



Strong leaders.
Valuable partners.

This year has been a challenging one across the New Zealand agricultural landscape. For many, decreasing farm profitability from poor weather conditions, lower farmgate returns and upward pressure on farm expenditure all combined to reduce on-farm profit margins. This challenging year resulted in a 27% reduction in volume purchased by our farmers and growers, equating to 324,000 fewer tonnes of nutrients being applied.

There have been global headwinds on the supply and procurement side of the business, but we've remained diligent in our strategy to unearth new sources of supply and nurture our supplier relationships. On the ground, the business operations have also been challenged – a fire in our Napier plant resulted in disruptions to our manufacturing. Weeks after Napier became operational again, Cyclone Gabrielle wreaked havoc across the region, heavily impacting our farmers and our Napier site – including the ARL lab and equipment. We are proud of the resilience of our staff and teams who have

remained agile and focused, ensuring minimal disruptions to our testing and supply chain.

The events of this financial year have meant we've had to make some tough calls, including a business restructure and the decision not to pay a rebate. Despite this challenging year the balance sheet remains very strong and we are well positioned for the predicted, but multi-year, climb out of these challenging times for our farmers and growers.

Longer term, while farmer and grower profitability is under immense, and in some sectors, growing

pressure, external imperatives for sustained market access (e.g. greenhouse gas reduction), and ongoing regulatory change in response to climate change will continue to relentlessly challenge the industry. The strength of our balance sheet continues to support targeted investment in products for enhanced sustainability on farm, and in digital tools for precision placement and management.

Despite a difficult year we remain resolute in our pursuit of Smarter farming for a better New Zealand as the service platform for our farmers and growers.

Gains, pains and overall outlook

1



Gains

There were wonderful wins this year. We partnered with industry and Government on AgriZero^{NZ}, a groundbreaking initiative to reduce greenhouse gas emissions in our sector. We gained the South Island farm portfolio of Pāmu as a nutrient customer. We established Agnition as an innovation hub to partner with you on productivity and sustainability. We progressed trials of new and emerging sources of phosphate rock to ensure we have strong levels of resilience within our supply chain.

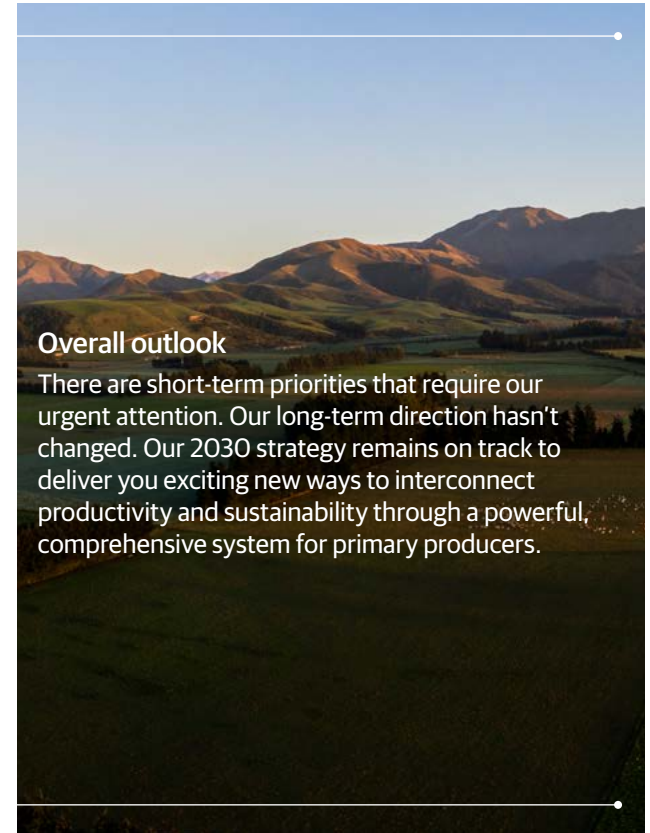
[AgriZero^{NZ} / Read more >](#)
Page 25



Pains

There was no escaping the market contraction. High commodity prices and unusual weather conditions saw our volumes drop, leading to concern about the flow-on impacts of lower productivity on our customers. The fall in demand led to a restructuring of our organisation, and the decision by the Board not to offer a rebate this year. Not long after we recovered from a fire in our Napier factory, Cyclone Gabrielle wreaked a path of destruction, disrupting our manufacturing operations, stores, laboratories, sites and customers across the Hawke's Bay and Tairāwhiti regions.

[Cyclone Gabrielle / Read more >](#)
Page 18



Overall outlook

There are short-term priorities that require our urgent attention. Our long-term direction hasn't changed. Our 2030 strategy remains on track to deliver you exciting new ways to interconnect productivity and sustainability through a powerful, comprehensive system for primary producers.

[Interconnecting productivity and sustainability / Read more >](#)
Page 20



About this report /

Ravensdown is proud to present our latest Integrated Report, covering the financial year ended 31 May 2023.

This report has been prepared for our key stakeholders and presents a snapshot of the ongoing Ravensdown journey - our strategy, governance, performance, and future prospects. We also touch on risks, opportunities, the views of our stakeholders, our external environment, and the communities in which we work.

2

The report explains how we create value for our stakeholders over time while operating in a dynamic external environment. It also allows us to measure ourselves against the previous goals we set for the business and to share our focus for the future. As proud as we are of our company and the work we do to help our shareholders farm smarter, there is much to do both immediately and longer term to ensure we remain aligned with our strategic 2030 goals.



7
Current state
But first things first



19
Best for every farmer and grower
Systematically meeting our customers'
soil nutrient needs



27
Bringing smarter farming to life
Our ongoing quest to be the best
partner we can for farmers



75
Governance
How we manage our risks and
relationships

Interconnecting productivity and sustainability

About Ravensdown /

Building a future, together

Ravensdown is a co-operative founded by and owned by New Zealand farmers. As farm nutrient and environmental experts, we're at the heart of the food and fibre value chain in New Zealand – and a natural partner for our farmers and growers.

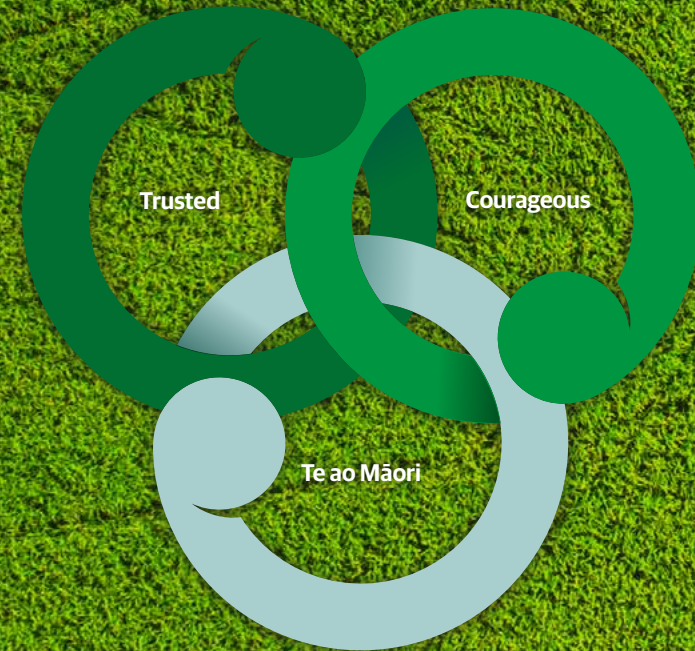
Using technology, science, and talent, we work with our farmers to provide the agronomic solutions they need. This core service is further supported with innovative technology and environmentally focused products and services.

As a business, our multi-layered approach means we test for, advise, buy, ship, manufacture, store, spread, measure and map the food-creating nutrients our farmers need in a truly integrated way.

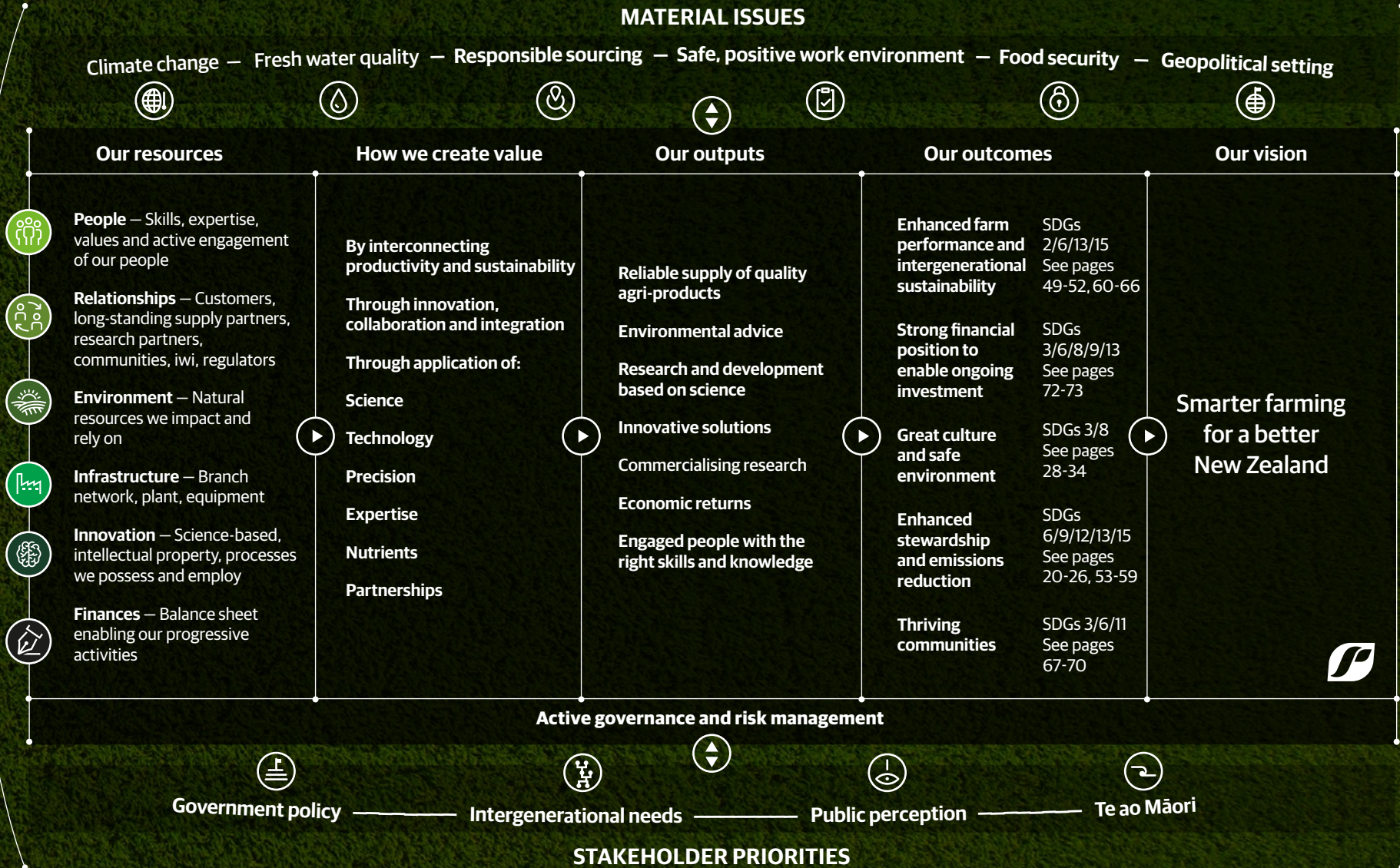
We meet our customers' needs across a wide spectrum, helping farmers and growers develop smarter ways of farming that are good for their land, good for their bottom line, and better for New Zealand's future generations.

Manaaki whenua, manaaki tangata, haere whakamua.

If we take care of the earth and take care of people, we will take care of the future.



Value Creation Model / How we create value in a dynamic external environment



2030 beckons

We remain confident that this year's significant market contraction won't affect our long-term direction. But it has shifted what we prioritise over the next 24 months while we adapt to this situation.

1.

Enhanced farm performance and intergenerational sustainability: We will focus on ensuring that farmers and growers can keep growing. Food and income security are paramount.

2.

Strong financial position to enable ongoing investment: We will safeguard our balance sheet to ensure long-term resilience. That's already required tough decisions around no rebate this year and restructuring our organisation.

3.

Great culture and safe environment: We will look after the people who look after our farmers and growers. A safe, positive work environment will energise innovation, collaboration and integration.

Section /

01

Current state



Best for every farmer
and grower

Bringing smarter
farming to life

Governance

8
Joint Chair / CEO
Q+A

13
Performance scorecard

14
Engaging with our
stakeholders

16
Materiality

But first things first

Chair and CEO interview /

Q+A /

Fronting up to the many challenges the sector is facing, what are we doing to counter those challenges and how is Ravensdown's interconnected system evolving into an effective holistic operating system?

Active leadership

Our Chair and CEO share their views on the challenges ahead.

Bruce Wills Chair / Garry Diack CEO

Leadership and partnership

New Zealand agriculture is going through tough times. What does this look like from Ravensdown's perspective?

Bruce: The New Zealand agri-industry is evolving rapidly with many new technologies aimed at productivity improvement, vastly more data flowing through and from farming systems, and significant pressure to limit the impact of agricultural practices on the environment. In addition, annualised returns in agriculture have entered a cycle of weaker farmgate returns and rising costs inside the farm gate, with record inflation affecting much of the industry.

