128 106 945	Undertakes commercial wheat and barley breeding.	Is a 42.06% shareholder. Nominates one director.

Industry levies

In 2022-23, a levy rate of 0.99 per cent applied to all leviable crops covered by GRDC, except for maize, which was levied at 0.693 per cent.

The levies were imposed and collected as stipulated by the:

- *Primary Industries (Excise) Levies Act 1999* (Cth), supported by the Primary Industries (Excise) Levies Regulations 1999 (Cth), Schedules 4, 12, 20 and 25
- *Primary Industries Levies and Charges Collection Act 1991* (Cth), supported by the Primary Industries Levies and Charges Collection Regulations 1991 (Cth), Schedules 8, 19, 29 and 34.
- GRDC paid DAFF $547,863.63 for the collection and management of levies in 2022-23.

Corporate governance

The GRDC Board has overall responsibility for corporate governance within the organisation and places high value on continuously improving GRDC's performance in this area.

Key corporate governance activities overseen by the GRDC Board in 2022-23 included the following:

- Approval of the 2023-28 RD&E Plan
- Regular strategic risk reporting
- Reporting on compliance with statutory obligations
- Approval of statutory documents including the 2021-22 Annual Report and the 2023-24 Annual Operational Plan.

and the approval of following new or revised policies:

- Complaints Handling Policy
- Procurement Policy and Guidelines
- IP Management and Commercialisation Policy Manual
- WHS Strategy and Reporting Framework
- Risk Management Policy and Framework
- Cyber Security Risk Management Policy
- Fraud and Corruption Control Policy and Plan
- Hospitality, Entertainment and Catering Policy
- Appointment to External Boards Policy
- Issuing Indemnities Policy
- Levy Payer Register Policy
- Investments and Borrowing Policy
- Privacy Policy
- Reserves Policy
- Funding and Supporting of Representative Organisations Policy.

Risk management and fraud control

GRDC continually reviews and refines its risk management framework to reflect changes in the business environment and GRDC's structure.

The Board considers a strategic risk report each time it meets and reviews the operational risks every six months, or more often if significant changes arise in the operating environment.

GRDC commissions external assessments of its fraud risk every two years. The Fraud and Corruption Risk Assessment was completed in 2022-23. The Fraud and Control Corruption Policy and the Fraud Corruption and Control Plan were updated in August 2022. There were no incidences of fraud in GRDC in 2022-23.

The Board's Audit and Risk Committee oversees the preparation and implementation of GRDC's risk management initiatives and fraud control policy and plan.

Independent audits

The Auditor-General is required to audit each Commonwealth entity's financial statements. In addition, the *Auditor-General Act 1997* (Cth) confirms the power of the Auditor-General's office to carry out performance audits of Commonwealth entities and, in this role, to obtain documents and information.

The Auditor-General's independent audit report on GRDC's financial statements for 2022-23 is presented on pages 108-109.

Indemnities and insurance premiums for officers

GRDC holds directors' and officers' liability insurance cover through Comcover. During the year, no indemnity-related claims were made. The cost of directors' and officers' indemnity insurance for 2022-23 was $15,070.33 (GST excl.)

Judicial decisions and reviews by outside bodies

In 2022-23, GRDC was not affected by judicial decisions or reviews by administrative tribunals, parliamentary committees or the Commonwealth Ombudsman. However, a review was conducted by the Office of the Australian Information Commissioner (OAIC).

Privacy Impact Assessment Register Assessment Program by OAIC

A privacy assessment was conducted by the OAIC in relation to Australian Government agencies' compliance with Section 15.1 of the Privacy (Australian Government Agencies- Governance) Code 2017 (Code). Since 1 July 2018, it has been mandatory under section 15.1 of the Code for Australian Government agencies to maintain a register of the privacy impact assessments (PIAs) they conduct. Agencies must publish the register, or a version of the register on their websites.

GRDC was found to be compliant with section 15.1 of the Code. However, the following suggestions were made by the OAIC to enhance GRDC's compliance:

- Publish a PIA register even where no PIAs have been undertaken by the agency. This provides certainty to the community that the agency has a process to ensure PIAs will be listed.
- Make the PIA register available in the results of the website search function, to facilitate access for the public.

GRDC has implemented the OAIC's suggestions.

WORK HEALTH AND SAFETY

GRDC's work health and safety (WHS) mission is to create a workplace environment where the health, safety and wellbeing of employees are highly valued and people are encouraged and supported to adopt and maintain a healthy lifestyle.

Table 7 summarises GRDC's results in relation to reportable indicators of WHS performance in 2022-23.

Table 7: Work health and safety performance

INDICATORS	PERFORMANCE
Initiatives undertaken during the year to ensure the health, safety and welfare of workers who carry out work for GRDC.	All staff participation in RUOK Day. WHS Training Calendar developed and implemented during 2022-23 including Mental Health First Aid and St John First Aid Training which was offered to all staff. Influenza vaccination program offered to all staff. In-vehicle driver training offered to staff and panel members who drive GRDC vehicles. Safe Spaces Initiative which calls for all staff to pause for 20 minutes on the last Friday of every month and focus on creating a safe and healthy working environment (both whilst in the office and working from home). Counselling and employee support through the Employee Assistance Program. Engaged external consultancy to conduct a WHS Management System Audit and enhance GRDC WHS Framework – including policy and procedures. To facilitate safe working, Go1 WHS Training was available for all staff in relation to (but not limited to): Workstation Setup Assessments, Psychosocial training (such as Bullying and Harassment, Managing workloads, time-management), Physical Risks (such as slips, trip and falls, Emergency Warden Training etc.). WHS Committee was expanded to formally include a regional representative from each GRDC office. GRDC participated in a proactive audit with Comcare – minor changes recommended and subsequently included into GRDC WHS Policy.
Health and safety outcomes (including the impact on injury rates of workers) achieved as a result of initiatives.	Nil notifiable incidents and zero hours lost to injury.
Statistics of any notifiable incidents of which GRDC became aware that arose out of the conduct of businesses or undertakings by GRDC.	Nil notifiable incidents.
Details of any investigations conducted during the year that relate to the businesses or undertakings of GRDC, including details of all notices given to GRDC under Part 10 of the *Work Health and Safety Act 2011* (Cth).	No investigations conducted.
Other matters as required by the guidelines approved on behalf of the Parliament by the Joint Committee of Public Accounts and Audit.	Nil.

5. FINANCIAL STATEMENTS

FINANCIAL PERFORMANCE SUMMARY

Revenue

In recent times the grains industry has experienced unprecedented growth. In turn, this has resulted in significant variability of GRDC's revenue. The 2022-23 financial year was no exception as levy revenue was up $38 million or 17 per cent on the previous year, and $103.9 million or 66 per cent on 2020-21. GRDC's total revenue in 2022-23, including Australian Government contributions and other income was $419.3 million. This was 31 per cent higher than the budget published in the 2022-23 Portfolio Budget Statement of $320.5 million. This significant increase signifies the outstanding grain growing and market conditions and is a record-breaking total revenue for a third year in a row.

These exceptional conditions have generated a $132.3 million Government contribution, being an increase of 38 per cent on last year. This Government contribution reflects the three-year rolling average of industry gross value of production (GVP).

Other own-source revenues, including revenue from contracts with customers, interest, and dividends were higher than budget expectations. Interest revenue exceeded expectations due to a combination of rising rates across the latter part of the reporting period and the larger average cash and cash equivalent balances.

Expenditure

Total expenditure in 2022-23 was $217.7 million, being $22.2 million below budget and $5.3 million higher than the previous year. RD&E expenditure was similar to the prior year and $23.1 million lower than budget not including $3.8 million of payments to Grains Australia which is removed on consolidation. Operational expenditure was generally in line with budget and higher than last year as the business increased resources to establish and implement the 2023-28 five-year RD&E program. This program raises annual RD&E expenditure from a current value of $180 million to circa $230 million year on year.

GRDC's 2022-23 overhead rate post allocation to RD&E activities is at 9.3 per cent of total expenditure. This is a slight increase on the 2021-22 rate of 8.7 per cent and is mainly due to an increase in resourcing.

Changes in equity

GRDC returned a record operating surplus of $204 million in 2022-23.

GRDC continues to invest in GrainInnovate, and hold shares in the unlisted companies, Australian Grain Technologies Pty Ltd (AGT) and InterGrain Pty Ltd (InterGrain). GrainInnovate, AGT, and InterGrain in combination resulted in net comprehensive income increase of $7.4 million. GRDC's exposure to fixed interest and cash funds brought about a net gain of $4.1 million in the financial year 2022-23.

In combination (i.e. increased operating surplus plus other comprehensive income), GRDC's total comprehensive income for 2022-23 was $207.1 million. Consequently, equity has increased by the same amount to end at $629.4 million.

Statement of financial position

The increase in equity is reflected in the statement of financial position primarily through the $212.4 million increase to financial assets, comprising receivables, investments in managed funds and GrainInnovate, offset by a modest increase in RD&E payables of $6.5 million. Other categories within the statement of financial position are relatively unchanged on last year.

GRDC continues to actively manage reserves so that the impact of RD&E investments is optimised. Reserves are used to smooth the impact of industry volatility to enable stable RD&E investment over the medium term. Current balances will allow GRDC to deliver greater impact through elevated RD&E investment across the five-year RD&E plan (2023-28) period.

As part of GRDC's ambitious, new 2023-28 RD&E Plan the organisation will increase its annual investment levels to $230 million per year for the next five years – for a total spend of more than $1 billion. The current level of reserves will ensure ongoing investment at this scale over the life of the plan, regardless of the seasonal and market volatility the grains industry has experienced historically and will continue to experience.

Established in August 2020, Grains Australia is an industry company limited by guarantee that is to undertake certain industry good functions. As GRDC remains the sole member of Grains Australia, GRDC's 2022-23 financial statements are consolidated to again include Grains Australia.

INDEPENDENT AUDITOR'S REPORT

Australian National Audit Office

INDEPENDENT AUDITOR'S REPORT

To the Minister for Agriculture, Fisheries and Forestry

Opinion

In my opinion, the financial statements of the Grains Research and Development Corporation and its subsidiaries (together the Consolidated Entity) for the year ended 30 June 2023:

(a) comply with Australian Accounting Standards – Simplified Disclosures and the *Public Governance, Performance and Accountability (Financial Reporting) Rule 2015*; and

(b) present fairly the financial position of the Consolidated Entity as at 30 June 2023 and its financial performance and cash flows for the year then ended.

The financial statements of the Consolidated Entity, which I have audited, comprise the following as at 30 June 2023 and for the year then ended:

- Statement by the Directors, Managing Director and Chief Financial Officer;
- Consolidated Statement of Comprehensive Income;
- Consolidated Statement of Financial Position;
- Consolidated Statement of Changes in Equity;
- Consolidated Cash Flow Statement; and
- Notes to and forming part of the financial statements comprising a summary of significant accounting policies and other explanatory information.