These are challenging times and national consumption of nutrients for pasture growth and cropping returns have contracted significantly over the last year and our farmers and growers are being very prudent with respect to their fertiliser spend.

A relentless market, combined with regulatory pressure for environmentally sustainable production standards, calls for industry-wide initiatives. Ravensdown, alongside other co-operatives and the government, is responding in a major way with AgriZero^{NZ}, a public-private investment fund for greenhouse gas reduction technologies.

Garry: We also see from the contraction in purchased volumes, the continued need for precision-based technologies that allow targeted and cost-effective application of the right nutrient at the right time, in the right place, to enhance productivity.

We continue to invest in the development of HawkEye as a precision tool for on-farm nutrient decision making and placement. We continue to invest in enriched partnerships in this space, with spreading technologies for mapping, recording and monitoring. In the longer

term, the ongoing development of mitigation technologies such as a nitrogen inhibitors remains core to our business development.

It is a time for financial prudence inside the company and for targeted investments that assist our farmers and growers' productivity and environmental sustainability.

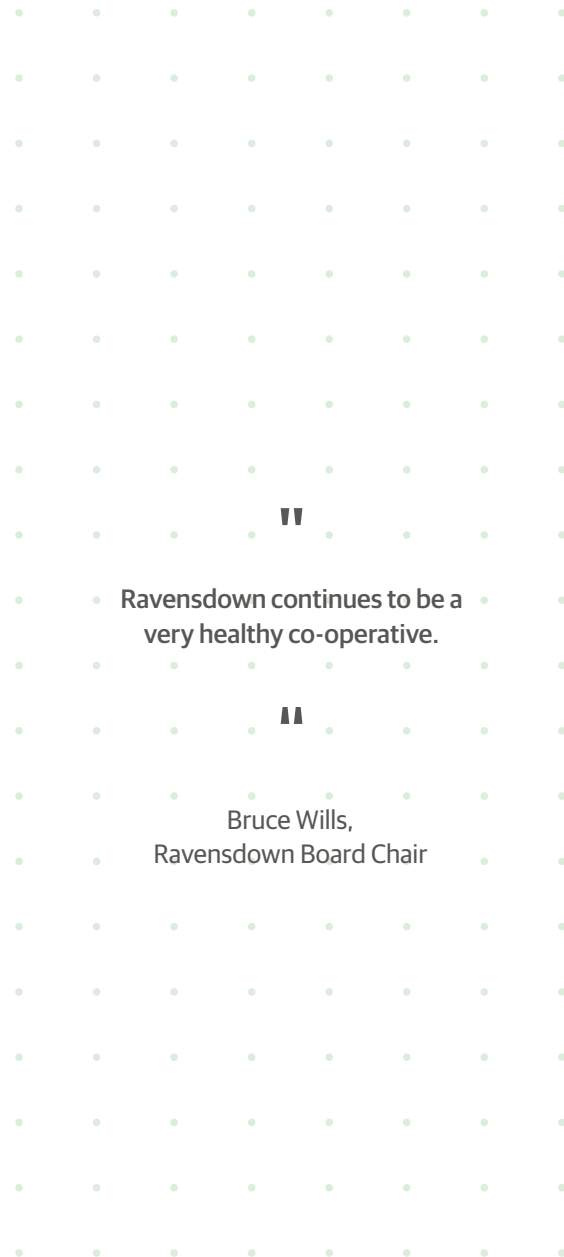
Tell us about Ravensdown's performance; profitability is at a record low for the company

Bruce: The virtually break-even result of \$429,000 from continuing operations before tax is the worst result in the history of the company. This follows the record high level of profitability of \$94.5 million last year, a substantial swing in the space of a year.

Irrespective of this volatility, we have a long-term commitment to the right nutrient, at the right price, in the right place, at the right time, for sustainable farmer and grower productivity. Once again this year, we have maintained and built upon this core purpose, shielding our customers as much as possible from significant pricing extremes.

Fertiliser volumes sold were down substantially (27%) on last year, but our revenue was pretty much static year-on-year, which tells us that in a high-price environment our shareholders and customers bought what they could afford.

Garry: Our low level of profitability reflects reduced margins and price competitiveness to ensure maximum retention of cash on-farm throughout the year.



Ravensdown continues to be a very healthy co-operative.

Bruce Wills,
Ravensdown Board Chair

Current state

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A definite low point was the need to respond to our weak profitability, with a significant cost reduction in all aspects of the business as we adjusted our business model to a future of lower volumes. The impact on people and capital spend has been significant. However, we were pleased to have met all customer demand in a year when we lost production at our Napier Works in Awatoto, first as a result of a fire and then from the impacts of Cyclone Gabrielle.

Has this difficult year had a long-term impact on the financial health of the co-operative?

Bruce: Ravensdown continues to be a very healthy co-operative. For a number of years now we have deliberately built the strength of the balance sheet, targeting greater than 65% equity as a sustainable statement of health for the business. With shareholders' equity at 74% this year and 62% last year, we are now exceeding that target, which equips us well for the current period of challenge within the industry. So, we are in good shape and the Board regards core balance sheet strength as a key priority on an ongoing basis.

Garry: We constantly manage our costs inside a defined margin policy that is hinged around competitiveness and support for the capital needs of the business. Following our recent cost reduction programme, we believe we now have a cost structure that will enable us to provide competitive prices to market, competitive remuneration for motivated staff, and sufficient funding for ongoing investments.

Like our shareholders, we have had to absorb substantial inflationary cost increases within the business this year, specifically a significant rise in interest costs. A strong operating cash flow and good funding facilities underpin a very healthy co-operative.

What part of the Ravensdown team response to Cyclone Gabrielle's were you most proud of?

Bruce: I was immensely proud to witness a great team step up – the mahi George Williams and his people did on the ground here in Hawke's Bay and Tairāwhiti was outstanding.

Obviously, nobody was thinking about buying or selling fertiliser during those times, so our people were out and about helping whichever way they could. All the shareholders I've spoken to were hugely appreciative of that.

On a more practical level, HawkEye Response gave shareholders a real-time picture of the cyclone's impact on pastures. We were then able to follow that up with practical advice around seeding and pasture recovery.

Garry: The impact of Cyclone Gabrielle on-farm was specific to each farmer.

Our agri managers showed they truly know and understand who our customers and shareholders are in their regions. They were able to meet the needs of those farmers on an individualised basis. We saw those years-long agri manager-to-farmer relationships really flourish.

Pictured at the IFA world conference in Prague are (L to R): Abdullah Al Kanhal, SABIC Director Sales & Supply Chain; Garry Diack, Ravensdown CEO; Yazeed Al Angari, SABIC Vice President; Mike Whitty, Ravensdown Chief Operating Officer; Ken Liew Senior Manager, SABIC Asia Region Sales; Emaduddin Benmahfoudh, SABIC Senior Manager Supply Chain.



SABIC

In October 2022 Ravensdown celebrated 25 years of supply and partnership with leading global fertiliser producer, SABIC, at their global headquarters in Riyadh. At the time, SABIC Agri-Nutrients CEO Abdulrahman Shamsaddin and Ravensdown CEO Garry Diack jointly looked forward to another very successful quarter century as fully integrated partners in nutrient supply. SABIC's commitment to quality and environmentally friendly outcomes means we are fully aligned on our approach to the interconnection between productivity and sustainability.

What is your most valued element of the Ravensdown strategy reviewed in this report?

Bruce: Key to our strategy are 'effective partnerships' with all our customers and shareholders in both enhancing productivity and in meeting and exceeding the environmental sustainability expectations of current and future generations of farmers and growers. We are owned by our customers and our focus is to partner on their needs.

By way of example, about half of all urea we sell today is sold as the enhanced efficiency fertiliser N-Protect. A slow-release product that reduces the risk of excess nitrogen in the soil. This product mix has been a significant change in a relatively few years, and we'll continue to pursue optionality on products that

A really good example of that was the recognition of Senior Agri Manager Sue Quilter who demonstrated the value of these relationships in spades. She was featured on TVNZ's Seven Sharp for the individualised support she was providing Gisborne farmers. It was a proud moment for all Ravensdown people.

As Bruce mentions, beyond relationships and personal support, through HawkEye Response we were able to bring some practical innovation and technological capacity to support farm recovery.

The development of HawkEye Response was another example of the business working in partnership - the digital team and customer-facing teams all drew on their own expertise to develop a tool that was of real benefit to customers.

Current state

Best for every farmer and grower

Bringing smarter farming to life

Governance

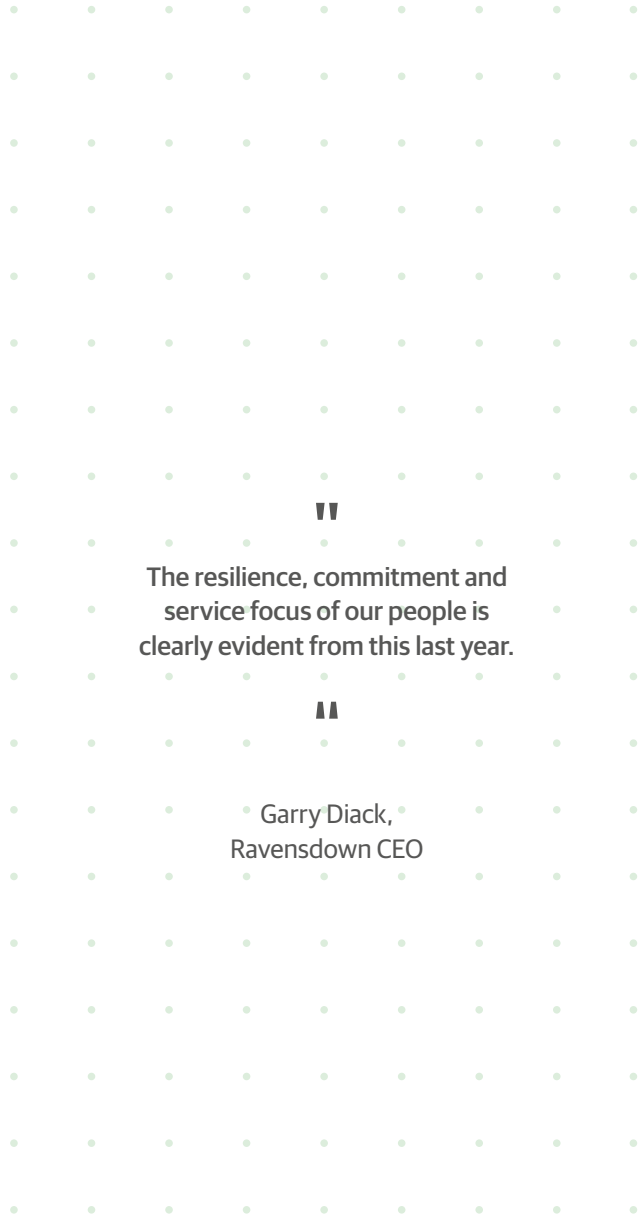
help customers meet their productivity and sustainability goals.

Garry: For me, it is our positioning of the Ravensdown service ethic, alongside being the 'go-to' for scientifically based nutrient advice and products.

Ravensdown Environmental is actively consulting on all sorts of regulatory and environmental compliance issues that weren't such a factor when the business started up a decade ago. We will continue to evolve the consultancy to address issues and ease pain points. In terms of agronomic advice, we have been supporting dairy farmers to reduce their N applications in line with the 190 kg/ha N cap set by Government and providing an easy reporting of N cap results. The higher prices of fertiliser and the softening returns for agricultural products has meant that our advice to farmers is very much predicated on stretching the fertiliser dollar's effectiveness with appropriate variable rate strategies to fit the economic parameters.

What are your key messages to readers of this report?

Bruce: At a time when the financial performance of the company is at an all-time low, this report clearly demonstrates that the company keeps progressing and that the longer-term strategy does prevail. Our supply relationships are excellent and value-laden, our ability to meet customer demand has been uninterrupted, we remain focused on the investments in technology, and our service model will support ongoing shareholder loyalty.



¶¶
The resilience, commitment and service focus of our people is clearly evident from this last year.
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Garry Diack,
 Ravensdown CEO

The Ravensdown team has responded quickly and well to this difficult period and, as discussed above, the co-operative remains strong.

Garry: The resilience, commitment and service focus of our people is clearly evident from this last year. The disruption from the impacts of a fire and a cyclone at our Napier Works in Awatoto was hugely significant, at one point even compromising the ARL Laboratory completely. The restructure process and generally tough year all-round tested the fortitude of our people across the organisation and in response they have confronted these challenges head-on.

This report is not short of tangible successes, and we all remain confident in the journey that Ravensdown relentlessly pursues - Smarter farming for a better New Zealand, *Ka pūkekotia a Rongomātāne, ka poho kererū a Aotearoa.*

Bruce Wills
 Chair

Garry Diack
 CEO

Performance scorecard /

Leadership in progress

- ▲ Positive trend compared with 21/22
- ▼ Negative trend compared to 21/22

\$0.4M ▼ 21/22 \$95M
20/21 \$52M

Profit before rebate and tax from continuing operations

Profit was impacted by lower sales volumes and higher commodity prices.

984 k tCO₂e ▲ 21/22 1.20M
20/21 1.28M

Target: 30% reduction by 2030

Carbon Footprint CY scope 3

Lower nitrous oxide emissions on-farm due to reduced demand for nitrogen/urea. Flow-on effect on international shipping, aerial spreading and road transport further reduced scope 3 emissions.