Basis for opinion

I conducted my audit in accordance with the Australian National Audit Office Auditing Standards, which incorporate the Australian Auditing Standards. My responsibilities under those standards are further described in the *Auditor's Responsibilities for the Audit of the Financial Statements* section of my report. I am independent of the Consolidated Entity in accordance with the relevant ethical requirements for financial statement audits conducted by the Auditor-General and his delegates. These include the relevant independence requirements of the Accounting Professional and Ethical Standards Board's APES 110 *Code of Ethics for Professional Accountants (including Independence Standards)* (the Code) to the extent that they are not in conflict with the *Auditor-General Act 1997*. I have also fulfilled my other responsibilities in accordance with the Code. I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my opinion.

Accountable Authority's responsibility for the financial statements

As the Accountable Authority of the Consolidated Entity, the Directors are responsible under the *Public Governance, Performance and Accountability Act 2013* (the Act) for the preparation and fair presentation of annual financial statements that comply with Australian Accounting Standards – Simplified Disclosures and the rules made under the Act. The Directors are also responsible for such internal control as the Directors determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the Directors are responsible for assessing the ability of the Consolidated Entity to continue as a going concern, taking into account whether the entity's operations will cease as a result of an administrative restructure or for any other reason. The Directors are also responsible for disclosing, as applicable, matters related to going concern and using the going concern basis of accounting, unless the assessment indicates that it is not appropriate.

GPO Box 707, Canberra ACT 2601
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Phone (02) 6203 7300

Auditor's responsibilities for the audit of the financial statements

My objective is to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes my opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with the Australian National Audit Office Auditing Standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of the financial statements.

As part of an audit in accordance with the Australian National Audit Office Auditing Standards, I exercise professional judgement and maintain professional scepticism throughout the audit. I also:

- identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for my opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control;
- obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Consolidated Entity's internal control;
- evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the Accountable Authority;
- conclude on the appropriateness of the Accountable Authority's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Consolidated Entity's ability to continue as a going concern. If I conclude that a material uncertainty exists, I am required to draw attention in my auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify my opinion. My conclusions are based on the audit evidence obtained up to the date of my auditor's report. However, future events or conditions may cause the Consolidated Entity to cease to continue as a going concern;
- evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation; and
- obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Consolidated Entity to express an opinion on the financial report. I am responsible for the direction, supervision and performance of the Consolidated Entity audit. I remain solely responsible for my audit opinion.

I communicate with the Accountable Authority regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that I identify during my audit.

Australian National Audit Office

Fiona Sheppard
Executive Director

Delegate of the Auditor-General

Canberra
8 September 2023

STATEMENT BY THE DIRECTORS, MANAGING DIRECTOR AND CHIEF FINANCIAL OFFICER

STATEMENT BY THE DIRECTORS, MANAGING DIRECTOR AND CHIEF FINANCIAL OFFICER

In our opinion, the attached financial statements for the year ended 30 June 2023 comply with subsection 42(2) of the *Public Governance, Performance and Accountability Act 2013* (PGPA Act), and are based on properly maintained financial records as per subsection 41(2) of the PGPA Act.

In our opinion, at the date of this statement, there are reasonable grounds to believe that the Corporation will be able to pay its debts as and when they fall due.

The statement is made in accordance with a resolution of the directors.

Signed__________________	Signed__________________	Signed__________________
Mr J D Woods Chairman	Mr N Hart Managing Director	Mr M W Priest Chief Financial Officer
6 September 2023	6 September 2023	6 September 2023

Consolidated Statement of Comprehensive Income for the period ended 30 June 2023

NET COST OF SERVICES	Notes	2023 $'000	2022 $'000	Original Budget 2023 $'000
Expenses				
Employee benefits	1.1A	**16,487**	14,737	15,156
Research and development	1.1B	**176,931**	177,158	200,000
Suppliers	1.1C	**17,267**	14,133	18,211
Depreciation and amortisation	2.2A	**6,934**	6,245	6,421
Finance costs	1.1D	**127**	139	120
Other expenses	1.1E	**-**	30	-
Total expenses		**217,746**	212,442	239,908
Own-source Income				
Own-source Revenue				
Revenue from contracts with customers	1.2A	**9,838**	12,167	6,549
Industry contributions	1.2B	**261,166**	223,146	192,796
Interest	1.2C	**9,434**	1,218	6,575
Project refunds	1.2D	**1,847**	4,785	-
Dividends	1.2E	**3,807**	2,308	2,000
Rental income	1.2F	**-**	63	188
Other revenue	1.2G	**749**	948	6,970
Total own-source revenue		**286,841**	244,635	215,078
Gains				
Gains from sale of assets	1.2H	**178**	59	-
Gains from business combinations	1.2H	**-**	1,294	-
Total gains		**178**	1,353	-
Total own-source income		**287,019**	**245,988**	**215,078**
Net cost of services		**69,273**	**33,546**	**(24,830)**
Revenue from Government	1.2I	**132,276**	95,666	105,465
Share of associates and joint ventures accounted for using the equity method		**2,918**	1,775	-
Surplus		**204,467**	130,987	80,635
OTHER COMPREHENSIVE INCOME				
Items not subject to subsequent reclassification to net cost of services				
Changes in asset revaluation reserve		**-**	-	-
Items subject to subsequent reclassification to net cost of services				
Gains on financial assets at fair value through other comprehensive income	1.3A	**2,663**	14,413	-
Total comprehensive income		**207,130**	145,400	80,635

The above statement should be read in conjunction with the accompanying notes.

Consolidated Statement of Financial Position for the period ended 30 June 2023

ASSETS	Notes	2023 $'000	2022 $'000	Original Budget 2023 $'000
Financial assets				
Cash and cash equivalents	2.1A	**178,013**	184,857	245,277
Trade and other receivables	2.1B	**71,206**	22,132	40,204
Equity accounted investments	2.1C	**25,053**	12,134	1,500
Investments in managed funds	2.1D	**267,817**	115,041	121,616
Other investments	2.1E	**114,183**	109,670	126,804
Total financial assets		**656,272**	443,834	535,401
Non-financial assets[1]				
Buildings	2.2A	**9,698**	12,337	10,299
Property, plant and equipment	2.2A	**1,210**	904	987
Intangibles	2.2A	**16,516**	14,301	14,817
Other non-financial assets	2.2B	**307**	180	400
Total non-financial assets		**27,731**	27,722	26,503
Total assets		**684,003**	471,556	561,904
LIABILITIES				
Payables				
Suppliers	2.4A	**3,776**	2,335	9,500
Research and development	2.4B	**35,176**	28,646	33,000
Other payables	2.4C	**1,747**	2,738	1,500
Total payables		**40,699**	33,719	44,000
Interest bearing liabilities				
Leases	2.5	**10,334**	12,386	10,858
Total interest-bearing liabilities		**10,334**	12,386	10,858
Provisions				
Employee provisions	3.1	**2,989**	2,600	3,560
Other provisions	2.6	**542**	542	542
Total provisions		**3,531**	3,142	4,102
Total liabilities		**54,564**	49,247	58,960
Net assets		**629,439**	422,309	502,944
EQUITY				
Retained surplus		**519,047**	311,917	380,738
Contracted research reserve		**110,000**	110,000	121,814
Asset revaluation reserve		**392**	392	392
Total equity		**629,439**	422,309	502,944

The above statement should be read in conjunction with the accompanying notes.
[1] Right-of-use assets are included in the following line items: buildings, property, plant and equipment.

Consolidated Statement of Changes in Equity for the period ended 30 June 2023

RETAINED EARNINGS	Notes	2023 $'000	2022 $'000	Original Budget 2023 $'000
Opening balance				
Balance carried forward from previous period		**311,917**	178,617	300,103
Adjusted opening balance		**311,917**	178,617	300,103
Comprehensive income				
Surplus for the period		**204,467**	130,987	80,635
Other comprehensive surpluses		**2,663**	14,413	-
Total comprehensive income / (loss)		**207,130**	145,400	80,365
Transfers between equity components		**-**	(12,100)	-
Closing balance as at 30 June		**519,047**	311,917	380,738
ASSET REVALUATION RESERVE				
Opening balance				
Balance carried forward from previous period		**392**	392	12,206
Adjusted opening balance		**392**	392	12,206
Comprehensive income				
Other comprehensive income / (loss)		**-**	-	-
Total comprehensive income / (loss)		**-**	-	-
Transfers between equity components		**-**	-	-
Closing balance as at 30 June		**392**	392	-
CONTRACTED RESEARCH RESERVE				
Opening balance				
Balance carried forward from previous period		**110,000**	97,900	110,000
Adjusted opening balance		**110,000**	97,900	110,000
Transfers between equity components		**-**	12,100	-
Closing balance as at 30 June		**110,000**	110,000	110,000
TOTAL EQUITY				
Opening balance				
Balance carried forward from previous period		**422,309**	276,909	422,309
Adjusted opening balance		**422,309**	276,909	422,309
Comprehensive income				
Surplus for the period		**204,467**	130,987	80,635
Other comprehensive surpluses		**2,663**	14,413	-
Total comprehensive income / (loss)		**207,130**	145,400	80,635
Closing balance as at 30 June		**629,439**	422,309	502,944

The above statement should be read in conjunction with the accompanying notes.

Consolidated Cashflow Statement for the period ended 30 June 2023

OPERATING ACTIVITIES	Notes	2023 $'000	2022 $'000	Original Budget 2023 $'000
Cash received				
Industry contributions		**261,146**	205,459	192,796
Receipts from Government		**83,803**	92,389	72,718
Interest		**3,456**	1,083	6,575
Grants receipts		**116**	2,358	16
Dividends		**3,807**	2,308	2,000
Net GST received		**17,153**	9,173	20,301
Other		**11,030**	34,528	23,656
Total cash received		**380,511**	347,298	318,062
Cash used				
Research and development		**187,517**	187,995	200,000
Suppliers		**15,411**	16,344	24,764
Employees		**16,617**	15,173	14,673
Interest payments on lease liabilities		**127**	140	120
Total cash used		**219,672**	219,652	239,557
Net cash from operating activities		**160,839**	127,646	78,505
INVESTING ACTIVITIES				
Cash received				
Proceeds from sales of property, plant and equipment		**-**	59	-
Investments		**-**	1,000	15,000
Total cash received		**-**	1,059	15,000
Cash used				
Purchase of property, plant and equipment		**6,726**	5,414	4,410
Purchase of financial instruments		**149,000**	1,070	-
Purchase of investments		**10,000**	4,500	26,575
Total cash used		**165,726**	10,984	30,985
Net cash from investing activities		**(165,726)**	(9,925)	(15,985)
FINANCING ACTIVITIES				
Cash used				
Principal payments of lease liabilities		**1,957**	1,970	2,100
Total cash used		**1,957**	1,970	2,100
Net cash (used by) financing activities		**(1,957)**	(1,970)	(2,100)
Net (decrease)/increase in cash held		**(6,844)**	115,751	60,420
Cash and cash equivalents at the beginning of the reporting period		**184,857**	68,822	184,857
Adjustment cash and cash equivalents at the beginning of the reporting period		**-**	284	-
Cash and cash equivalents at the end of the reporting period	2.1A	**178,013**	184,857	245,277

The above statement should be read in conjunction with the accompanying notes.