\$620M ▲ 21/22 \$609M
20/21 \$492M

Total equity

Total equity increased as a result of fair value improvements.

\$5.5M ▼ 21/22 6.4M
20/21 5.8M

Investment in research and development

R&D spend on limiting the loss of nutrients to water or atmosphere, strategy of interconnecting productivity and sustainability.

\$38M ▲ 21/22 \$36M
20/21 \$36M

Net capital expenditure

Continued targeted investment to sustain efficient manufacturing and distribution operations.

17,027 tCO₂e ▼

20/21 17,645
2018 (base year) 21,347
Target: 50% reduction by 2030

Carbon Footprint scope 1+2

Achieved a year-on-year absolute reduction in scope 1+2 emissions since the base year of 2018.

690 k ha ▼ 21/22 1.07M ha
20/21 0.82M ha

Land area captured by Ravensdown proof of placement GPS technology

Reduced land area spread was a result of less spreading activity, loss of a spreading joint venture partnership and less available flying time.

54% ▲ 21/22 38%
20/21 38%
Target: 50%

% urea sold with inhibitor (N-Protect vs urea)

N-Protect is associated with lower greenhouse gas emissions per tonne applied; lower tonnage is required for the same result.

0 ▲ 21/22 4
20/21 1

Target: 0
Total number of environmental infringements

Previously identified issues at Timaru and New Plymouth are being addressed.

74% ▲ 21/22 48.8%

Target: 100%
% applied nutrients utilising prescription mapping

Continued investment in technology to increase the proportion of product that can be spread with precise accuracy.

\$0M ▼ 21/22 \$26M
20/21 \$33M

Value of shareholder distributions including tax credits

During 2023 there was insufficient profit to declare a rebate.

Engaging with our stakeholders /

Building quality relationships with stakeholders is important to Ravensdown. Research such as the materiality assessment on page 16 connects us with stakeholders and builds an awareness around what matters most, so we can work together to meet our goals in an open and constructive way.



Customers

"We need experts we can trust to help us with our business goals."

Reliable supply is critical. Key expectations for customers include consistent, timely delivery of quality products and services. Competitive pricing, a positive culture, trusted expertise, and long-term relationships are also important factors. There's an expectation for innovative solutions that address water quality and GHG impacts, as well as quality

farm data management. Our customers expect Ravensdown to show industry leadership and tackle climate action accountability as a business while maintaining profitability.

How we engage

- In person through tailored advice from our field-based team
- Accessible, personalised remote advice from customer service teams

- On-the-ground presence at local and national events (field days and A&P shows), keeping customers informed and extending our hospitality. AGM and shareholder functions
- Regional and national sponsorship presence (New Zealand Dairy Industry Awards, FMG Young Farmer of the Year, AWDT)
- Digital channels such as apps, website and social media as well as direct communications.

14



Our people

"The wellness piece is really important after two years of Covid-19."

Our people expect health, safety and wellbeing to be of the highest priority at Ravensdown. Remuneration, benefits, diversity and working conditions, including flexibility, are important and we are also committed to using smart tools and technology to enable staff to perform their duties effectively and efficiently. Personalised training

and career development is an important aspect, supporting our people to deliver trusted advice and service in line with technology advancements and environmental regulation.

How we engage

- People and Safety Team
- Yammer (internal social media) and ravNet (intranet)
- Regular direct engagement with and by managers

- Staff and team events
- Social events and social club
- Induction, training and specialist workshops
- Leadership Team live virtual Q&A sessions and in-person roadshows or site visits plus video updates to all staff.



Supply and research partners

"Agriculture and farming will see fundamental change in the coming years."

Our partners expect relationships based on integrity and trust. We have a dedicated procurement team and host/visit suppliers on a regular basis. We need to ensure our supply chain is both robust and reliable. On the research side of

the business, the foundations of our partnerships are science-led and robust.

How we engage

- Dedicated procurement team
- Regular visits with and by our suppliers
- Collaborations with leaders at agri-science institutions
- Collaboration on sustainability with suppliers

- Work on and support a wide range of research projects to enable smarter farming and technology development.



Communities

“Putting community minds at rest by explaining any work being done and any likely impacts.”

The communities we operate in expect us to do the right thing. They need Ravensdown to continue to respond to issues raised by the community quickly and responsibly; learning, improving and taking accountability within our

reporting processes as we go. Our communities want open, transparent dialogue that results in measurable continuous improvement efforts.

How we engage

- Site-specific engagement with surrounding communities, e.g each manufacturing site has a community liaison group and stakeholder management plan

- Occasional site open days for transparent dialogue to discuss where we can improve
- ‘Lend a Hand’ day – one day a year for each staff member to volunteer in their communities
- Social media channels.

15



Iwi

“The most material issues relate to the environment because looking after our wai and whenua is the most important thing.”

Expectations are that Ravensdown becomes bicultural in our day-to-day work, having respect for cultural views in our policies and consultation processes, with the outcome of ensuring our operations are as healthy, safe, respectful and environmentally conscious as they can be.

We take an approach to te ao Māori that is based on partnership and led by Māori staff, acknowledges the interconnectedness and interrelationship of all living and non-living things and take a long-term view as kaitiaki to strive for more sustainable approaches to the use of natural capital.

How we engage

- Work initiated on Ravensdown's te ao Māori strategy. Two roopu (groups) were established

to help develop the concept: the Te ao Māori Advisory Group (currently with six core members) and the ‘Wider roopu’ (circa 30 members)

- Scheduled facilitated meetings of internal Ravensdown's te ao Māori group to discuss and implement progress
- ‘Wha Pou’ strategy presented to the Leadership Team in December 2022
- Workshops and internal communications.

Regulators

“It is important to connect back to the Government and regulators on a just transition for farmers to address concerns about climate change and freshwater quality.”

Regulators require effective management of legislative requirements including health and safety, labour and environmental requirements on our manufacturing sites and in our bulk stores.

Farm compliance increasingly requires traceability, recording and reporting of nitrogen fertiliser use as well as resource consents for farming land use and associated compliance.

How we engage

- Engage in policy development
- Active participation in council-led and primary industry focus groups
- Site-specific local liaison for major projects

- Direct engagement with central and local government at multiple levels from chief executive to policy and compliance teams
- Participation in council-led stakeholder groups, sharing knowledge and influencing policy direction as it relates to farming and our operations
- Submissions on new policy and guidance.

Materiality /

Understanding what matters most

In Integrated Reporting, a matter is material if it has the potential to affect the organisation's ability to create value over the short, medium and long term. Material matters are industry specific and include multi-stakeholder perspectives.

Material matters impact the six capitals of the Ravensdown business (refer VCM page 5) and uncover opportunities, risks, strengths and weaknesses. They are used to help inform strategic decision making within the business, to set objectives and targets, and to identify key performance indicators (KPIs). They also inform our key stakeholder relationships to ensure we are prioritising and communicating on what matters most to them.

Method

Ravensdown completed an independent materiality assessment to gauge the views of its stakeholders on a range of business priorities. A list of 22 material issues were identified using intelligence gained from business units, from stakeholder engagement activities, an operational risk and opportunities assessment, feedback from industry groups, UN Environment Programme's corporate impact analysis tool and historical analysis of company performance. A range of stakeholders within and outside the business were surveyed and interviewed.

Respondents were asked to:

1. rate the importance of each issue to the value Ravensdown creates over the short, medium and long term
2. rate Ravensdown's performance in managing each issue
3. select the top three priorities for Ravensdown to focus on.

Materiality is reviewed annually and third-party assessment is done bi-annually.

Results

Our materiality matrix (below) illustrates the relative importance of material issues based on the value Ravensdown creates, as defined by internal and external stakeholder views.

MATERIALITY MATRIX

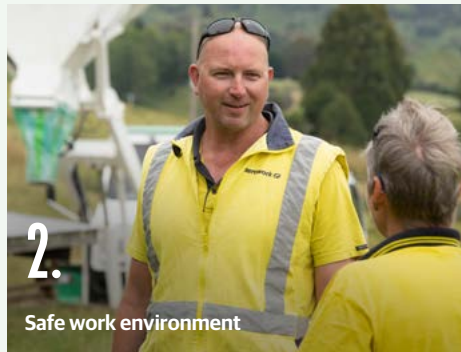


The top three overall issues defined were reliable supply, a safe work environment and a positive culture, followed by trusted experts, leadership and direction, innovative solutions and trusted relationships. The top 10 material issues were rounded out by operational environmental impacts, climate action and profitability. These are the themes that you will notice throughout the report. They also feature in the risks and opportunities section (page 76).

We asked for an indication of how we are doing in relation to each material issue and assessed internal vs external views. We were pleased to see close alignment between internal and external stakeholder materiality supporting the direction of our business strategy and indicating a solid understanding of stakeholder views and priorities at this time. There were also some specific differences in priorities for different stakeholder groups. For example, farmers placed more importance on trusted experts and leadership and less on climate action and operational environmental impacts.



1. Reliable supply



2. Safe work environment



3. Positive culture

United Nations' Sustainable Development Goals

At Ravensdown we recognise the **critical role** of business in helping to achieve the UN Sustainable Development Goals (SDGs). The specific **SDGs** that are important to us and that we set out to have an **impact** on are referenced throughout the Integrated Report.

We have evaluated our business against the UN's SDG indicators (listed in colour, right) and will continue to be **transparent** about how we are performing against these indicators.



Resilience /

Cyclone Gabrielle – a reset for ARL

In February 2023, Cyclone Gabrielle brought devastation to Hawke's Bay and Tairāwhiti Gisborne causing flood damage to Ravensdown's Napier site and the ARL premises. The building was flooded and equipment severely damaged, much of it beyond repair.

However, it remained important for the ARL team to provide an uninterrupted service to customers throughout this time. They managed this by subcontracting and operating soil sample preparation and drying from a temporary premises at Plant & Food Research in Havelock North.

Fast forward and the conversion of an old bank building in central Hastings into a new lab space with new equipment is almost complete (pictured).

As a business we wish to acknowledge the massive amount of work and time that has gone into the recovery phase and the perseverance and determination shown by former Laboratory Manager Will Bodeker and the team at ARL, improvising, supporting each other, and keeping ARL up and running in the face of severe adversity.

About ARL

ARL helps deliver the essential testing service for farmers and the wider community. A subsidiary of Ravensdown, ARL is managed under Agnition, Ravensdown's commercial innovation arm and processes as many as 80,000 samples, mainly soil, every year.



ARL's lab space in central Hastings – all set up and ready to go.



Flood damage at ARL's Napier site.



Section /



19

20
Interconnecting productivity
and sustainability

Systematically meeting our customers' soil nutrient needs

Interconnecting productivity and sustainability /

Interconnecting two of the biggest agribusiness drivers for farmers and growers in New Zealand is ongoing. Our evolving approach combines our embedded science-based ethos and best-known legacy products with new products and innovation, deep data-driven knowledge, and the personalised expertise that long-term relationships yield.

For nearly 50 years, Ravensdown has sourced, mixed and developed the nitrogen- and phosphate-rich products that have transformed our farmlands into some of the most productive in the world. More recently we have diversified our product offering to include technologies that focus on sustainability, such as IntelliSpread and GHG mitigation research.

Our recent focus has been how we best bring these products and smart technologies together, customised for the current and long-term needs of farmers and growers, to achieve their productivity and sustainability goals over time. We add further value through our knowledgeable relationships, and advice that removes any guesswork.

By fusing what we know about each farm with what we know about all farms, farmers and growers can access a specific solution suite, unique to their situation and timeframes, that addresses their business' soil nutrient needs systematically.

Our solutions can span annual, generational and even intergenerational timeframes, depending on the cycle of ownership and investment dynamics. They can map against geographic demands, such as adjacent waterways, soil variations, topography and more.



Interconnecting Productivity & Sustainability

Our next generation technologies represent the future – products like SoilScan, EcoPond and coated urea N-Protect enable productivity and sustainability within a single offering.

Every farming family is at a different point in their journey and constantly aligning and refining what their business needs. Our interconnected system of products, advice and technology offers our customers the opportunity to access sophisticated solutions – from next season to the next decade and beyond.



Productivity and sustainability come together to address agriculture's most pressing concerns.

Case study / Interconnecting productivity and sustainability / Agnition

01.

Igniting grass-roots innovations to assist growers in reaching their productivity and sustainability goals, Ravensdown's new commercialisation entity Ravensdown Ventures Limited, trading as Agnition is an innovative move for the co-operative.

[Read more >](#)

Agnition brings smarter farming to life

Agnition will work with Cropmark Seeds, supporting delivery of quality cultivars with improved yield, greater nutritional value and disease resistance.

Material issues:

- Climate action
- Innovative solutions
- Farm environmental impacts
- Leadership
- Sustainable agri



Ravensdown subsidiary, Ravensdown Ventures Limited, trading as Agnition, has been formed to take innovations to farmers faster. Pictured: Agnition Chief Executive Jasper van Halder.

agnition

Ravensdown has a solid track record for recognising, researching and bringing to fruition technologies and services that enhance our shareholders' abilities to farm smarter. To take this to the next level, we've formed Agnition to build, grow and invest in world-leading Ag-IP and innovations in soil health and nutrient management, turning them into valued products and solutions.

CEO Jasper van Halder is leading Agnition's team. "Food production is becoming increasingly complex and its future less certain due to environmental, regulatory, financial and societal obligations," he says. "To ensure farmers and growers are here for the long term, we need to bring smart, tested and practical solutions to market faster.

"Getting innovations onto farms at scale is notoriously difficult and it's near impossible for farmers and growers to assess whether new technologies actually work or not.

"Agnition can do that assessment for them and share the best innovations, first with our network of pilot farms, and later with our full customer base. This will help our farmers get the most out of their businesses and secure a bright, sustainable future for our farmers, growers, their communities and our motu."

Agnition champions the sustainable future of farming by:

- finding, testing, and commercialising technologies and solutions that benefit farmers and shareholders
- accelerating the growth and transformation of existing investments in innovative companies such as Cropmark Seeds, Southstar Technologies, C-Dax and

ARL, and in homegrown technologies such as EcoPond

- discovering new opportunities and solutions to take to market
- investing in promising early stage AgTech ventures
- working closely with Ravensdown's science team to support research, development and commercialisation activities
- assisting agri managers, operations and the supply chain team to get new technologies out to farmers
- building a network of pilot farms and creating an environment for testing and developing new technologies on farm.

Case study / Science and innovation / N-Bio Boost research

02.

It's sometimes said that good things come in small packages, and ongoing collaborative research between Ravensdown and Lincoln University into naturally occurring soil microbes (fungi) has suggested these microbes may have the power to reduce atmospheric greenhouse gas (GHG) emissions and nitrogen (N) losses to waterways.

[Read more >](#)

Harnessing the power of soil microbes

N-Vision NZ, a Ravensdown research programme co-funded by the Government's SFFF initiative, aims to help farmers reduce nitrogen and GHG losses.

Material issues:

- Climate action
- Farm environmental impacts
- Innovative solutions
- Leadership
- Sustainable agri





Lincoln University researchers Dr Hossein Alizadeh and Professor John Hampton measure emissions on the N-Bio Boost trial site at Lincoln University.

24

One of the projects in Ravensdown's \$22 million cash and in-kind seven-year Sustainable and Food Fibres Future (SFFF) initiative is N-Vision NZ. Lincoln University researchers Dr Hossein Alizadeh and Professor John Hampton discovered natural strains of fungi will reduce the activity of specific N-transforming microbes when applied to soil. The researchers have isolated, multiplied, then added the microbes back into the soil to boost their naturally occurring activity, and the research outcomes are promising.

Known as N-Bio Boost, this research offers a practical method to reduce GHG emissions and N contamination of waterways, while increasing plant resilience in water and pathogen-stressed environments.

The microbes occur naturally in soils at low levels and are involved with nitrogen cycling and losses. On a deeper level, they are associated with slowing the conversion of urea into ammonium and from ammonium into nitrate – the latter of which can have harmful effects on the wider environment in the form of nitrate leaching and nitrous oxide gas emissions.

The researchers have measured the reduction in the conversion of urea to ammonium and Professor Hampton says that following application of these beneficial microbes to soil, the reduction in the pace the applied urea breaks down to ammonium reduces N losses, thus more available for plant uptake.

"Pasture with added beneficial microbes, and therefore more available ammonium, produces more dry matter more quickly than pasture without."

As well as enhancing pasture growth, more efficient use of applied N reduces N loss through leaching and emissions.

While the initial research has shown promise, the challenge will be whether the biological solution can demonstrate long-term viability in the field. Farmers face considerable ongoing challenges around the environmental impact of their land use, manifested in current and emerging government regulation intending to address environmental impacts. N-Vision NZ seeks to apply leading-edge science and technology to develop tools for on-farm use. These tools will provide farmers options to maintain profitability while minimising the environmental impact of their land use.

Case study / Science and innovation / AgriZero^{NZ}

03.

The importance of reducing emissions in agriculture cannot be overstated.

Our industry's global customers are setting ambitious greenhouse gas reduction targets, and if we can't meet these targets, export revenue underpinning the New Zealand economy may be under threat.

Leveraging cross-industry relationships and expertise, we are acting and investing to secure farmer futures.

[Read more >](#)

Partnering to secure futures

AgriZero^{NZ} has been set up to be a problem solver and value creator for the primary industry.

Material issues:

- Climate action
- Farm environmental impacts
- Innovative solutions
- Leadership
- Sustainable agri





Members of the AgriZero^{NZ} dignitaries group with former PM Jacinda Ardern at 2022 Fieldays, Hamilton.

AgriZero^{NZ}
Powering zero emissions agriculture

26

This year Ravensdown was one of seven sector leaders to form Centre for Climate Action Joint Venture Limited, trading as AgriZero^{NZ}, a world-first partnership between Government and agribusinesses to help New Zealand farmers maintain their competitive advantage.

The line-up of partners collectively represents around 70% of New Zealand farms. Alongside Government, ANZCO Foods, Fonterra, Rabobank, Ravensdown, Silver Fern Farms, and Synlait together embody the full spectrum of the food and fibre industry, giving insight and access to the entire farm-to-consumer-to-investor value chain like never before.

AgriZero^{NZ} Executive Director Wayne McNee, said the Joint Venture was set up to be a problem solver and value creator for the industry.

“Collectively, we’re working to ensure all New Zealand farmers have equitable access to affordable, effective solutions to reduce biogenic methane and nitrous oxide emissions. The ambition is a 30% reduction by 2030 and enabling development and adoption of solutions to drive towards ‘near zero’ by 2040.”

Since it was established in February, up to 31 May 2023 AgriZero^{NZ} launched two high-impact opportunities to bring emission reduction technologies to market:

- In March, a \$1.8 million investment in Ruminant BioTech, a New Zealand-based start-up developing a slow-release, biodegradable methane-inhibiting bolus.
- In May, \$2.5 million to support the research underway in New Zealand to develop a methane vaccine and methane inhibitors for livestock.

The AgriZero^{NZ} partners have made a funding commitment that will rise to over \$30 million a year by 2025. Matched by Government it will see about \$165 million invested over the next four years.

“With plenty of other opportunities already in the pipeline, we expect to make further investments soon and continue to welcome interest from potential new shareholders and strategic partners,” McNee said.

Section /



28
Our people

40
Product quality and reliability

49
Relentless service

53
Environmental action

60
Smarter technology

68
Community commitment

72
Finance at a Glance

Our ongoing quest to be the best partner we can for farmers and growers

Our people /

Proud to be a people-focused business

This past year we've responded to two significant events in the Hawke's Bay region - first a fire at the Napier Works in September 2022 which impacted production and staff, then February's Cyclone Gabrielle, which had widespread impacts with flooding damage to sites, communication issues, and travel restrictions.

Recovery from both involved a massive response effort from team members, and a special acknowledgement goes out to those in the regions who have shown resilience and worked through adversity. Thanks also to those who worked tirelessly to ensure minimal disruption to manufacturing and supply while Napier was out of action.

Health, safety and wellbeing at Ravensdown

Ravensdown's health, safety and wellbeing (HS&W) strategy centres around visible leadership, a culture of empowerment, and critical risk management, as well as simplified systems and assurance: cornerstones for how we create successful partnerships. In a wider business context, HS&W is threaded into everything we do. Responsibility exists at every level to maintain HS&W as a value, something we don't negotiate on.

Our HS&W vision is ensuring our people get home safe and well to their loved ones, and the focus on our staff has remained the highest priority - not only physical wellbeing but mental too.

We've increased focus on Critical Control Verifications this year. This involves scheduling inspections to verify that controls are in place, documenting the inspection results, and instigating corrective actions when needed. We've also focused on health risks, with a testing campaign underway to determine inhalation risk to staff and noise exposure levels. Critical Risk Standards have been developed further with lifting, driving and wellbeing standards released. A deep-dive assessment into sulphur was completed, and for the third year running, we've achieved tertiary-level accreditation as part of the ACC Accredited Employers Programme audit, which includes an in-depth review of our injury management practices.

Health, safety and wellbeing are threaded into everything we do at Ravensdown.





Thrive wellbeing programme

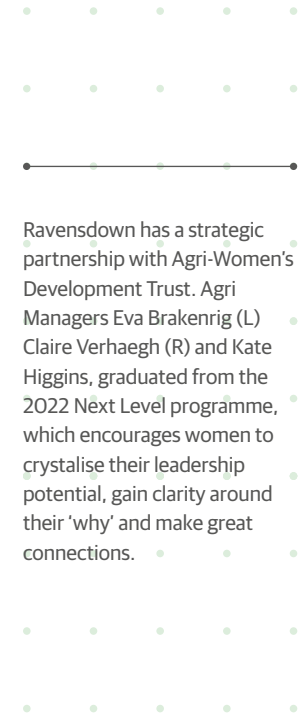
Wellbeing

Wellbeing relates to a person's mental, physical, and emotional health. At Ravensdown, wellbeing is ensuring our people are safe and healthy - helping them thrive at work and at home.

29

Alongside ongoing fatigue management work, we have developed the Wellbeing Framework, which takes a risk-based approach to assess an individual's ability to maintain their wellbeing. We also released our Mental Wellbeing Bow Tie Risk Assessment as part of the Wellbeing Standard. A Post-Critical Incident guide has been created as part of the Wellbeing Response/Support Plan, and we've further developed The Wellbeing Continuum - a representation of wellbeing health levels, signs to look out for, and assistance that may help.

We've revamped the Thrive wellbeing homepage, which now includes advice on te hinengaro - mental health, te tinana - physical health, whenua - connection with the land, te wairua - spiritual health and te whanau - family health. Our external support relationships include specialist consultants, OCP, Southern Cross Healthcare and Need to Talk '1737' -



Ravensdown has a strategic partnership with Agri-Women's Development Trust. Agri Managers Eva Brakenrig (L) Claire Verhaegh (R) and Kate Higgins, graduated from the 2022 Next Level programme, which encourages women to crystallise their leadership potential, gain clarity around their 'why' and make great connections.

offering peer support, advice on alcohol/drugs and gambling, and relationship counselling.

Learning and development

Providing formal sales training support for agri managers and the customer centre was a highlight this year. The Smarter Selling initiative helped new employees build relationships with existing shareholders and gain confidence in seeking new business. All agri managers have now completed the training and it has been well received, driving us toward our strategic goal of relentless service.

Building our te ao Māori future

Ravensdown has undertaken an initial project to identify the role te ao Māori (the Māori world view), mātauranga Māori (Māori knowledge) and Māori engagement and partnerships will play in our future organisation and ecosystem.

In 2022, the 40-strong te ao Māori Working Group worked to identify how Ravensdown can embed te ao Māori in an organisational context. They identified a set of core values aligning Ravensdown's current values with a Māori world view.



By building our understanding of te ao Māori, we can start integrating these values, concepts, and practices into our ways of working, and will deliver on the vision where “we meet our customers’ needs across a wide spectrum, helping farmers and growers develop smarter ways of farming that are good for their land, good for their bottom line, better for New Zealand, and good for future generations”.

*Manaaki whenua, manaaki tangata, haere whakamua.
If we take care of the earth and take care of people, we will take care of the future.*

Members of our internal te ao Māori Advisory Group with CEO Garry Diack. L to R: Marquis Hape, Sarah Trevethick (facilitator), Allannah Kidd, Garry Diack, Ceryse Rawson, Mah Tekani, Mere-Ana Walsh, Marlane Harmer. Absent: Anton McKay, Fabian Kopu, George Williams.

Culture

Our culture is such that there are many in our business who dedicate the majority of their careers to us. In fact, there are 62 employees who have been with Ravensdown for over 20 years.

One was our former Chief Financial Officer Sean Connolly, who finished with Ravensdown at the end of 2022. Sean was instrumental in the development of Integrated Reporting within the business, which serves to tell our whole environmental, social and corporate governance (ESG) story.

“The direction became about helping farmers and the industry do the right thing by themselves, and therefore New Zealand,” says Sean. “We were still the same co-operative with the same shareholders, but we were reflecting their changes and helping execute them.

“Integrated reporting helps define what are we trying to achieve and measure whether we are achieving it. The other important thing is ensuring the right flavour for your stakeholders. Ravensdown has been deliberate in saying we are in the industry of agriculture; we focused on that and created a report that represents our story.

“Ravensdown is a complex company that does some exciting work. Integrated reporting is the way to sell it as a company - not just to the government and regulators, but to new staff, potential suppliers, and R&D stakeholders.”

Workforce

A case for change - organisational redesign

We have undertaken a critical review of the core of our business to ensure it lines up to the lower market volumes we're expecting for the foreseeable future, and we've made changes to drive efficiencies and reduce costs.

We've focused on ensuring we have the skills and capabilities to deliver our strategy into the future; an organisational design to support a more targeted approach to customer service and delivery; and an appropriate level of resourcing for a lower volume of tonnage.

Following the outcomes of a comprehensive consultation and feedback process for potentially impacted employees, we implemented an alternative downsized organisation structure. It is from this position we believe we have created an organisation of the right capacity and capability for the future.

The impact of the organisational redesign on our staff has been and remains significant. Delivering a high-quality service in changing market conditions and absorbing such a fundamental change in work practices has demanded resilience and patience from our very committed and passionate employees. We did not get all the decisions right and relied heavily on the consultation process. We are grateful for our employee support and for the way in which they have integrated this disruption into their commitment to serving our shareholders and customers.