Notes to and forming part of the financial statements for the period ended 30 June 2023

Overview

Objectives of the Grains Research and Development Corporation

The Grains Research and Development Corporation is an Australian Government controlled entity. It is a not-for-profit entity. The Grains Research and Development Corporation's (GRDC) purpose is to invest in research, development and extension (RD&E) to create enduring profitability for Australian grain growers.

The Basis of Preparation

The financial statements are required by section 42 of the *Public Governance, Performance and Accountability Act 2013*.

The financial statements have been prepared in accordance with:

(a) Public Governance, Performance and Accountability (Financial Reporting) Rule 2015 (FRR); and

(b) Australian Accounting Standards and Interpretations – including simplified disclosures for Tier 2 Entities under AASB 1060 issued by the Australian Accounting Standards Board (AASB) that apply for the reporting period.

The consolidated financial statements have been prepared on an accrual basis and in accordance with historical cost convention, except for certain assets and liabilities that are at fair value. Except where stated, no allowance is made for the effect of changing prices on the results or the financial position. The financial statements are presented in Australian dollars and values are rounded to the nearest thousand dollars unless otherwise specified.

Principles of Consolidation

AASB 10 requires a parent entity that is in a group to present consolidated financial statements that consolidate its investments in its controlled entities. The parent and the controlled entities apply consistent accounting policies, have the same reporting period and the effects of all transactions and balances between the entities are eliminated in full. The consolidated financial statements incorporate the assets and liabilities of all entities controlled by the Corporation as at 30 June and the results of the controlled entities for the year then ended. Details of Grains Australia Limited are included in note 5.4.

Going Concern

The Directors have, at the time of approving the financial statements, a reasonable expectation that the Group have adequate resources to continue in operational existence for the foreseeable future. Thus, they continue to adopt the going concern basis of accounting in preparing the financial statements

New Accounting Standards

Adoption of New Australian Accounting Standard Requirements

All new standards that were issued prior to the sign-off date and are applicable to the current reporting period did not have a material effect on the entity's financial statements.

Taxation

The Corporation is exempt from all forms of taxation except Fringe Benefits Tax (FBT) and the Goods and Services Tax (GST).

Events After the Reporting Period

There was no subsequent event that had the potential to significantly affect the on-going structure and financial activities of the Corporation.

Comparatives

No adjustments have been made to comparatives to ensure consistency with 2022-23 disclosures.

Overview

Significant Accounting Estimates

Under AASB 9 Financial Instruments, shares in unlisted companies are required to be measured at fair value on initial application and then subsequently measured at fair value at the end of each reporting period. In FY 2022 GRDC engaged Ernst and Young (EY) to complete the revaluations of their shares in AGT and InterGrain. In FY 2023 GRDC again engaged EY to complete the revaluations of their shares in AGT and InterGrain. Like FY 2022 the valuation for FY 2023 was completed as a full and complete valuation.

The Discounted Cash Flow approach (“DCF approach”) was the primary valuation methodology applied to derive the concluded enterprise value range, based on Management’s forecast cash flows and a weighted average cost of capital (“WACC”) reflecting the cash flow risks. GRDC have reviewed and accepted the valuations and have taken up the valuation adjustments from the lower end of the valuation range. This is consistent with the approach taken in FY 2022. Further details and fair value adjustments of the specific valuations can be seen at Note 2.1E.

Budget Variance Commentary

The following tables provide a comparison of the original budget as presented in the 2022-23 Portfolio Budget Statements (PBS) to the 2022-23 outcome as presented in accordance with Australian Accounting Standards for the Corporation.
The Budget is not audited. Explanations of major variance are provided below.

Variances are considered to be ‘major’ based on the following criteria:

- The variance between budget and actual is greater than +/- 10 per cent of the original budget and $10 million for a line item; or
- The variance between budget and actual is greater than 2 per cent of the relevant sub-total (i.e. total expenses, total income, total assets or total liabilities) and $10 million for a line item, or
- An item below this threshold but is considered important for the reader’s understanding or is relevant to an assessment of the discharge of accountability and to an analysis of performance of the Corporation.

Major variance and explanations	Affected Line Items
Statement of Comprehensive Income	
Total own source revenue was higher than budget by $71.5 million (33 per cent) as industry contributions (levies) were above budget by $68.4 million. These industry contributions were higher because of the outstanding industry performance experienced across the period.	Industry contributions Total own source revenue
As a flow on impact, GRDC's surplus was higher than budget by $123.8 million (154 per cent). This primarily comprised the above plus $26.8 million of higher than budgeted government contribution as a direct result of the higher 3 year average GVP achieved in FY2022-23. Expenditure in RD&E remains intentionally stable over the medium term, consequently the significant surplus.	Revenue from Government and surplus
Statement of Financial Position	
Total assets are significantly above budget as a result of increased total revenues. This has had a positive impact on cash, receivables, managed funds balances, and valuations of other investments.	Cash and cash equivalents Trade and other receivables Equity accounted investments Investments in managed funds Total financial assets Total assets
Cash Flow Statement	
Total cash received was positively impacted by higher industry contributions and receipts from government in FY2022-23. Both items were higher than budget due to the exceptional inflows. Record levels of levies and Commonwealth contributions received have resulted in net cash from operating expenses finishing above budget for the year. Net cash from investing activities was lower than budget as more cash was invested in the managed funds to optimise earnings. Cash held at the end of the reporting period was $67.2 million lower than budget mainly due to higher financial investments made during the year ($132.4 million) which was partially offset by higher than expected industry contributions (68.4 million) and Commonwealth contributions ($11.1 million).	Industry contributions Receipts from Government Total cash received Net cash from operating activities Net cash from investing activities Industry contribution Revenue from government Purchase of financial instruments Purchase of investments Cash and cash equivalents at the end of the reporting period

Financial Performance

1.1: EXPENSES	2023 $'000	2022 $'000
1.1A – Employee Benefits		
Wages and salaries	**14,711**	13,273
Superannuation		
Defined contribution plans	**1,351**	1,379
Defined benefit plans	**79**	91
Leave and other entitlements	**346**	(155)
Separation and redundancies	**-**	149
Total employee benefits	**16,487**	14,737

Accounting Policy

Accounting policies for employee related expenses are contained in People and relationships section (Note 3.1).

1.1B – Research and Development		
Research and development not for profit	**173,726**	172,449
Research and development for profit	**1,472**	3,649
Research and development consultants	**1,733**	1,060
Total research and development	**176,931**	177,158

1.1C – Suppliers		
Goods and services supplied or rendered		
Staff travel and accommodation	**2,054**	2,390
Consultants	**838**	214
Contractors	**6,146**	5,322
Corporate communications	**757**	344
Corporate governance	**304**	217
Corporate services	**4,413**	4,082
Levy collection costs	**548**	730
Other[2]	**2,162**	835
Total goods and services supplied or rendered	**17,222**	14,104
Goods supplied	**120**	105
Services supplied	**17,101**	13,999
Total goods and services supplied or rendered	**17,222**	14,104
Other suppliers		
Workers compensation expenses	**24**	24
Short-term leases[3]	**21**	5
Total other suppliers	**45**	29
Total suppliers	**17,267**	14,133

[2] The Corporation had consolidated audit fees of $90,000 in FY 2023 (2022: $97,500). In addition, the other supplier expenses include miscellaneous corporate service expenses such as $0.9m from GAL, $0.4m building related services, $0.2m insurance, and $0.2m meeting related expenses.

[3] The Corporation has short-term lease commitments of $21,000 at 30 June 2023 (2022: $5,000). The above lease disclosures should be read in conjunction with the accompanying notes 1.1D, 1.2F, 2.2A and 2.5.

Accounting Policy

Short-term leases and leases of low-value assets

The Corporation has elected not to recognise right-of-use assets and lease liabilities for short-term leases of assets that have a lease term of 12 months or less and leases of low-value assets (less than $10,000). GRDC recognises the lease payments associated with these leases as an expense on a straight-line basis over the lease term.

	2023 $'000	2022 $'000
1.1D – Finance Costs		
Interest on lease liabilities	**127**	139
Total finance costs	**127**	139

The above lease disclosures should be read in conjunction with the accompanying notes 1.1C, 1.2F, 2.2A and 2.5.

Accounting Policy

All borrowing costs are expensed as incurred.

1.1E – Other Expenses		
Change in fair value through profit or loss	**-**	30
Total other expenses	**-**	30

1.2: OWN-SOURCE REVENUE AND GAINS

Own-source Revenue

1.2A – Revenue from contracts with customer		
Sale of goods	**1**	2
Rendering of services	**9,837**	12,165
Total revenue from contracts with customers	**9,838**	12,167

Disaggregation of revenue from contracts with customers

Revenue from contracts with customers has been broken down into three categories: Major product/service lines representing revenue from royalties, grants for research and development, and revenue received from advertising in GroundCover. Revenue has also been broken down by type of customer, illustrating those revenues are derived from multiple sources including Australian Government, State and Territory Governments and non-government entities. Revenue is split to show the amount of revenue received over time and point in time.

Major product/service line:		
IP licencing (royalties)	**6,503**	6,656
Research and development services (grant funded)	**2,190**	3,217
Groundcover advertising (print and online)	**323**	260
Other	**822**	2,034
	9,838	12,167

Type of customer:		
Australian Government entities (related parties)	**2,675**	2,983
State and Territory Governments	**3,687**	2,527
Non-government entities	**3,476**	6,657
	9,838	12,167
Timing of transfer of goods and services:		
Over time	**2,190**	3,217
Point in time	**7,648**	8,950
	9,838	12,167

Accounting Policy

Revenue from the sale of goods is recognised when control has been transferred to the buyer. AASB 15 Revenue from Contracts with Customers applies to all contracts with customers, except for contracts that are within the scope of other standards, such as leases, insurance contracts and financial instruments. AASB 1058 Income of Not-for-Profit applies to transactions where the consideration to acquire an asset is significantly less than fair value and principally to enable GRDC to further its objectives, and the receipt of volunteer services, with some exceptions.

The following is a description of principal activities from which GRDC generates its revenue:

Royalties are in scope of AASB 15 and recognised at a point in time. Revenue from royalties is recognised when GRDC is entitled and it can be reliably measured. There has been no change to how royalties are currently recognised. Under AASB 15, the royalty arrangement would be considered a licence for intellectual property. Sales based on usage royalties promised in exchange for a licence to IP are recognised only when the later of the following occurs: subsequent sale or usage occurs; and performance obligations have been satisfied.