Current state

1.2 ▼

Lost-Time Injury Frequency Rate
2021-22 **0.68**
2020-21 **1.78**



2.80 ▼

Total Recordable Employee Injury Frequency Rate (per 200,000 hours)
2021-22 **2.13**
2020-21 **3.56**



\$0.63M ▼

Spend on learning & development
2021-22 **\$0.92M**
2020-21 **\$0.95M**



Best for every farmer and grower

32% ▲

Internal appointments
2021-22 **29%**
2020-21 **33%**



18% ▲

Employee turnover
2021-22 **19%**
2020-21 **12%**



7,742 ▼

Learning hours
2021-22 **8,611**
2020-21 **4,582**

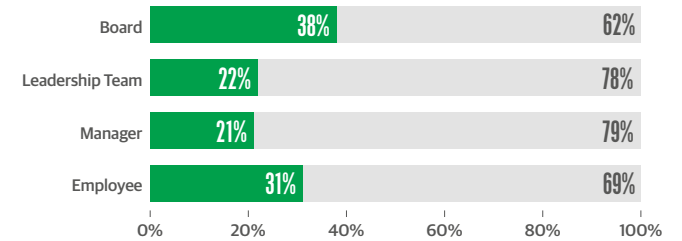


Bringing smarter farming to life

Governance

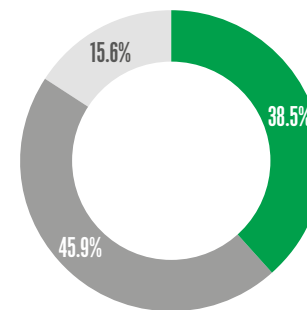
DIVERSITY BY GENDER

Female Male



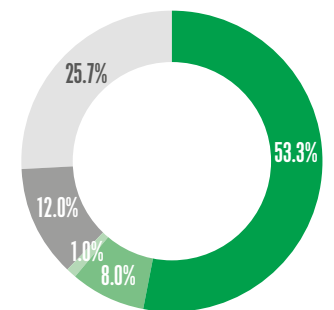
AGE RANGE

<40 40-59 >59



ETHNICITY

NZ European Māori Pacific Other Unknown



Showing leadership at all levels

Agri Manager Eva Brakenrig with
Brett Steeghs, Stone Country
Dairies Ltd, Taupō.

Case study / Our people

04.

When Cyclone Gabrielle wreaked havoc on the upper North Island, Ravensdown's Awatoto plant and ARL laboratory were forced to close due to flooding. With the locals left reeling, a renewed sense of community emerged from the chaos, along with a commitment by Ravensdown to also help others whose lives were impacted.

[Read more >](#)

Hope rises from devastation

The sun rises over hill country near Waipawa, Hawke's Bay.

Material issues:

- Climate action
- Leadership
- Trusted relationships





Ravensdown's East Coast team members came together to pick corn on the flood-affected Ngawapurua dairy unit. Located between Mangatainoka and Woodville, the 215ha farm donates sweetcorn to the local community. Within hours, corn cobs were ready for delivery to those in need in the Hawke's Bay.

Pictured left: Senior Agri Manager Tom Addis at work in the cornfield.

"The Ravensdown team also picked an entire field of corn and delivered it for distribution to community groups," George says.

"It was resilience and teamwork that got us through challenging times and it's ultimately teamwork that will get the community back on track ready to face the future."

For Gisborne-based Senior Agri Manager Sue Quilter, lending support to sheep, beef and cropping farmers in the form of knowledge around silt and slip recovery options is important for a rapid return to productivity.

"Silt left from the flooding covered what was once productive farmland. Helping farmers to understand what that means and developing a recovery plan, such as replanting areas, introducing organic matter, and potentially removing silt, will aid in returning the land to what it was."

While it could take three years to recover, Ravensdown is committed to partnering with farmers and sharing its wealth of knowledge and expertise.

Regional Manager George Williams has lived on the East Coast for most of his life. Having experienced Cyclone Bola, he understood the devastation and support that would be needed post Cyclone Gabrielle.

"It's a strong sense of community, service and support that gets people through situations like this."

In the immediate aftermath of Cyclone Gabrielle, George and the Ravensdown team swung into action, checking on business sites and the wellbeing of others, then co-ordinating an expanded outreach to check on the

welfare of the farming community. Information they picked up about affected areas and requests for urgent supplies were communicated to authorities.

Understanding the immediate needs of affected farmers led Ravensdown to fund a topdressing pilot to do delivery drops of food, medical supplies and other items to isolated properties.

"To further assist, we helped co-ordinate and participated in a clean-up programme of properties in Waipawa and the Esk Valley.

Supporting all farmers and growers . . .

Bringing products and smart technologies together, customised for the current and long-term needs of farmers and growers.

Our people / Meet the Board /

**Bruce Wills**

Elected Director Area 4
B.COM (Ag) , CMIntD

Bruce farms sheep and cattle and grows grapes in Hawke's Bay, having previously spent 20 years in banking and investment. A past national president of Federated Farmers, he also holds a range of other governance positions.

David Biland

Appointed Director
B.Ag.Sci, Dip.Hort.Sci.

David is based in Auckland and holds governance roles in the farming and animal health/pet food sectors. He has held international management and governance roles in the UK, EU, US, Australia and New Zealand, including with New Zealand multinational Argenta and animal health multinational Merial.

Jason Dale

Appointed Director
B.Com

Jason is Chief Commercial and Financial Officer of NZ Steel and Chair of Southbase Construction and Crest Commercial Cleaning Limited. He has previously served as CFO for several large companies and chaired both LIC and Taranaki Investment Management Limited's audit committees.

Mike Davey

Elected Director Area 5

Mike is a cropping farmer, an elected representative of the Taranaki Regional Council, Chair of Taranaki Electricity Trust, Director of Taranaki Health Trust, retired director Taranaki Hospital Board. He was a Ravensdown employee for more than 40 years.



Nicky Hyslop

Elected Director Area 2
B.Ag.Sci (Hons)

Nicky farms an intensive sheep, beef and arable property in South Canterbury. She was a farm management consultant for 15 years. She is an experienced governor, including directorships with Opuha Water, Irrigation New Zealand and Beef+Lamb New Zealand.

Jane Montgomery

Elected Director Area 3
LLB (Hons)

Jane owns a North Canterbury farm. She is an intellectual property lawyer, previously an associate director with AgResearch and a former chair of the audit and risk committee for the JR McKenzie Trust.

Pete Moynihan

Elected Director Area 1
B.Ag.Sci.

Pete is an Invercargill-based dairy farmer and company director. He has directorships with The Power Company, PowerNet, OtagoNet JV and Southern Generation. His prior experience includes a role as a senior banker and manager of the South Island agribusiness division of a large bank.

Jacqueline Rowarth

Elected Director Area 6
B.Ag.Sci (Hons), PhD Soil Science,
CNZM, HFNZIAHS

Jacqueline is involved in dairy, deer and maize in the Waikato. She is a director of DairyNZ, Deer Industry New Zealand and NZ Animal Evaluation Ltd. She holds the honorary position of Adjunct Professor with Lincoln University.

Our people / Meet the leadership team /



38

Garry Diack
Chief Executive Officer

"The essence of a co-operative is pursuit of the greater good on behalf of a collective with a common purpose. Success requires excellence in relationships, in partnerships that make a difference, and in the necessary insight to bring benefit on a sustainable basis. Smarter farming for a better New Zealand is that common purpose. We all believe in it."

Katrina Benedetti Forastieri
Chief People and Safety Officer

"We're building a performance culture and capability that includes 600 CEOs of safety, with the right people in the right place, doing the right things that contribute to delivery of our strategy."

Gary Bowick
Chief Customer Officer

"Genuine business partnerships that drive productivity and growth are built on deep relationships. We're standing with our customers inside the farm gate. With customer experience at the core, we are working harder and smarter to meet and exceed farmer and grower expectations, today and into the future."

Kevin Cooney
Chief Financial Officer

"Strategy without a plan is a dream and a plan without action is a wish. We work with the business to plan, prioritise, track, measure and report on the initiatives and actions that will deliver our strategy."

Jasper van Halder
CEO Agnition

"We're finding, building, and investing in innovations that will help our customers be more profitable, sustainable and efficient. We're sourcing local and international technologies that make a real difference on-farm while also generating returns for our shareholders."



Jennifer Goldsmith
General Counsel

"Underpinning the integrity of the co-operative, corporate affairs supports the Board, the leadership team and the wider business. As well as ensuring Ravensdown acts in accordance with the law, we are champions of open and honest shareholder communication."

Mark McAtamney
Chief Digital Officer

"As well as simply putting time back into their day, we're delivering practical digital innovation to support customers' on-farm productivity and sustainability goals. Collaborating with industry partners whenever practical, we lead the way with smarter ways of working."

Mike Manning
Chief Science Officer

"Robust science remains at the core of the Ravensdown business. From the advice we deliver, to the research we invest in or new products and services we evaluate - we ensure all our customer solutions are grounded in science."

Mike Whitty
Chief Operating Officer

"We're actively working across the supply chain to drive product surety and quality, while also driving environmental and safety outcomes. Operating within the 'new normal' of geopolitical disruption, the team is laser-focused on improving cashflow and efficiency for customers."

Anna Wilkes
Chief Environment &
Sustainability Officer

"Meeting our environmental, social and governance obligations requires a strong commitment and ongoing investment. Adapting our business to meet changing regulations and community expectations helps us to help our farmers and growers do the same with theirs."

Product quality and reliability /

Remaining agile in challenging times

Despite weathering some challenges in the past year, Ravensdown remains committed to meeting our shareholder needs through ensuring product quality and reliability. Our delivery of this promise enables our shareholders to meet their productivity and sustainability needs on-farm, with products that are fit for purpose, suitable for New Zealand conditions and available when needed.

Product quality

Global access to preferred product continues to pose challenges, and as a matter of course we've explored some secondary sources for product in the past year. However, a fire in our Napier manufacturing plant pushed us to explore options quicker than we had anticipated.

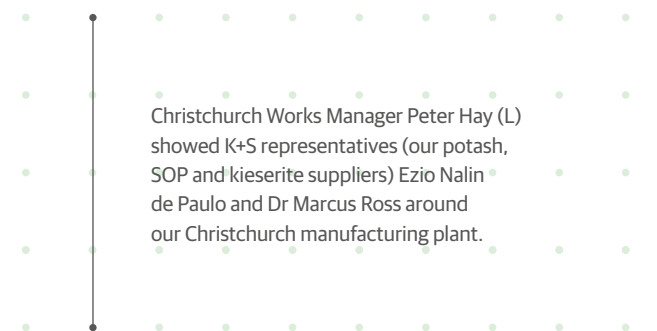
Political, social and economic reasons have seen us working towards broadening our phosphate rock supply base, but buying product from secondary sources can mean increased risk around product quality and timing, some of which we've faced over the past year.

In September 2022, a fire in Napier's Awatoto plant shut down manufacturing and fast-forwarded by six months our project to trial alternative phosphate rock sources. Under normal circumstances, the project would have scheduled gradual introduction of different rock blends to ensure quality was meeting our standards.

Much of the Western Sahara product on hand (Bou Craa) had to be moved to other plants to cover manufacturing shortfall, meaning we exhausted supply quicker. This led to issues around quality of product as sites handled unfamiliar rock types. To help ensure supply for the autumn, the team trialed a new phosphate rock source from Ardmore Mine in Queensland, Australia (see page 47) which arrived in December.

In the interim, we have continued to develop supplier relationships, with trial shipments from new sources for urea and ammonium sulphate. Long-term suppliers SABIC (urea) and K+S (potash, sulphate of potash and kieserite) visited us at Hornby earlier this year. On the home front, our coated urea product N-Protect, which can be blended with ammonium sulphate, is now manufactured at seven sites across the country.

We realise how important both chemical and physical quality is for farmers and spreaders, and while quality this year hasn't always met our targets due to lack of access, our relationships with preferred suppliers and technical expertise in manufacturing remain key for us. We continually strive to meet high standards and look forward to getting back to the consistent supply of quality products.



Christchurch Works Manager Peter Hay (L) showed K+S representatives (our potash, SOP and kieserite suppliers) Ezio Nalin de Paulo and Dr Marcus Ross around our Christchurch manufacturing plant.

Supply chain

International supply chain pressures remained prevalent through much of 2022/23, but an overarching positive from a supply chain point of view has been our ability to largely maintain supply under extremely challenging conditions.

Dealing with global issues over the past three years has helped prepare the team for decision making under pressure and we remain agile in our exploration of alternative product sources. Over the past 24 months we've worked to purchase earlier to offset the supply chain disruption. However, demand in autumn 2022 was lower than anticipated on some of our high analysis products, resulting in product being held over into spring 2022.

Global trade and policy pressures aside, high shipping costs, Covid-19 delays and national supply chain resourcing issues have continued to pressure our supply chain. We have seen an easing as we have moved into 2023. Labour shortages across New Zealand's ports and stevedore services, compounded by immigration settings and the reintroduction of the cruise industry, have resulted in port congestion and slow discharges across most ports.

On a positive note, there's been a more recent reduction in shipping and container rates over the last quarter and we've managed to capitalise on this by sensible contracting of our container shipping. In the first half of the year when shipping rates were still very high for bulk products, our position as a volume purchaser coupled with contracted rates with joint-venture bulk supplier Ravensdown Shipping Services (RSS) protected us significantly from market forces and disruptions.