GRDC receives grants to complete specific research and development performance obligations. Each grant has been separately considered to determine whether it satisfies the AASB requirements to be accounted for as revenue from a contract with a customer, or whether AASB 1058 applies in full. Where the agreement creates an enforceable obligation for GRDC to transfer a specific good or service to a customer, AASB 15 applies. GRDC has determined that many of its grants are to deliver specific performance obligations, and therefore AASB 15 applies. In such cases, revenue is recognised as (or when) the performance obligation is satisfied. Where no sufficiently specific performance obligation can be identified, GRDC applies AASB 1058 and recognising income immediately on receipt.

Advertising income revenue for FY 2023 and FY 2022 is recognised, under AASB 15, when the advertising is published (point in time).

Publications revenue for FY 2023 and FY 2022 is recognised, under AASB 15, at a point in time when the publications are sold.

The transaction price is the total amount of consideration to which GRDC expects to be entitled in exchange for transferring promised goods or services to a customer. The consideration promised in a contract with a customer may include fixed amounts, variable amounts, or both. GRDC will adopt the practical expedient when adopting the AASB 15.

Receivables for goods and services, which have 30-day terms, are recognised at the nominal amounts due less any impairment allowance account. Collectability of debts is reviewed at end of the reporting period. Allowances are made when collectability of the debt is no longer probable.

	2023 $'000	2022 $'000
1.2B – Industry Contributions		
Coarse grains	**49,193**	43,165
Grain legumes	**24,650**	19,353
Oilseeds	**58,552**	57,291
Wheat	**128,771**	103,337
Total industry contributions	**261,166**	223,146

Accounting Policy

Revenue paid to the Corporation under Section 30 of the *Primary Industries Research and Development Act 1989*, where a research levy is attached to grain producers' output, is for the purpose of providing funds for research and development. Industry contributions (under AASB 1058) are recognised as control is gained.

1.2C – Interest		
Deposits	**3,460**	148
Managed funds	**5,974**	1,070
Total interest	**9,434**	1,218

Accounting Policy

Interest revenue is recognised using the effective interest method.

1.2D – Project Refunds		
Project refunds	**1,847**	4,785
Total project refunds	**1,847**	4,785

Accounting Policy

Project refunds are recognised upon receipt of the refund when it relates to prior years expenditure and when the funds accrued are no longer required for the completion of the project.

1.2E – Dividends		
Other	**3,807**	2,308
Total dividends	**3,807**	2,308

Accounting Policy

The full amount of the interim and final dividends are recognised in the year to which they relate even though the payment may not be received until the following year.

1.2F – Rental Income		
Operating lease – Other[1]	**-**	63
Total rental income	**-**	63

[1] Operating Leases. Department of the Prime Minister and Cabinet vacated the space when their lease expired in November 2021. No new leases were entered into FY2022-23.

Within 1 year	**-**	47
Total undiscounted lease payments received	**-**	47

The above lease disclosures should be read in conjunction with the accompanying note 1.1C, 1.1D, 2.2A, and 2.5.

1.2G – Other Revenue	**2023 $'000**	2022 $'000
Levy penalties	**162**	591
National Variety Trials Revenue	**587**	357
Total other revenue	**749**	948

1.2H – Other Gains		
Gains from sale of assets	**178**	59
Gains from business combinations	**-**	1,294
Total other gains	**178**	1,353

1.2I – Revenue from Government		
Department of Agriculture, Fisheries and Forestry[1]		
PIRD Act 1989 contribution	**132,276**	95,666
Total Commonwealth Contributions	**132,276**	95,666

[1] From 1 July 2022 the Department of Agriculture, Water and Environment became the Department of Agriculture, Fisheries and Forestry (DAFF) because of the Federal Government Machinery of Government changes.

Accounting Policy

Revenue from Government

Revenue paid to the Corporation under Section 32 of the *Primary Industries Research and Development Act 1989*, representing no more than 0.5 per cent of the gross value of production of grains, is for the purpose of funding research and development activities. Revenues from Government (under AASB 1058) are recognised as control is gained.

Funding received or receivable from non-corporate Commonwealth entities (appropriated to the non-corporate Commonwealth entity as a corporate Commonwealth entity payment item for payment to this entity) is recognised as revenue from Government by the corporate Commonwealth entity unless the funding is an equity injection or a loan.

1.3: GAINS/(LOSSES) THROUGH OTHER COMPREHENSIVE INCOME

1.3A – Gains/(Losses) on financial assets at fair value through other comprehensive income		
Shares in unlisted companies	**4,513**	22,167
Investments in managed funds	**(1,850)**	(7,754)
Total other gains	**2,663**	14,413

This note is being added to provide clarity on what makes up the gain on financial assets at fair value through other comprehensive income.

Financial Position

2.1: FINANCIAL ASSETS

	2023 $'000	2022 $'000
2.1A – Cash and Cash Equivalents		
Cash at bank	**178,013**	184,857
Total cash and cash equivalents	**178,013**	184,857
2.1B – Trade and Other Receivables		
Goods and services receivables		
Goods and services	**2,107**	4,222
Accrued income	**63,434**	12,398
Total goods and services receivables	**65,541**	16,620
Other receivables		
Statutory receivables	**5,602**	5,449
Security deposits receivable	**63**	63
Total other receivables	**5,665**	5,512
Total trade and other receivables (net)	**71,206**	22,132

No impairment loss allowance was recognised for trade and other receivables in FY 2023.

Accounting Policy

Financial assets

Trade receivables, loans and other receivables that are held for the purpose of collecting the contractual cash flows where the cash flows are solely payments of principal and interest, that are not provided at below-market interest rates, are subsequently measured at amortised cost using the effective interest method adjusted for any loss allowance.

	2023 $'000	2022 $'000
2.1C – Equity accounted investments		
Grains Innovation Investment Trust[1]	**25,053**	12,134
Total investments accounted for using the equity method	**25,053**	12,134

Details of investments accounted for using the equity method

	Ownership	
Name of entity	**2023 %**	2022 %
Grains Research and Development Corporation[1]	**100**	100

[1] The investment in Grains Innovation Investment Trust is expected to be for more than twelve months.

[2] The value of the Grains Innovation Investment Trust is based on the net asset value which is $25.1m (2022: $12.1m)

Accounting Policy

Jointly Controlled Entities

Interests in jointly controlled entities in which the entity is a venture (and so has joint control) are accounted for using the equity method. Under the equity method, investments in the associates are carried in GRDC's statement of financial position at cost as adjusted for post-acquisition changes in GRDC's share of net assets of the associates. Goodwill relating to an associate is included in the carrying amount of the investment. There was no goodwill to include in the carrying value this financial year. After the application of the equity method, GRDC determines whether it is necessary to recognise any impairment loss with respect to the net investment in associates. No impairment loss was recognised this financial year.

2.1D – Investments in Managed Funds

Managed Funds Investments		
At market value	**267,817**	115,041
Total managed funds investments	**267,817**	115,041

Individually managed funds

The funds are available at call. Interest rates will vary to reflect varying market interest rates.

Ministerial approval

The Corporation has received approval under paragraph 59(1)(b)(iii) of the *Public Governance, Performance and Accountability Act 2013* to hold the investments listed above.

Accounting Policy

Managed funds are valued at Fair Value Through Other Comprehensive Income (FVOCI). Full details of GRDC's accounting policies for investments in managed funds are contained in Note 5.1A.

2.1E – Other Investments

Shares in unlisted companies[1]		
Australian Grain Technologies Pty Ltd (AGT)[2]	**80,516**	79,329
InterGrain Pty Ltd[3]	**33,667**	30,431
Total shares in unlisted companies	**114,183**	109,670
Net other investments[5]	**114,183**	109,670

The shares held are ordinary shares.

All such investments are expected to be recovered in more than 12 months.

1. Under AASB 9 *Financial Instruments*, shares in unlisted companies are required to be measured at fair value on initial application and then subsequently measured at fair value at the end of each reporting period.

   The Corporation has applied the irrevocable election to measure the equity instruments at fair value through other comprehensive income. On derecognition or reclassification, the cumulative gains or losses in other comprehensive income will not be recycled to profit or loss.

2. On 30 June 2022, AGT shares were valued at the fair value of $79.3 million in accordance with AASB 9. On 30 June 2023, the shares were subsequently revalued at $80.5 million with the gain in fair value of ($1.2 million) being recognised in other comprehensive income.

3. On 30 June 2022, InterGrain shares were valued at the fair value of $30.4 million in accordance with AASB 9. On 30 June 2023, the shares were subsequently revalued at $33.7 million with the gain in fair value of ($3.3 million) being recognised in other comprehensive income.

4. In accordance with AASB 9 *Financial Instruments*, Net Other Investments have increased from $109.7 million in FY 2022 to $114.2 million in FY 2023, a positive net change of ($4.5 million) due to revaluation of the shares held in AGT and InterGrain.

On 11 December 2020 GRDC registered an industry goods company limited by guarantee (Grains Australia Limited) where GRDC is the only member. On 30 June 2023 GRDC remains the sole member of Grains Australia. The operating results of Grains Australia have been incorporated into these financial statements along with a high-level overview of Grain Australia results for FY 2023.

On 1 July 2021 Grains Australia became the sole member of Wheat Quality Australia Limited (WQA), an industry-based company limited by guarantee. As Grains Australia had 100 per cent ownership of WQA for FY 2022, WQA is a subsidiary of GRDC as GRDC controls Grains Australia and controls WQA. The operating results of WQA have been incorporated into these financial statements through consolidation with Grains Australia. WQA was deregistered on 12 September 2022 and has a net book value of Nil at 30 June 2023 and its operations now carried out by Grains Australia.

Accounting Policy

Accounting policies for other investments are contained in Note 5.1A and further details can be found in Significant Accounting Estimates.

2.2: NON-FINANCIAL ASSETS

2.2A – Reconciliation of the Opening and Closing Balances of Property, Plant and Equipment and Intangibles

Reconciliation of the opening and closing balances of property, plant and equipment and intangibles – 2023

	Buildings $'000	Property, Plant & Equipment $'000	Intangibles $'000	Total $'000
Total as at 30 June 2022 represented by:				
Gross book value	21,274	5,060	27,747	54,081
Accumulated depreciation, amortisation and impairment losses	(8,937)	(4,156)	(13,446)	(26,539)
Total as at 30 June 2022	**12,337**	**904**	**14,301**	**27,542**
Additions:				
Purchase	-	484	6,145	**6,629**
Right-of-use assets	977	364	-	**1,341**
Depreciation and amortisation expense	(437)	(453)	(4,033)	**(4,923)**
Depreciation on right-of-use assets	(1,922)	(89)	-	**(2,011)**
Other movements				
Work in progress	-	-	103	**103**
Disposals:				
Other	(1,257)	-	-	**(1,257)**
Total as at 30 June 2023	**9,698**	**1,210**	**16,516**	**27,424**
Total as at 30 June 2023 represented by:				
Gross book value	20,994	5,908	33,995	**60,897**
Accumulated depreciation, amortisation and impairment losses	(11,296)	(4,698)	(17,479)	**(33,473)**
Total as at 30 June 2023	**9,698**	**1,210**	**16,516**	**27,424**
Opening carrying amount of right-of-use assets	11,229	63	-	**11,292**
Closing carrying amount of right-of-use assets	**9,027**	**338**	**-**	**9,365**

Revaluations of non-financial assets and intangible assets

No revaluations were required or took place in FY 2023 or FY 2022.

Accounting Policy

Assets are recorded at cost on acquisition except as stated below. The cost of acquisition includes the fair value of assets transferred in exchange and liabilities undertaken. Non-financial assets are initially measured at their fair value plus transaction costs where appropriate.

Assets acquired at no cost, or for nominal consideration, are initially recognised as assets and income at their fair value at the date of acquisition, unless acquired as a consequence of restructuring of administrative arrangements. In the latter case, assets are initially recognised as contributions by owners at the amounts at which they were recognised in the transferor's accounts immediately prior to the restructuring.

Asset Recognition Threshold

Purchases of property, plant and equipment are recognised initially at cost in the statement of financial position, except for purchases costing less than $2,000, which are expensed in the year of acquisition (other than where they form part of a group of similar items which are significant in total).

The initial cost of an asset includes an estimate of the cost of dismantling and removing the item and restoring the site on which it is located. This is particularly relevant to 'make good' provisions in property leases taken up by the Corporation where there exists an obligation to restore the property to its original condition. These costs are included in the value of the Corporation's leasehold improvements with a corresponding provision for the 'make good' recognised.

Lease Right of Use (ROU) Assets

Leased ROU assets are capitalised at the commencement date of the lease and comprise of the initial lease liability amount, initial direct costs incurred when entering into the lease less any lease incentives received. These assets are accounted for by Commonwealth lessees as separate asset classes to corresponding assets owned outright but included in the same column as where the corresponding underlying assets would be presented if they were owned.

On initial adoption of AASB 16 GRDC has adjusted the ROU assets at the date of initial application by the amount of any provision for onerous leases recognised immediately before the date of initial application. Following initial application, an impairment review is undertaken for any right of use lease asset that shows indicators of impairment and an impairment loss is recognised against any right of use lease asset that is impaired. No impairment was recognised for ROU assets in FY 2023.

Revaluations

Following initial recognition at cost, property, plant and equipment (excluding ROU assets) are carried at fair value (or an amount not materially different from fair value) less subsequent accumulated depreciation and accumulated impairment losses. Valuations are conducted with enough frequency to ensure that the carrying amounts of assets did not differ materially from the assets' fair values as at the reporting date. The regularity of independent valuations depended upon the volatility of movements in market values for the relevant assets.

Revaluation adjustments are made on a class basis. Any revaluation increment is credited to equity under the heading of asset revaluation reserve except to the extent that it reversed a previous revaluation decrement of the same asset class that was previously recognised in the surplus/deficit. Revaluation decrements for a class of assets are recognised directly in the surplus/deficit except to the extent that they reverse a previous revaluation increment for that class.

Any accumulated depreciation as at the revaluation date is eliminated against the gross carrying amount of the asset and the asset is restated to the revalued amount.

Depreciation

Depreciable property, plant and equipment assets are written down to their estimated residual values over their estimated useful lives to the Corporation using, in all cases, the straight-line method of depreciation.

Depreciation rates (useful lives), residual values and methods are reviewed at each reporting date and necessary adjustments are recognised in the current, or current and future reporting periods, as appropriate.

2.2: NON-FINANCIAL ASSETS (CONTINUED)

Depreciation rates applying to each class of depreciable asset are based on the following useful lives:

	2023	2022
Buildings	**25 years**	25 years
Other property, plant & equipment	**2 to 12 years**	2 to 12 years

The depreciation rates for ROU assets are based on the commencement date to the earlier of the end of the useful life of the ROU asset or the end of the lease term.

Impairment

All assets were assessed for impairment at 30 June 2023. Where indications of impairment exist, the asset's recoverable amount is estimated, and an impairment adjustment made if the asset's recoverable amount is less than its carrying amount.

The recoverable amount of an asset is the higher of its fair value less costs to disposal and its value in use. Value in use is the present value of the future cash flows expected to be derived from the asset. Where the future economic benefit of an asset is not primarily dependent on the asset's ability to generate future cash flows, and the asset would be replaced if the Corporation were deprived of the asset, its value in use is taken to be its depreciated replacement cost.

There were no impairments to GRDCs assets in FY 2023.

Derecognition

An item of property, plant and equipment is derecognised upon disposal or when no further economic benefits are expected from its use or disposal.

Intangibles

The Corporation's intangibles comprise software and intellectual property. Software is carried at cost less accumulated amortisation and accumulated impairment losses. Software is amortised on a straight-line basis over its anticipated useful life as follows:

	2023	2022
Information management system	**6 years**	6 years
Other software	**2.5 to 6 years**	2.5 to 6 years

Intellectual property is carried at cost less accumulated depreciation and is depreciated on a straight-line basis over its anticipated useful life.

All intangible assets were assessed for indications of impairment as at 30 June 2023.

Development costs

Research and development costs are expensed when incurred. An intangible asset arising from development expenditure is only recognised when technical feasibility studies identify that the expenditure will deliver future economic benefits and these benefits can be measured reliably. Other development expenditure is recognised in the Statement of Comprehensive Income as an expense when incurred.

Following initial recognition of development expenditure, the cost model is applied requiring the asset to be carried at cost less any accumulated amortisation and accumulated impairment losses.

2.2B – Other Non-Financial Assets	2023 $'000	2022 $'000
Prepayments	**307**	180
Total other non-financial assets	**307**	180

All Other Non-Financial Assets are expected to be recovered in no more than 12 months.

No indicators of impairment were found for non-financial assets.

2.4: PAYABLES

2.4A – Suppliers		
Trade creditors – external parties	**2,475**	1,266
Accrued expenses – external parties	**1,301**	1,069
Total suppliers	**3,776**	2,335

Settlement is usually made within 30 days apart from those payables with specific settlement terms after 30 days.

2.4B – Research and Development		
Research and development payables	**1,718**	10,276
Accrued research and development	**33,458**	18,370
Total research and development payables	**35,176**	28,646

2.4C – Other Payables		
Salaries & Wages	**1,224**	477
Unearned grant income – related parties	**508**	2,261
Other	**15**	-
Total other payables	**1,747**	2,738

Accounting Policy

Accounting policies for payables are contained in Note 5.1A. Refer to Note 1.2A regarding the Corporation's accounting policy on grant income.

2.5 – LEASES

Lease liabilities – Motor Vehicles	**546**	427
Lease liabilities – Buildings	**9,788**	11,959
Total leases	**10,334**	12,386
Maturity analysis – contractual undiscounted cash flows		
Within 1 year	**2,223**	2,088
Between 1 to 5 years	**8,111**	10,011
More than 5 years	**-**	153
Total leases	**10,334**	12,252

Total cash outflow for leases for the year ended 30 June 2023 was $2.0m (2022: $2.1m).

Accounting Policy

Leases

For all new contracts entered into, GRDC considers whether the contract is, or contains a lease. A lease is defined as 'a contract, or part of a contract, that conveys the right to use an asset (the underlying asset) for a period of time in exchange for consideration'.

Once it has been determined that a contract is, or contains a lease, the lease liability is initially measured at the present value of the lease payments unpaid at the commencement date, discounted using the interest rate implicit in the lease, if that rate is readily determinable, or the department's incremental borrowing rate.

Subsequent to initial measurement, the liability will be reduced for payments made and increased for interest. It is remeasured to reflect any reassessment or modification to the lease. When the lease liability is remeasured, the corresponding adjustment is reflected in the right-of-use asset or profit and loss depending on the nature of the reassessment or modification.

2.6: OTHER PROVISIONS	Provision for make good[1] $'000	Total $'000
As at 1 July 2022	**542**	542
Total as at 30 June 2023	**542**	542

The Corporation currently has an agreement for the leasing of premises which have provisions requiring the Corporation to restore the premises to their original condition at the conclusion of the lease. The Corporation has made a provision to reflect the cost of this obligation. No change has been made to the value of this provision in FY 2023.

People and Relationships

3.1 – EMPLOYEE PROVISIONS	2023 $'000	2022 $'000
Leave	**2,989**	2,600
Total employee provisions	**2,989**	2,600

Accounting Policy

Liabilities for short-term employee benefits and termination benefits expected within twelve months of the end of reporting period are measured at their nominal amounts. Other long-term employee benefits are measured as net total of the present value of the defined benefit obligation at the end of the reporting period minus the fair value at the end of the reporting period of plan assets (if any) out of which the obligations are to be settled directly.

Leave

The liability for employee benefits includes provision for annual leave and long service leave. The leave liabilities are calculated based on employees' remuneration at the estimated salary rates that applied at the time the leave is taken, including the Corporation's employer superannuation contribution rates, to the extent that the leave is likely to be taken during service rather than paid out on termination. The liability for long service leave has been determined by using the Australian Government shorthand method. The estimate of the present value of the liability considers attrition rates and pay increases through promotion and inflation.

Separation and Redundancy

Provision is made for separation and redundancy benefit payments. The Corporation recognises a provision for termination when it has developed a detailed formal plan for the terminations and has informed those employees affected that it will carry out the terminations.

Superannuation

The Corporation's staff are members of the Commonwealth Superannuation Scheme (CSS), the Public Sector Superannuation Scheme (PSS), the PSS Accumulation Plan (PSSap), or other Superannuation funds held outside of the Australian Government.

The CSS and PSS are defined benefit schemes for the Australian Government. The PSSap and other superannuation schemes are defined contribution schemes.

The liability for defined benefits is recognised in the financial statements of the Australian Government and is settled by the Australian Government in due course. This liability is reported in the Department of Finance's administered schedules and notes.

For CSS and PSS members, the Corporation makes contributions based on the rates determined by an actuary to be sufficient to meet the current costs to the Government. The Corporation accounts for the contributions as if they were contributions to defined contribution plans.

For AustralianSuper and other approved superannuation schemes, the Corporation contributes a minimum of 10.5% of superannuable salaries.

As at 30 June 2023, superannuation contributions payable was $115,257.78 (2022: $Nil).

3.2: KEY MANAGEMENT PERSONNEL REMUNERATION

Key management personnel are those persons having authority and responsibility for planning, directing, and controlling the activities of GRDC, directly or indirectly, including any director (whether executive or otherwise) of that entity. The Corporation has determined the key management personnel to be the Directors, including the Managing Director. Key management personnel remuneration is reported in the table below:

	2023 $'000	2022 $'000
Short-term employee benefits	**813**	782
Post-employment benefits (superannuation)	**78**	81
Other long-term employee benefits	**9**	-1
Termination benefits	**-**	-
Total key management personnel remuneration expenses[1]	**900**	862

[1] The above key management personnel remuneration excludes the remuneration and other benefits of all Cabinet Ministers and the Portfolio Minister. The Portfolio Minister's remuneration and other benefits are set by the Remuneration Tribunal and are not paid by the Corporation.