With our Napier Works site not able to manufacture since late September (other than a brief 10-day period prior to the cyclone), our South Island works' teams stepped up and took on extra manufacturing to ensure we had product for the North Island, with very few disruptions. A lot of work has gone into the Awatoto fire and Cyclone Gabrielle recovery, and our processes and crisis response will be improved because of it. A wharf refurbishment at Ravensbourne in Dunedin (see page 45), will further strengthen our commitment to efficiency and a lower carbon footprint, allowing us to keep trucks off the road.

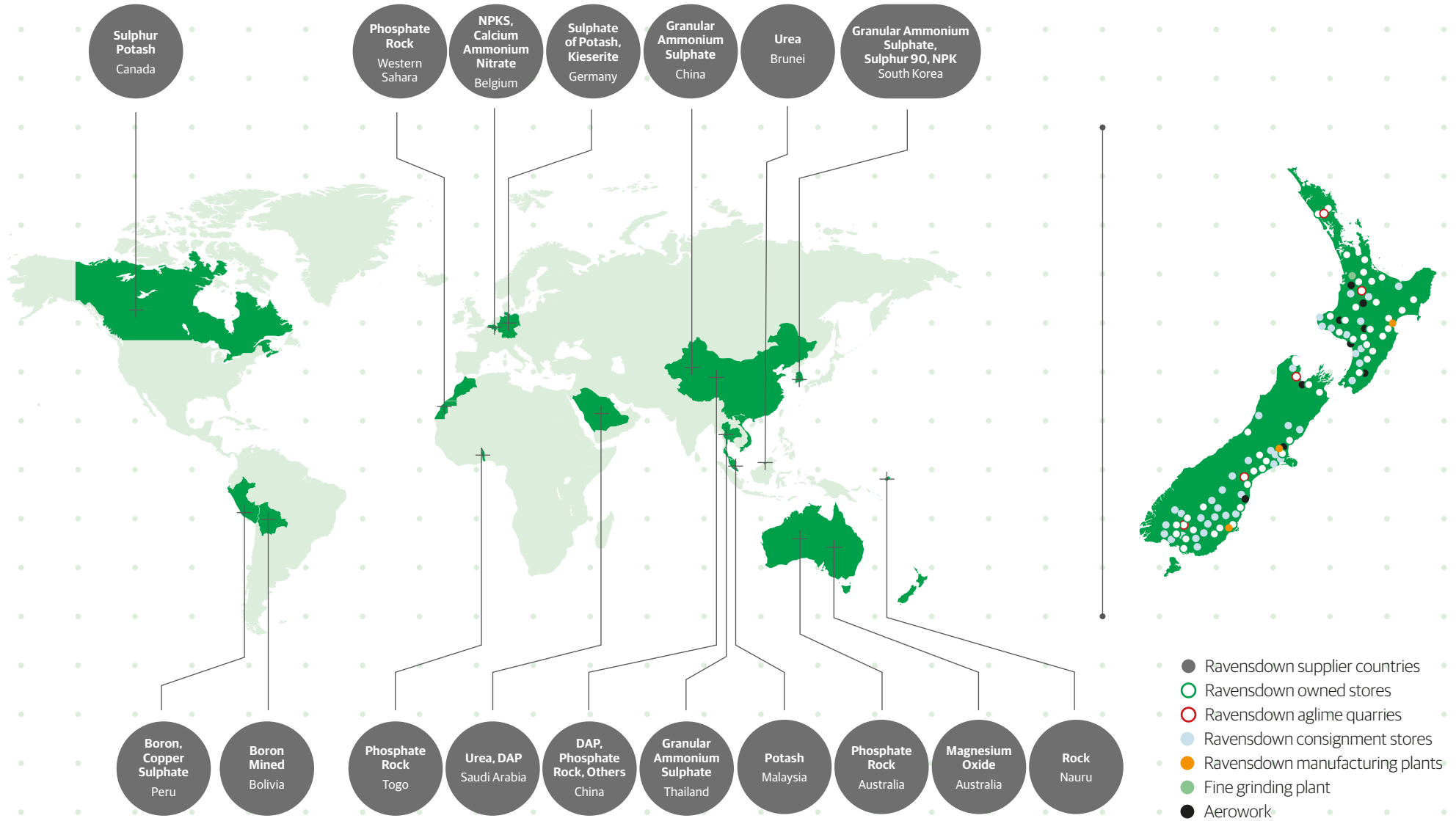
The crew of the RSS Rose Harmony in their Ravensdown PPE gear.

Current state

Best for every farmer and grower

Bringing smarter farming to life

Governance



Human Rights

Ravensdown's commitment to human rights is described in our Code of Business Conduct. It is demonstrated by our adoption of the United Nations Guiding Principles on Business and Human Rights (UNGPs) and the Human Rights chapter of the Organisation for Economic Co-operation and Development (OECD) Guidelines for Multinational Enterprises. These values are mirrored in our Supplier Code of Conduct.

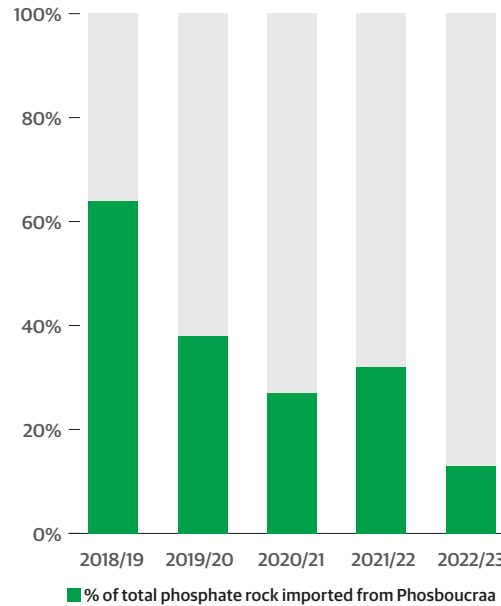
As part of our undertaking to do business with suppliers that have a strong commitment to ethical standards regarding business conduct, workplace health and safety, sustainability and environmental protection, human rights, and fair pay and conditions, we have taken some significant steps in 2022/2023.

In October, CEO Garry Diack and Chief Operating Officer Mike Whitty visited the operations of one of our key phosphate rock suppliers in Western Sahara. This visit was a continuation of the human rights assessment we have been undertaking on our procurement process over a number of years.

We continue to seek ways to diversify our sources of phosphate rock and in doing so reduce our reliance on the quality Bou Craa rock from Western Sahara.

In our own operations, we have also progressed trials of new and emerging sources of phosphate rock to ensure we have strong levels of resilience within our supply chain to meet our customer requirements for superphosphate.

This year, we also engaged independent experts to assist Ravensdown in the implementation of its human rights









and related policies including appropriate human rights due diligence and grievance mechanisms. We completed a preliminary assessment of where human rights and labour risks lie within the Ravensdown business and supply chain, based on a combination of supplier, product, and country risk factors.

The 2023/24 programme of work will include a workshop to determine salient human rights risks and develop our risk map of human rights issues as a basis for engagement, planning and action.

In undertaking this work we aim to achieve a systematic, proactive approach to assessing and responding to risk and to policy and decision-making for human rights. Our Enterprise Risk Management (ERM) system assists to govern and guide the ongoing management of human rights related risks. Supporting policies are listed below:

Ravensdown's supporting policies

 <p>Diversity, Inclusion and Belonging Policy</p>	 <p>Flexible Working Policy</p>	 <p>Anti-bullying and Harassment Policy</p>
 <p>Safety and Wellbeing Policy</p>	 <p>External and Internal Privacy Policies</p>	 <p>Risk Management Policy</p>



Ravensdown remains committed to meeting our shareholder needs through ensuring product quality and reliability.

Case study / Supply chain / Ravensbourne Wharf

05.

A \$6m refurbishment of the 90-year-old Ravensbourne wharf in Otago has breathed new life into the structure, meaning as many as 7,000 truck movements will be removed from using the road each year – good news for the environment and surrounding community.

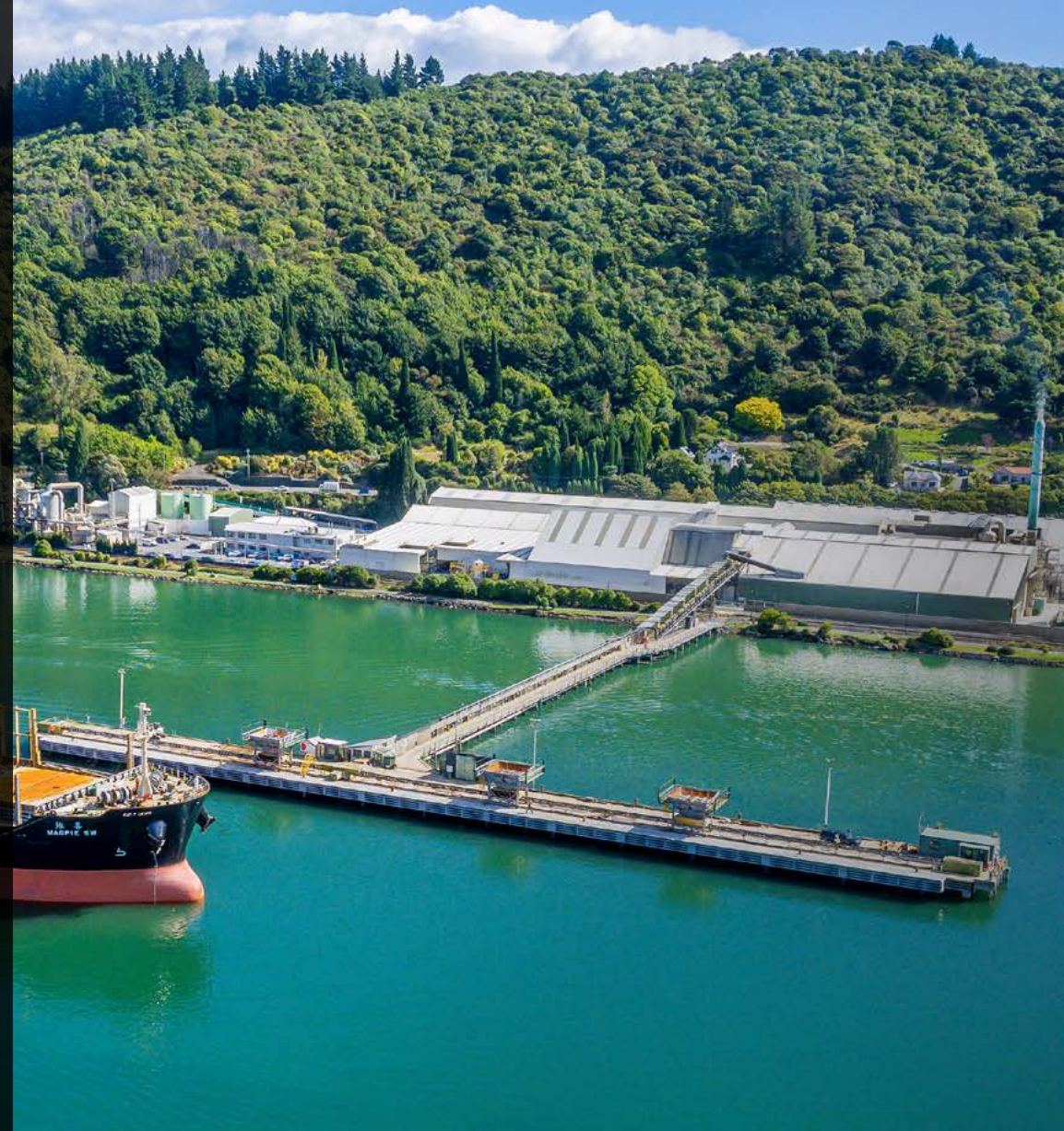
[Read more >](#)

Wharf gets new lease of life

The Magpie SW was the first vessel to berth at Ravensbourne Wharf since the wharf's \$6 million refurbishment, completed in March 2023.

Material issues:

- Reliable supply
- Operational environmental impacts
- Trusted relationships



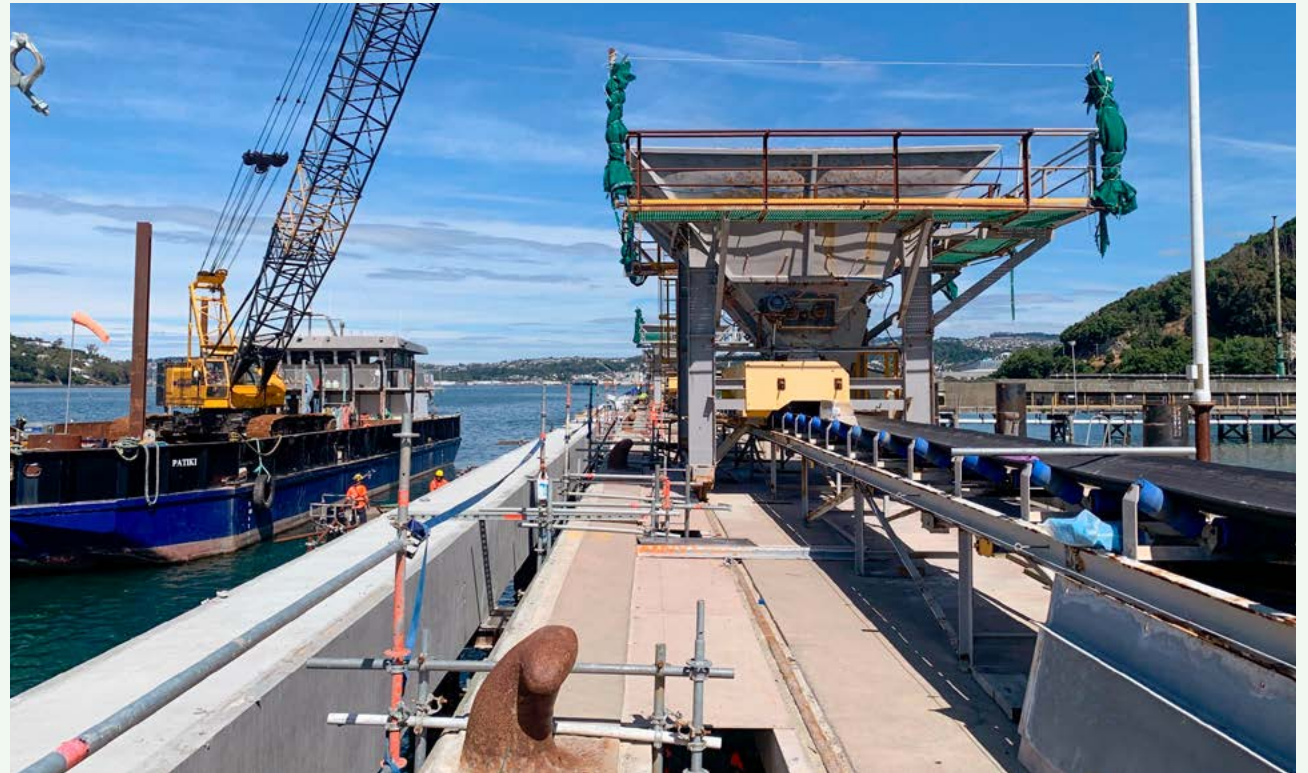
Remedial work will increase the lifespan of the wharf by a further 10 years.