The total number of key management personnel included in the above table are 7 individuals (2022: 8 individuals). There were no changes to the number of Board in FY2022-23. The number of key management personnel was higher in FY2021-22 because there was an interim Managing Director who was replaced by the current Managing Director in March 2022.

Additionally, to the amounts disclosed in the table above, GRDC has two fee-for-service contracted arrangements for the provision of Key Management Personnel services during the year. GRDC incurred director fees in relation to the following Directors:), Sharon Starick $48,245 (2022: $42,929), Gemma Walker $39,860 (2022: $35,414), Total KMP remuneration including those paid via contract equates to $987,400 (2022: $938,771).

3.3: RELATED PARTY DISCLOSURES

Related party relationships:

The Corporation is an Australian Government controlled entity. Related parties to this Corporation are Directors, key management personnel including members of the Executive, and other Australian Government entities.

Transactions with related parties:

Given the breadth of Government activities, related parties may transact with the government sector in the same capacity as ordinary citizens. Such transactions include the payment or refund of taxes, receipt of a Medicare rebate or higher education loans. These transactions have not been separately disclosed in this note.

Several Directors of the Corporation and their close family members hold directorships with other organisations. Any transactions between the Corporation and those organisations or any dealings between the Corporation and the Directors and their close family members individually are conducted using commercial and arms-length principles.

The Corporation received research services from Dairy Australia for an amount of $802.11 (2022: $788.61). At the time of payment, Roseanne Healy was a Director of the Corporation and a Director of Dairy Australia. Transactions have been conducted on normal commercial terms. There is no balance outstanding at year end.

The Corporation received research services from Rural Edge Australia for an amount of $66,907.37 (2022: $15,125). At the time of payment, Gemma Walker was a Director of the Corporation and a Director of Rural Edge Australia. There is no balance outstanding at year end.

All transactions have been conducted on normal commercial terms and no loans were made to the Directors or Director-related entities during the reporting period or in FY 2022/2023.

3.4: SUPPLEMENTARY INFORMATION FOR THE PARENT ENTITY[1]

	2023 $'000	2022 $'000
Statement of Comprehensive Income		
Total expenses	**218,710**	212,725
Total own-source revenue	**286,603**	259,303
Revenue from Government	**132,276**	95,666
Total comprehensive income	**200,169**	143,244
Statement of Financial Position		
Total current assets	**652,056**	441,609
Total assets	**679,480**	469,336
Total current liabilities	**41,886**	33,655
Total liabilities	**53,665**	49,183
Net assets	**625,815**	420,153
Equity		
Reserves	**110,392**	110,392
Retained surplus	**515,423**	309,761
Total equity	**625,815**	420,153

[1] The parent entity (Grains Research and Development Corporation or GRDC) is the sole member of the subsidiary (Grains Australia Limited (GAL)). The subsidiary is an industry based; public company limited by guarantee which was incorporated on 11 December 2019 which did not trade until FY 2021. The parent entity is required to pay $10 to the subsidiary if the subsidiary is wound up. Apart from this the parent entity does not guarantee the subsidiaries debts, there are no contingent liabilities, and there are no capital commitments for PPE. From 1 July 2021 GAL was also the sole member of Wheat Quality Australia Limited (WQA), an industry-based company limited by guarantee. As GAL had 100% ownership of WQA for FY 2022, WQA was a subsidiary of GRDC as GRDC controls GAL and controls WQA. GAL was required to pay $10 to WQA if it is wound up. WQA was deregistered on 12 September 2022 with its operations now carried out by GAL.

Significant accounting policies

The accounting policies of the parent entity are consistent with those of the consolidated entity, as disclosed in note 1, except for the following:

- Depreciation of office equipment is depreciated within 0-3 years in the subsidiary whereas office equipment is depreciated 2-12 years.

Managing Uncertainties

4.1 UNQUANTIFIABLE CONTINGENCIES

In December 2022, the Corporation settled an intellectual property dispute. Shortly after signing the relevant settlement documentation, the Corporation received a settlement payment. The settlement documentation provides for the Corporation to receive an additional settlement payment but only if and when the other parties to the settlement undertake certain commercial activities (2022: $NIL).

Accounting Policy

Contingent liabilities and contingent assets are not recognised in the statement of financial position but are reported in the notes. They may arise from uncertainty as to the existence of a liability or asset or represent an asset or liability in respect of which the amount cannot be reliably measured. Contingent assets are disclosed when settlement is probable but not virtually certain and contingent liabilities are disclosed when settlement is greater than remote.

5.1: FINANCIAL INSTRUMENTS

5.1A – Categories of Financial Instruments	2023 $'000	2022 $'000
Financial assets at amortised cost		
Cash and cash equivalents	**178,013**	184,857
Trade and other receivables	**71,206**	3,832
Total financial assets at amortised cost	**249,219**	188,689
Financial assets at fair value through other comprehensive income		
Investments in managed funds	**267,817**	115,041
Total financial assets at fair value through other comprehensive income	**267,817**	115,041
Financial assets at fair value through other comprehensive income (investments in equity instruments)		
Shares in unlisted companies[1]	**114,183**	109,670
Total financial assets at fair value through other comprehensive income (investments in equity instruments)	**114,183**	109,670
Total financial assets	**631,219**	413,400
Financial Liabilities		
Financial liabilities measured at amortised cost		
Payables	**40,699**	30,975
Total financial liabilities measured at amortised cost	**40,699**	30,975
Total financial liabilities	**40,699**	30,975

[1] GRDC owns shares in two unlisted companies, 39.11% of AGT and 42.06% of InterGrain.

Accounting Policy

Financial assets

The Corporation, in line with AASB 9 *Financial Instruments*, classifies its financial assets in the following categories:

a) financial assets at fair value through other comprehensive income; and

b) financial assets measured at amortised cost.

The classification depends on both the Corporation's business model for managing the financial assets and contractual cash flow characteristics at the time of initial recognition. Financial assets are recognised when the Corporation becomes a party to the contract and, as a consequence, has a legal right to receive or a legal obligation to pay cash and derecognised when the contractual rights to the cash flows from the financial asset expire or are transferred upon trade date.

Financial Assets at Amortised Cost

Financial assets included in this category need to meet two criteria:

1. the financial asset is held in order to collect the contractual cash flows; and

2. the cash flows are solely payments of principal and interest (SPPI) on the principal outstanding amount.

Amortised cost is determined using the effective interest method.

Effective Interest Method

Income is recognised on an effective interest rate basis for financial assets that are recognised at amortised cost.

Financial Assets at Fair Value Through Other Comprehensive Income (FVOCI)

Financial assets measured at fair value through other comprehensive income are held with the objective of both collecting contractual cash flows and selling the financial assets and the cash flows meet the SPPI test.

Any gains or losses as a result of fair value measurement or the recognition of an impairment loss allowance is recognised in other comprehensive income.

Financial Assets at Fair Value Through Profit or Loss (FVTPL)

Financial assets are classified as financial assets at fair value through profit or loss where the financial assets either doesn't meet the criteria of financial assets held at amortised cost or at FVOCI (i.e., mandatorily held at FVTPL) or may be designated.

Financial assets at FVTPL are stated at fair value, with any resultant gain or loss recognised in profit or loss. The net gain or loss recognised in profit or loss incorporates any interest earned on the financial asset.

Impairment of Financial Assets

Financial assets are assessed for impairment at the end of each reporting period based on Expected Credit Losses, using the general approach which measures the loss allowance based on an amount equal to lifetime expected credit losses where risk has significantly increased, or an amount equal to 12-month expected credit losses if risk has not increased.

The simplified approach for trade, contract and lease receivables is used. This approach always measures the loss allowance as the amount equal to the lifetime expected credit losses.

A write-off constitutes a derecognition event where the write-off directly reduces the gross carrying amount of the financial asset.

Financial liabilities

Financial liabilities are classified as either financial liabilities 'at fair value through profit or loss' or other financial liabilities. Financial liabilities are recognised and derecognised upon 'trade date'.

Financial Liabilities at Amortised Cost

Financial liabilities, including borrowings, are initially measured at fair value, net of transaction costs. These liabilities are subsequently measured at amortised cost using the effective interest method, with interest expense recognised on an effective interest basis.

Supplier and other payables are recognised at amortised cost. Liabilities are recognised to the extent that the goods or services have been received (and irrespective of having been invoiced).

5.1B - NET GAINS OR LOSSES ON FINANCIAL ASSSETS

	2023 $'000	2022 $'000
Financial assets at amortised cost		
Interest revenue	**3,443**	148
Net gains on financial assets at amortised cost	**3,443**	148
Investments in equity instruments at fair value through other comprehensive income (designated)		
Gains recognised in equity	**4,513**	22,167
Net gains on investments in equity instruments at fair value through other comprehensive income (designated)	**4,513**	22,167
Financial assets at fair value through other comprehensive income		
Interest Revenue	**5,974**	1,070
Change in fair value	**(1,849)**	(7,754)
Net gains on financial assets at fair value through other comprehensive income	**4,125**	(6,684)
Financial assets at fair value through profit or loss		
Interest Revenue	**-**	-
Change in fair value	**-**	(30)
Net gains / (losses) on financial assets at fair value through profit or loss	**-**	(30)
Net gains on financial assets	**15,524**	15,601

There was no net gains or losses on financial liabilities.

5.2: FAIR VALUE MEASUREMENTS

Accounting Policy

The Corporation measures its managed fund investments using Level 1 inputs, that is, using quoted prices in active markets for identical assets that the Corporation can access at measurement date.

The share in unlisted companies is valued at fair value each year, in line with AASB 9 *Financial Instruments*, using Level 2 and Level 3 inputs.

Valuations of non-financial assets are conducted with sufficient frequency to ensure that the carrying amounts of assets do not differ materially from the assets' fair values as at the reporting date. The regularity of independent valuations depends upon the volatility of movements in market values for the relevant assets. Non-financial assets are measured using a range of Level 2 and Level 3 inputs.

The Corporation measures its leasehold improvements using Level 3 inputs at the reporting date, using the depreciated replacement cost valuation methodology.

The Corporation measures its other property, plant and equipment using Level 2 inputs, using adjusted market transactions as a basis.

5.2A – Fair Value Measurement

	Fair value measurements at the end of the reporting period	
	2023 $'000	2022 $'000
Financial assets		
Investments in managed funds[1]	**267,817**	115,041
Shares in unlisted companies[2]	**114,183**	109,670
Total financial assets	**382,000**	224,711
Non-financial assets		
Leasehold improvements[1]	**671**	1,063
Other property, plant and equipment[1]	**872**	826
Total non-financial assets	**1,543**	1,889
Total fair value measurements of assets in the Statement of Financial Position	**383,543**	226,600

[1] No change in valuation technique occurred during the period.

[2] The valuation for FY 2023 and FY 2022 were complete valuations. The GRDC have reviewed and accepted the valuations and have taken up the valuation adjustments from the lower end of the valuation range, consistent with last year's approach. Further details on valuation assumption are detailed in Significant Accounting Estimates.

5.3: CURRENT/NON-CURRENT DISTINCTION FOR ASSETS AND LIABILITIES

	Notes	2023 $'000	2022 $'000
Assets expected to be recovered in:			
No more than 12 months			
Cash and cash equivalents	2.1A	**178,013**	184,857
Trade and other receivables	2.1B	**71,206**	22,132
Investments in managed funds	2.1D	**267,817**	115,041
Other non-financial assets	2.2B	**307**	180
Net assets		**517,343**	322,210
More than 12 months			
Equity accounted investments	2.1C	**25,053**	12,134
Other Investments	2.1E	**114,183**	109,670
Buildings	2.2A	**9,698**	12,337
Property, plant and equipment	2.2A	**1,210**	904
Intangibles	2.2A	**16,516**	14,301
Total more than 12 months		**166,660**	149,346
Total assets		**684,003**	471,556
Liabilities expected to be settled in:			
No more than 12 months			
Payables			
Suppliers	2.4A	**3,776**	2,335
Research and development	2.4B	**35,176**	28,646
Other payables	2.4C	**1,747**	2,738
Leases	2.5	**2,224**	2,088
Employee provisions	3.1	**2,086**	1,934
Total no more than 12 months		**45,009**	37,741
No more than 12 months			
Leases	2.5	**8,111**	10,298
Employee provisions	3.1	**902**	666
Other provisions	2.6	**542**	542
Total more than 12 months		**9,555**	11,506
Total liabilities		**54,564**	49,247

5.4: SUBSIDIARY CONTROLLED BY THE GRDC

Details of investments in subsidiaries

	Ownership	
	2023	2022
Name of entity	**%**	%
Grains Australia Limited[1]	**100**	100

1 Grains Research and Development Corporation (GRDC) is the sole member of Grains Australia Limited (GAL), an industry-based company limited by guarantee. From 1 July 2021 GAL was also the sole member of Wheat Quality Australia Limited (WQA), an industry-based company limited by guarantee. As GAL had 100% ownership of WQA for FY 2022, WQA was a subsidiary of GRDC for FY 2021-22 as GRDC controls GAL and controls WQA. WQA was deregistered on 12 September 2022 with its operations now carried out by GAL.

	2023 $'000	2022 $'000
Statement of Comprehensive Income		
Total expenses	**2,904**	2,794
Total revenue	**3,359**	3,810
Total comprehensive income	**455**	1,016
Statement of Financial Position		
Total current assets	**4,703**	2,604
Total assets	**4,703**	2,604
Total current liabilities	**1,826**	185
Total liabilities	**1,826**	185
Net assets	**2,877**	2,419
Equity		
Retained surplus	**2,877**	2,419
Total equity	**2,877**	2,419

6. APPENDICES

APPENDIX A

PGPA Rule Section 17 BE (ta) – Executive Remuneration

Information about remuneration for key management personnel

		Short-term benefits			Post-employment benefits	Other long-term benefits		Termination benefits	Total remuneration
Name	Position title	Base salary	Bonuses	Other benefits and allowances	Superannuation contributions	Long service leave	Other long-term benefits	Termination benefits	Total remuneration
Nigel Hart	Managing Director	$418,461	$59,173	$24,237	$44,838	$8,732	-	-	**$555,441**
Roseanne Healy	Board	$55,182	-	-	$7,379	-	-	-	**$62,561**
Richard Heath	Board	$39,860	-	-	$3,954	-	-	-	**$43,813**
John Woods	Board Chair	$79,719	-	-	$7,940	-	-	-	**$87,659**
Richard Dickmann	Board	$39,860	-	-	$3,948	-	-	-	**$43,807**
Robert Nixon	Board	$48,245	-	-	$4,799	-	-	-	**$53,044**
Andrew Spencer	Board	$48,245	-	-	$4,724	-	-	-	**$52,969**
Sharon Starick	Board	$48,245	-	-	-	-	-	-	**$48,245**
Gemma Walker	Board	$39,860	-	-	-	-	-	-	**$39,860**

Information about remuneration for senior executives

		Short-term benefits			Post-employment benefits	Other long-term benefits		Termination benefits	Total remuneration
Total remuneration bands	Number of senior executives	Average base salary	Average bonuses	Average other benefits and allowances	Average superannuation contributions	Average long service leave	Average other long-term benefits	Average termination benefits	Average total remuneration
$320,001-$345,000	2	$256,780	$33,221	$-3,371	$30,640	$11,643	-	-	**$328,913**
$345,001-$370,000	1	$274,044	$34,615	$39	$32,608	$8,698	-	-	**$350,004**
$370,001-$395,000	1	$281,706	$39,653	$26,386	$33,967	$6,071	-	-	**$387,783**

Information about remuneration for other highly paid staff

		Short-term benefits			Post-employment benefits	Other long-term benefits		Termination benefits	Total remuneration
Total remuneration bands	Number of other highly paid staff	Average base salary	Average bonuses	Average other benefits and allowances	Average superannuation contributions	Average long service leave	Average other long-term benefits	Average termination benefits	Average total remuneration
$240,000-$245,000	2	$190,736	$12,785	$5,931	$26,257	$8,070	-	-	**$243,779**
$245,001-$270,000	5	$204,057	$16,854	$6,088	$23,298	$10,807	-	-	**$261,104**
$270,001-$295,000	2	$220,849	$22,864	$-1,944	$27,577	$10,613	-	-	**$279,959**
$295,001-$320,000	2	$243,415	$30,300	$1,665	$28,915	$5,958	-	-	**$310,253**

APPENDIX B

PGPA Rule Section 17BE (ka) – Management of Human Resources

All ongoing employees current report period (2022-23)

	Man/Male			Woman/ Female			Non-binary			Prefers not to answer			Uses a different term			TOTAL
	FT	PT	To	FT	PT	To	FT	PT	To	FT	PT	To	FT	PT	To	
NSW	2	-	2	-	-	-	-	-	-	-	-	-	-	-	-	2
QLD	8	-	8	11	1	12	-	-	-	-	-	-	-	-	-	20
SA	13	-	13	5	4	9	-	-	-	-	-	-	-	-	-	22
TAS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VIC	1	1	2	1	-	1	-	-	-	-	-	-	-	-	-	3
WA	4	-	4	8	1	9	-	-	-	-	-	-	-	-	-	13
ACT	19	-	19	22	4	26	-	-	-	-	-	-	-	-	-	45
NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
External Territories	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Overseas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	47	1	48	47	10	57	-	-	-	-	-	-	-	-	-	105

All non-ongoing employees current report period (2022-23)

	Man/Male			Woman/ Female			Non-binary			Prefers not to answer			Uses a different term			TOTAL
	FT	PT	To	FT	PT	To	FT	PT	To	FT	PT	To	FT	PT	To	
NSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QLD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TAS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VIC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ACT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
External Territories	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Overseas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

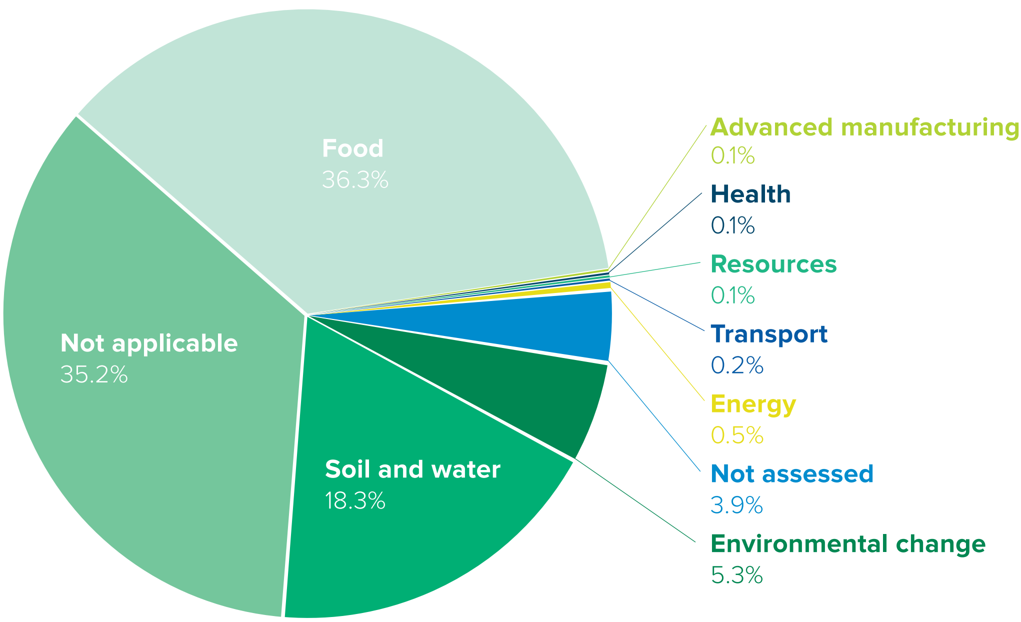
APPENDIX C

Expenditure against the National Science and Research Priorities and National Agricultural Innovation Policy Statement Priorities

The figures in Figure 12 summarise the total expenditure allocated against the Australian Government's Science and Research Priorities and Rural Research, Development and Extension Priorities within the 2022-23 financial year. The allocation of funds from GRDC RD&E portfolio is shown in both dollar and percentage terms for each priority. More information on the National Science and Research Priorities can be found at www.industry.gov.au/data-and-publications/science-and-research-priorities.

National Science and Research Priorities	$m	% of GRDC's R&D expenditure
Advanced manufacturing	$0.2	0.1%
Health	$0.2	0.1%
Resources	$0.2	0.1%
Transport	$0.3	0.2%
Energy	$0.9	0.5%
Not assessed	$6.8	3.9%
Environmental change	$9.4	5.3%
Soil and Water	$32.4	18.3%
Not applicable	$62.4	35.2%
Food	$64.2	36.3%
Total	**$177.0**	**100%**

Figure 12: Australian Government Science and Research Priorities percentage value of total GRDC expenditure in 2022-23.