46

Ravensdown and Port Otago spent several years discussing the path forward for the ageing wharf, deciding on remedial work to extend the lifespan by 10 years. The original wharf infrastructure was built in the 1930s, extended in 1968 and had a new concrete deck and berthing beam installed in 1994.

Commencing in October 2022, the project was delivered on time in March 2023. A new 145-metre-long berthing beam was built along the wharf length, connecting to new anchor piles on the rear of the wharf – allowing loads to bypass the existing timber wharf structure and transfer to the 900mm diameter anchor piles. Twenty-seven new piles were driven and 12 steel struts secured the new piles to the anchor piles. Significant maintenance work was carried out on the existing timber structure of the wharf at the same time.

From Ravensdown's point of view, refurbishment of the structure stacked up from operational, environmental



and community perspectives. It also affirms our commitment to move product by sea where it is the most sensible transport mode.

The project was a collaboration involving Ravensdown, Port Otago, HEB Construction and consulting engineers BECA, and Port Otago Civil Engineer Andy Pullar said all parties worked extremely well together. "It's not just about the timeliness, cost and quality of the outcome.

The most important aspect to us is how we can complete the job safely in sometimes challenging conditions. This was achieved through ensuring the team completing the build were fully engaged in the design process from the start.

"The Ravensdown team were right on board with this approach and provided great support to the site team. All in all, it was a very smooth, satisfying project with no harm to our people."

Case study / Reliable supply / Ardmore Mine

06.

Taking an innovative approach to addressing global supply chain challenges has led Ravensdown to trial a new source of phosphate rock from Australia.

[Read more >](#)

Trialling Australian phosphate rock

Ardmore Phosphate Rock Mine in Queensland, Australia.

Material issues:

- Reliable supply
- Leadership
- Ethical sourcing
- Product quality
- Sustainable agri





Trialling alternative sources of phosphate is part of Ravensdown's risk management strategy.

48

+

Pressure on supply chains in recent years has underscored the importance of having more options available when it comes to suppliers.

Ravensdown Chief Operating Officer Mike Whitty says Covid-19, conflict in Ukraine, changing weather patterns, global political tensions and countries focusing on internal food security have all contributed to an unstable and challenging operating environment.

"As a co-operative, it's our job to identify and manage those risks on behalf of our farmer and grower shareholders and ensure they have ongoing access to essential nutrients needed to run their businesses."

With that in mind, Ravensdown identified alternative suppliers for phosphate and a newly commissioned mine in Queensland, Australia – Ardmore Phosphate Rock Mine – emerged as a possible candidate.

A trial shipment of 5,000 tonnes of phosphate rock was sent at the end of 2022 to Lyttelton Port and on to Port Otago.

Upon arrival in New Zealand, the phosphate rock underwent rigorous quality testing before being processed at Ravensdown's Christchurch and Dunedin manufacturing sites.

Export operations at Ardmore Phosphate Rock Mine are owned by Agriflex Pty Ltd, a subsidiary of Centrex Ltd.

At the time of the shipment, the Centrex CEO said he was pleased to be working with Ravensdown and had the "utmost confidence" in the quality of the phosphate rock and its ability to significantly reduce supply risk for New Zealand.

While it's still early days, Ardmore Phosphate Rock has the potential to form a part of Ravensdown's nutrient offering, helping to firm-up local supply of high-quality superphosphate. Ravensdown will continue to investigate and trial other sources of phosphate rock closer to New Zealand as part of its ongoing commitment to managing quality, surety and cost risks for New Zealand farmers and growers.

Relentless service /

Driving our customers' businesses forward

Individualised farm advice and support from dedicated agri managers, environmental specialists and scientific experts helps ensure optimal productivity and performance of soil and pastures. When it comes to service, Ravensdown are relentless in the pursuit of quality - not just meeting, but anticipating our customers' needs.

In an ever-changing world, Ravensdown's expert team of 69 agri managers, 5 agronomists and 14 environmental experts work hard to deliver world-leading nutrient know-how, coupled with the latest technical advice and environmental guidance.

Ravensdown's advisors strive to develop trusted relationships inside the farm gate, because understanding our farmers' and growers' needs helps drive sustainability and profitability objectives from both nutrient and environmental perspectives. Our field staff are backed up by our Christchurch-based customer service team, and our experts are industry thought leaders, presenting at conferences, field days and publishing scientific papers.

Everything is interconnected, so it makes sense to provide a comprehensive service that lands on many touchpoints

across nutrient and environmental management. Providing trusted advice through cross-functional teams, supported by smart tools, is how our relationships help drive our customers' businesses forward.



An eye on the future

Alongside everyday nutrient advice, our team have continued working alongside farmers as they adapt to changing environmental expectations and regulations including N-190 nitrogen limits, resource consenting, farm environment planning and nutrient budgeting. They've helped farmers better understand their total on-farm GHGs (see Westland Milk case study on page 51) and are ready to assist farmers in preparation for Freshwater Farm Plans.

Building with Pāmu

One of the highlights for the year was the successful tender for supplying fertiliser to Pāmu's South Island farms, beginning 1 July, 2023.

Pāmu is the brand name for state-owned enterprise Landcorp Farming Limited. Their portfolio of 116 farms covers over 365,000ha across New Zealand.

About three years ago we reignited contact with Pāmu to update them on our strategic developments, particularly in the areas of productivity and sustainability. The relationship grew to the point where Ravensdown was invited to tender for their fertiliser business. A dedicated team prepared the tender, and a delegation from Pāmu was hosted in Christchurch, visiting the Works and Lincoln University's EcoPond site.

In January, Pāmu confirmed they would give Ravensdown half its fertiliser business for the next eight years.

Current state

Best for every farmer and grower

Bringing smarter farming to life

Governance

Our collaboration with Pāmu is an endorsement of the quality of our people, products and services. Together, we will deliver smarter farming for a better New Zealand – at scale.

Gary Bowick,
Ravensdown Chief Customer Officer



Field staff are backed up by a dedicated customer service team.

Ravensdown Chief Customer Officer Gary Bowick says the decision demonstrated a collaboration-centred strategy and desire to work collectively with the industry on driving sustainable farming, emissions reduction, and digitisation.

"It was also clear endorsement of Ravensdown's strategy of 'Smarter farming for a better New Zealand' and interest in our long-term direction with innovation such as the development of HawkEye. This is a strategic alignment and partnership where they have chosen to invest in us while we, in turn, can help them on their journey."

The Pāmu vision is to become the premium supplier of meat, milk and fibre for niche markets globally while their values are focused on being grounded, genuine, bold, and standing shoulder to shoulder with others.

"All of that resonates with what Ravensdown strives to achieve and where we are heading in terms of productivity, sustainability and innovation.

"Our collaboration with Pāmu is an endorsement of the quality of our people, products and services. Together, we will deliver smarter farming for a better New Zealand – at scale."

Case study / Relentless service / Westland Milk Products and Ravensdown

07.

Knowing greenhouse gas (GHG) emission numbers is the first step for farmers to reduce their on-farm impacts. However, the reality of recording these numbers can be daunting, which is why Westland Milk teamed up with Ravensdown's nutrient and environmental experts to ensure the GHG data capture process was easy, affordable, and future-proofed for their suppliers.

[Read more >](#)

Smarter collaboration ensures farmer buy in

Working together on the GHG reporting process has been a winning formula for Westland Milk, Ravensdown and Westland's farmer suppliers. Pictured: Inchbonnie Farm, Lake Brunner.

Material issues:

- Climate action
- Leadership
- Trusted relationships
- Farm environmental impacts
- Innovative solutions
- Sustainable agri





Inchbonnie Farm owner Renee Rooney says working as a collaborative team on the project has really clarified the GHG process for the farmers involved.

By understanding their baseline GHG number, they can now be proactive in forming an on-farm strategy to reduce emissions. "We are working together to solve a problem, and for me that's always a highlight ... working together to figure out a way forward.

(L to R): Ravensdown Senior Farm Environmental Consultant Sonya Perkin, Renee Rooney and Westland Milk On-Farm Liaison Officer Penny McIntosh on Renee's Lake Brunner farm.

On the South Island's West Coast, dairy company Westland Milk Products was faced with a national regulatory challenge: He Waka Eke Noa required their milk suppliers to know their annual on-farm emissions by the end of 2022, followed by a written plan to measure and manage emissions by 2025.

Knowing their supply base GHG numbers and managing environmental impacts across their supply chain is a central part of Westland's business philosophy.

Westland Milk On-Farm Liaison Officer Penny McIntosh says teaming up with the regional nutrient advisors and their environmental specialist teams was a logical way to get the ball rolling.

"The nutrient representatives and our milk supply managers know the dairy farms and have existing relationships with the farmers, so working collaboratively provided a more streamlined process.

"Ravensdown's specialist environmental team members are certified nutrient advisors, experienced in processing Overseer budgets for other dairy companies."

Some of Westland suppliers used Overseer already, so it fitted well within the project's parameters. For those who hadn't used Overseer, Westland set up each individual farm's Overseer subscription, assisting suppliers to record their farm system accurately.

It was identified early on that the process needed to offer a supportive and engaging environment for farmers to learn their numbers. Talking to other dairy companies who had been through the process also solidified Westland's approach.

"We knew it was important to bridge that gap of going on farm and collecting the information," Penny says. "We also wanted to avoid the duplication of information."

Ravensdown Environmental Consultancy Manager Arron Hutton was the lead in constructing a farm systems template, which was then used by milk supply managers and agri managers to collect information in a systematic and "pain-free" way.

Free drop-in sessions where farmers could get assistance filling out their templates helped the process along.

Overall, the project was a success for both parties in terms of engagement and collaboration, with everyone "singing from the same song sheet".

Project results:

- 97% of Westland's 382 suppliers participated in the Overseer project
- Ravensdown completed 237 Overseer nutrient budgets
- Farmer information sessions were run with help from Overseer and DairyNZ

Environmental action /

Taking action against Climate Change

53

Climate Change Mitigation

The 2022 materiality assessment showed Climate Action sat soundly in the top three material issues for Ravensdown. Our stakeholders said we must “build credibility by addressing our own direct carbon emissions, then help customers transition to reduced carbon, then mobilise the workforce to make their own change as consumers”.

We have set science-based reduction targets against the 2018 base year, aligned with the necessary 1.5 degrees of warming. This requires scope 1 and 2 emissions to reduce by 50% by 2030. Our scope 3 target is to reduce emissions by 50% by 2035 through reduction of absolute emissions and provision of new technology.