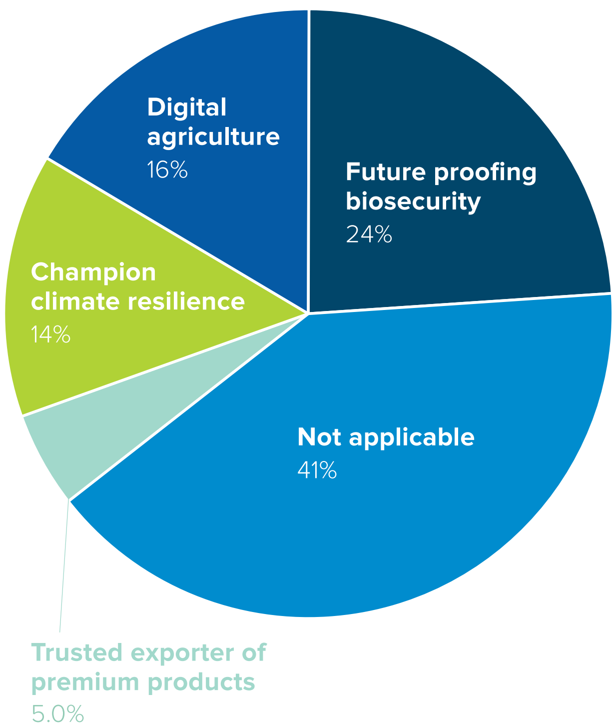
The National Agricultural Innovation Policy Statement Priorities took effect from 11 October 2021, replacing the Rural RD&E priorities. The priorities are:

- Australia is a trusted exporter of premium food and agricultural products by 2030.
- Australia will champion climate resilience to increase the productivity, profitability and sustainability of the agricultural sector by 2030.
- Australia is a world leader in preventing and rapidly responding to significant pests and diseases through futureproofing our biosecurity system by 2030.
- Australia is a mature adopter, developer, and exporter of digital agriculture by 2030.

National Agricultural Innovation Policy Statement – Priorities	$m	% of GRDC's R&D expenditure
Trusted exporter of premium products	$9.0	5.1%
Champion climate resilience	$24.8	14.0%
Digital agriculture	$29.2	16.5%
Future proofing biosecurity	$42.3	23.9%
Not applicable	$71.7	40.5%
Total	**$177.0**	**100%**

Numbers are estimates based on investments tagged in the Investment Management System. The allocation of GRDC investments to Agricultural Innovation Priorities is subject to change after portfolio analysis.

Figure 13: National Agricultural Innovation Policy Statement Priorities percentage value of total GRDC expenditure in 2022-23.



APPENDIX D

Emissions Report

Reporting year	Portfolio	Entity Name
2022-23	Agriculture, Water and the Environment	Grains Research and Development Corporation

Emission Source	Scope 1 kg CO2-e	Scope 2 kg CO2-e	Scope 3 kg CO2-e	Total kg CO2-e
Electricity (Location Based Approach)	N/A	172,352	16,680	189,032
Natural Gas	-	N/A	-	-
Fleet Vehicles	82,765	N/A	20,336	103,100
Domestic Flights	-	N/A	306,831	306,831
Other Energy	-	N/A	-	-
Total kg CO2-e	**82,765**	**172,352**	**343,846**	**598,963**

The electricity emissions reported above are calculated using the location based approach. When applying the market based method, which accounts for activities such as Greenpower, purchased LGCs and/or being located in the ACT, the total emissions for electricity, are below:

Emission Source	Scope 1 kg CO2-e	Scope 2 kg CO2-e	Scope 3 kg CO2-e	Total kg CO2-e
Electricity (Market Based Approach)	N/A	58,739	7,774	66,513
Natural Gas	-	N/A	-	-
Fleet Vehicles	82,765	N/A	20,336	103,100
Domestic Flights	-	N/A	306,831	306,831
Other Energy	-	N/A	-	-
Total kg CO2-e	**82,765**	**58,739**	**334,940**	**476,444**

7. REFERENCES

ABBREVIATIONS LIST

AAGI	Analytics for the Australian Grains Industry
ABARES	Australian Bureau of Agricultural and Resource Economics and Sciences
ABN	Australian Business Number
ACRCP	Australian Cereal Rust Control Program
AEGIC	Australian Export Grains Innovation Centre Limited
AGG	Australian Grains Genebank
AHRI	Australian Herbicide Resistance Initiative
AIA	Agricultural Innovation Australia
AICD	Australian Institute of Company Directors
APG	Australian Pastures Genebank
APVMA	Australian Pesticides and Veterinary Management Authority
B	billion
CBA	Chickpea Breeding Australia
CCDM	Centre for Crop and Disease Management
CRDC	Cotton Research and Development Corporation
CSIRO	Commonwealth Scientific and Industrial Research Organisation
CTRI	Community Trust in Rural Industries Program
DAFF	Australian Government Department of Agriculture, Fisheries and Forestry
DEECA	Department of Energy, Environment and Climate Action, Victoria
DPIRD	Department of Primary Industries and Regional Development, WA
ENRI	Emerging National Rural Issues Forum
FAO	Food and Agriculture Organisation
FAR	Field Applied Research
FBU	Farm Business Update
GHG	greenhouse gas
GRDC	Grains Research and Development Corporation
GVP	gross value of production
ha	hectare
HIP	Herbicide Innovation Partnership
KT	Kilo Tonnes
M	million
NAMS	National Agricultural Monitoring System
NPV	Net Present Value

NGDSI	National Grains Diagnostics and Surveillance Initiative
NFF	National Farmers Federation
NGN	National Grower Network
NSW	New South Wales
NSW DPI	NSW Department of Primary Industries
NVT	National Variety Trials
PBR	Plant Breeder's Rights
PBRI	Plant Biosecurity Research Initiative
PGPA Act	Public Governance, Performance and Accountability Act 2013 (Cth)
PIRD Act	Primary Industries Research and Development Act 1989 (Cth)
PIRSA	Primary Industries and Regions South Australia
PVB	Present Value of Benefits
PVI	Present Value of Investment
QDAF	Queensland Department of Agriculture and Forestry
RD&E	research, development and extension
ROI	return on investment
RoR	Rate of Return
RDCs	Research and Development Corporations
RSHA	Rural Safety and Health Alliance
SA	South Australia
SARDI	South Australian Research and Development Institute
TFP	total factor productivity
UoA	University of Adelaide
UniSA	University of South Australia
USP	Unlocking Soil Potential Strategic Partnership
UoM	University of Melbourne
UQ	University of Queensland
USDA	United States Department of Agriculture
UWA	University of Western Australia
WA	Western Australia
WAARC	WA Agricultural R&D Collaboration
WUE	water use efficiency
WHS	work health and safety

COMPLIANCE INDEX

Requirement	Source	Part of the report
***Primary Industries Research and Development Act 1989* (Cth) (PIRD Act)**		
R&D activities	Paragraph 28(a)(i)	Chapter 1 Overview pp. 3-20 Chapter 3 Our Performance pp. 35-82
Marketing activities funded by levy	Paragraph 28(a)(ia)	Not applicable
Expenditure on R&D activities	Paragraph 28(a)(ii)	Page 12 Chapter 3 Our Performance pp. 35-82 Chapter 5 Financial Statements pp. 103-140
Impact of R&D activities on the grains industry	Paragraph 28(a)(ii)	Chapter 1 Overview pp. 3-20 Chapter 3 Our Performance pp. 35-82 Benefit-Cost Analyses pp. 54-57
Revisions of the R&D plan	Paragraph 28(a)(iii)	Not applicable
Agreements under sections 13 and 14	Paragraph 28(a)(iv)	Published as Attachment 'R&D Expenditure' on GRDC website https://grdc.com.au/about/who-we-are/corporate-governance/annual-reports
Patents and commercialisation	Paragraph 28(a)(v)	Page 12
Companies	Paragraph 28(a)(vi) and (vii)	Pages 27, 42, 43, 99, 115, 124 and 139
Real property	Paragraph 28(a)(viii)	Chapter 5 Financial Statements pp. 103-140
Assessment of operations	Paragraph 28(b)	Pages 38-53
Contribution to the objects of the Act	Paragraph 28(c)	Chapter 1 Overview pp. 3-20 Annual Performance Statements pp. 38-53 Chapter 3 Our Performance pp. 35-82 Chapter 5 Financial Statements pp. 103-140
Sources and expenditure of funds	Paragraph 28(d)	Chapter 5 Financial Statements pp. 103-140
Selection committee report	Paragraph 141 (1)	Not applicable
Public Governance, Performance and Accountability Rule 2014		
Approval of the report by directors	Section 17BB	Letter of transmittal pg. i
Parliamentary standards of presentation	Section 17BC	Throughout
Plain English and clear design	Section 17BD	Throughout
Enabling legislation	Paragraph 17BE(a)	Pages 5 and 97
Legislated objects and functions	Paragraph 17BE(b)(i)	Inside front cover and pg. 97
Purpose	Paragraph 17BE(b)(ii)	Page 5
Responsible minister	Paragraph 17BE(c)	Page 5
Ministerial directions	Paragraph 17BE(d) and (f)	None to report
Policy orders	Paragraphs 17BE(e) and (f)	None to report
Annual performance statements	Paragraph 17BE(g)	Annual performance statements pp. 103-140

Requirement	Source	Part of the report
Significant issues related to financial compliance	Paragraph 17BE(h) and (i)	None to report
Information on members of the accountable authority	Paragraph 17BE(j)	Chapter 4 Our Organisation pp. 83-102 and Appendix A
Organisational structure	Paragraph 17BE(k)	Page 86
Location	Paragraph 17BE(l)	Inside rear cover
Governance	Paragraph 17BE(m)	Chapter 4 Our Organisation pp. 83-102
Related entity transactions	Paragraphs 17BE(n) and (o)	Page 132
Significant activities and changes	Paragraph 17BE(p)	Page 97
Judicial decisions or decisions of administrative tribunals	Paragraph 17BE(q)	None to report
Reports by the Auditor-General, a parliamentary committee, the Commonwealth Ombudsman or the Office of the Australian Information Commissioner	Paragraph 17BE(r)	Page 101
Approval of the report by directors	Section 17BB	Letter of transmittal pg. i
Information from subsidiaries	Paragraph 17BE(s)	Pages 27, 42, 43, 99, 115, 124 and 139
Indemnity and insurance	Paragraph 17BE(t)	Page 101
The following information about the audit committee for the entity: (a) a direct electronic address of the charter determining the functions of the audit committee; (b) the name of each member of the audit committee; (c) the qualifications, knowledge, skills or experience of each member of the audit committee; (d) information about each member's attendance at meetings of the audit committee; (e) the remuneration of each member of the audit committee	Paragraph 17BE(taa)	Pages 94-96
Information about executive remuneration	Paragraph 17BE(ta)	Appendix A
Compliance index	Paragraph 17BE(u)	Pages 152-153
Other reporting requirements		
Environment Protection and Biodiversity Conservation Act 1999 (Cth)	Section 516A	Appendix D
Work Health and Safety Act 2011 (Cth)	Schedule 2, Part 4	Pages 102-103
Employee statistics		Appendix B
Expenditure against the Science and Research Priorities and the Rural R&D priorities		Appendix C

ALPHABETICAL INDEX

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FIGURES AND TABLES INDEX

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