This year we continued to work on reducing our own climate change impact, that of our supply chain and even our staff, and to show leadership in policy and research to

Scope	Emissions source (activity)	2018 (base year)	2021 (last year)	2022 (current year)	% change this year	T change this year	% change since BY	T change since BY
1	Stationary diesel/manufacturing startup	904	847	539	-36	-308	-40	-365
	Transport diesel & petrol	4,919	4,446	4,534	2	88	-8	-385
	Sub-bituminous coal / lime drying	3,354	2,157	2,305	7	147	-31	-1,049
	aircraft fuel / aerial spreading	4,822	4,286	3,621	-16	-665	-25	-1,200
	CO2 release / superphosphate reaction (*new)	7,080	6,177	6,033	-2	-144	-15	-1,047
	Sequestration/newly established native forest (*new)	-	-	-4	100	-4	100	-4
	Scope 1 total	21,078	17,912	17,027	-5	-885	-19	-4,051
2	Electricity exported to grid	-273	-345	-359	4	-14	32	-86
	Purchased electricity	1,440	1,456	1,729	19	273	20	289
	Scope 2 total	1,167	1,111	1,370	23	259	17	203
3	Haulage port to manufacture	2,450	2,104	1,970	-6	-133	-20	-479
	Freight / distribution by road	20,586	19,704	17,469	-11	-2,235	-15	-3,117
	Coastal shipping / distribution by sea	183	205	421	105	216	131	238
	International shipping	109,675	79,251	73,224	-8	-6,028	-33	-36,451
	Waste to landfill	196	359	124	-66	-235	-37	-72
	Transmission losses	153	139	140	1	1	-9	-13
	On farm product use	1,225,495	1,087,937	890,511	-18	-197,426	-27	-334,983
	Air travel	1,273	347	541	56	194	-57	-732
	Scope 3 total	1,360,010	1,190,047	984,401	-17	-205,646	-28	-375,610
		TOTAL	1,382,257	1,209,070	1,002,798	-17	-206,272	-27

Note: numbers may not add due to rounding

Table 1: Ravensdown's carbon footprint. Ravensdown's carbon footprint is calculated on a calendar year and undertaken in accordance with the GHG Protocol. EY has provided limited assurance on the Scope 1, Scope 2 and certain Scope 3 GHG emissions for the calendar year 1 Jan 22 to 31 Dec 22.*Note that scope is broader than footprints published in previous years, and that recalculations have occurred for comparability, meaning that previous years' emissions' totals are not as previously recorded and not assured by EY (refer Climate Report for detail). Organisational scope takes an operational control approach to include Ravensdown and subsidiaries and excludes joint venture partnerships.

encourage mitigation solutions. We further expanded the scope of our Greenhouse Gas (GHG) inventory, set a more ambitious reduction target and turned our focus to adaptation to both a changing climate and low carbon economy as we began to observe the earliest impacts of both.

Our carbon footprint (above) includes direct (scope 1) and indirect (scope 2 and 3) GHG emissions, including those from fertiliser use. This year for scope 3, reduced demand for nitrogen due to high prices and increased environmental focus has reduced on-farm emissions of nitrous oxide and had a flow on effect on many other areas, including international shipping, aerial spreading and road transport. We saw an increase from 30% to 45% in the proportion of urea sales that are coated with an inhibitor and therefore exhibit lower on-farm emissions.

Dipton quarry's biomass combustor (pictured right) will shortly be operational, and along with the divestment of another coal-fired lime quarry (triggering a base-year recalculation) we have significantly reduced our reliance on coal. Our remaining coal-burning site has received co-funding from EECA for a rock-drying shed.

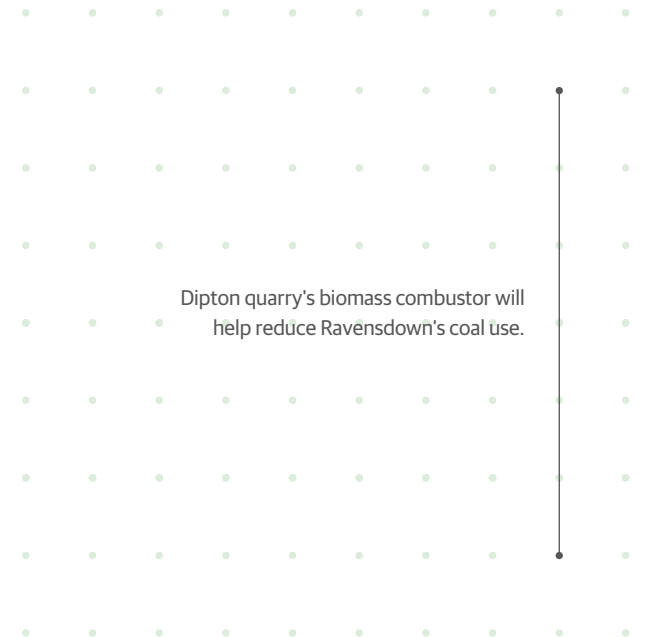
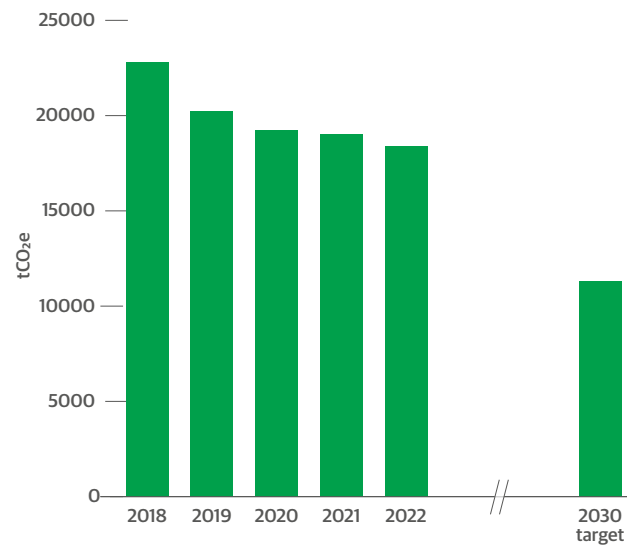
It has been a turbulent year on the policy front. We recognise the need to support farmers with responding to, understanding and meeting obligations through improved GHG reporting, nutrient management advice and technological developments. We made structural changes to our business this year to give dedicated focus to GHG mitigation products, such as EcoPond, and will account for this in the GHG inventory going forward.

We created a partnership with other industry leaders and the Government to accelerate investment and development of mitigation solutions, now established as AgriZero^{NZ} (page 25).

As a result of a staff survey on climate change and emissions reduction we discovered an appetite for more knowledge. We enabled staff to carry out their own GHG footprints for their households and ran a competition to promote ownership of personal emissions.



Scope 1+2 (operational) actual and target GHG emissions over time

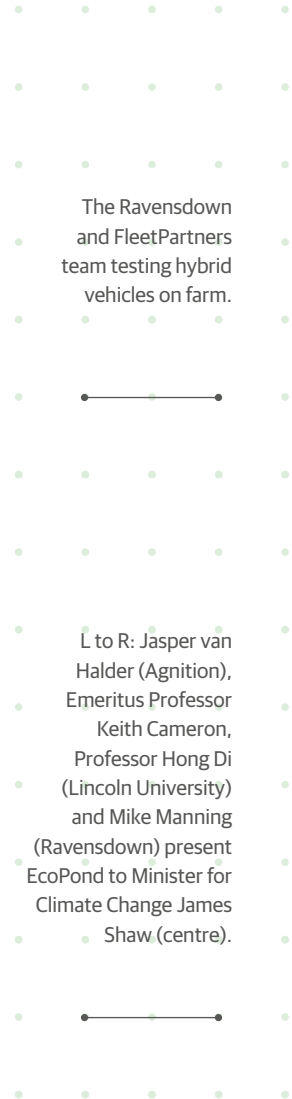


Dipton quarry's biomass combustor will help reduce Ravensdown's coal use.

A comprehensive review of our vehicle fleet will see us replace close to 100% with hybrid and electric vehicles, resulting in a further 5% emissions reduction. With the help of our lease partner FleetPartners, our field team put the selected vehicles through their paces on-farm, rating them for suitability. Furthermore, we extended the invitation to our Christchurch staff to trial the latest EVs to break down some common misconceptions.

Emissions from coastal shipping doubled this year. We now prioritise moving product by sea to reduce emissions and congestion from heavy trucks, but found there was also a benefit as coastal shipping transferred nutrients to the regions that needed it during supply shortages. Internationally, shipping emissions were reduced by using biofuel for much of our international container shipping.

Site work undertaken includes rooftop solar at selected sites. Trials have been undertaken to understand the suitability of this technology in our environment.



The Ravensdown and FleetPartners team testing hybrid vehicles on farm.



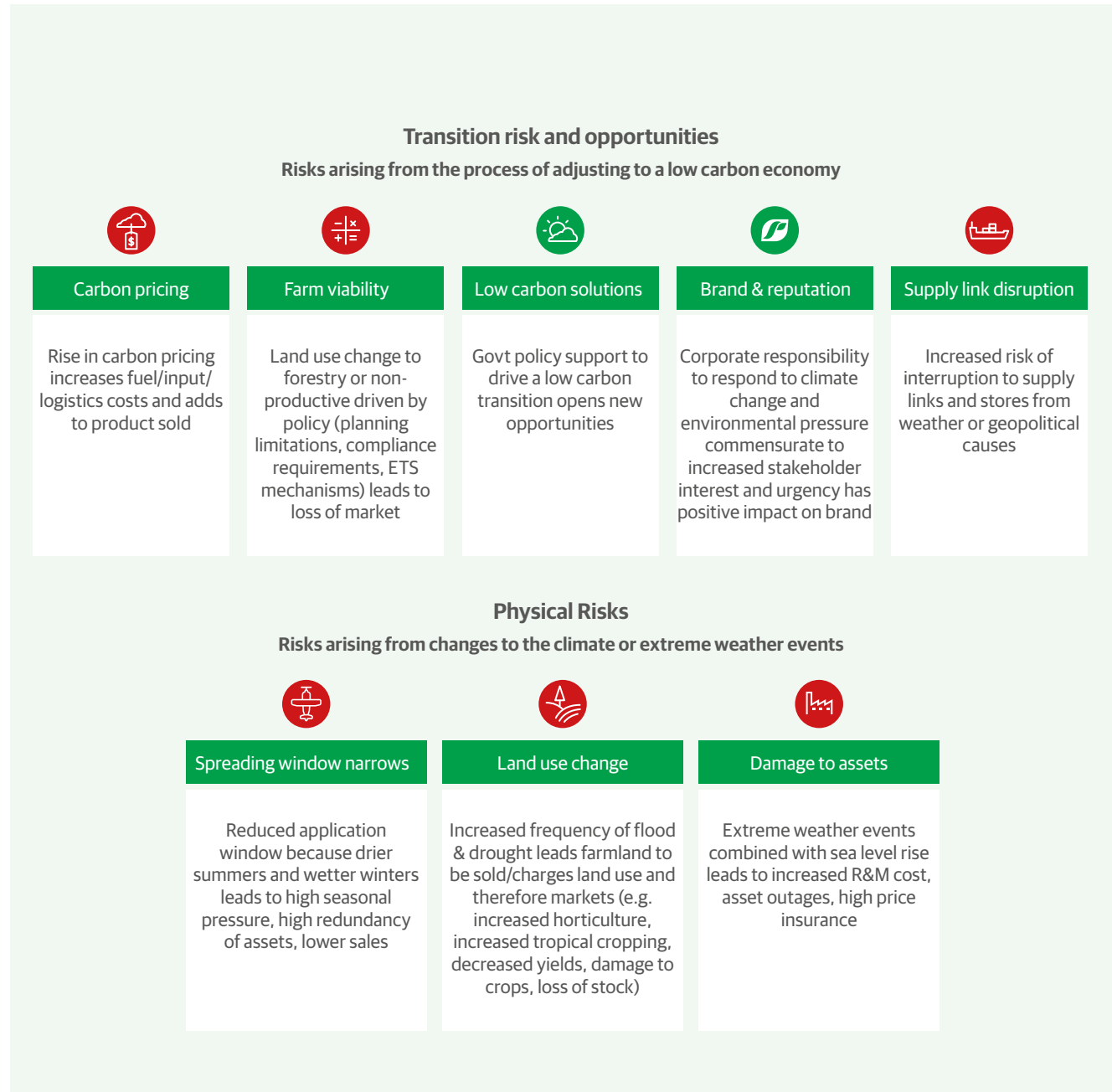
L to R: Jasper van Halder (Agnition), Emeritus Professor Keith Cameron, Professor Hong Di (Lincoln University) and Mike Manning (Ravensdown) present EcoPond to Minister for Climate Change James Shaw (centre).



Climate Change Adaptation

In line with the Taskforce on Climate-Related Financial Disclosures, we worked to assess and respond to our most pressing areas of climate risk, summarised right. A full description of governance, strategy and risk management as it relates to climate change, including the scenarios used for risk assessment, can be found in our supplementary 2023 Climate Report.

Adequate response to climate change in the future requires much collaboration, which is why we have sought to partner with others in a number of ways: with like-minded businesses across Aotearoa through such memberships as Sustainable Business Council, Climate Leaders Coalition and Aotearoa Circle; with government through the establishment of AgriZero^{NZ}; with industry leaders (for example we were represented on the Technical Expert Group for the agriculture industry's Adaptation Roadmap); and with our valued suppliers who themselves are working to decarbonise their processes and products. We were proud to see our urea supplier SABIC ship the world's first low carbon urea (reduced GHG emissions) to market this year and we look forward to further developments to reduce the carbon intensity of all agricultural inputs and outputs.



Case study / Environmental action / Restoring biodiversity

08.

Part of our duty of care towards the communities and environments we operate in is the acknowledgment of the environment from which we source our natural capital. With a view to operating our Ngarua Limestone Quarry with a net positive impact on the environment, we've joined forces with the community and landowners to restore and protect Tākaka Hill's ecologically significant landscape.

[Read more >](#)

57

Biodiversity collaboration a winning formula

The Tākaka Hill Biodiversity Project has brought together stakeholders with a common goal - protecting and enhancing the significant landscape.

Material issues:

- Trusted relationships
- Operational environmental impacts
- Biodiversity
- Community commitment





Tākaka Hill Biodiversity Group Trust's Chair Suzie Peacock (left) and Trustee Wendy Henderson with Ngarua's planted sidings.

Wherever we can develop relationships with organisations who think the way we do, then that's really good.

Charmaine Petereit, Tākaka Hill Biodiversity Group Project Manager.

Formed in January 2018, the Tākaka Hill Biodiversity Group Trust's work is a great example of collaboration between industry, landowners, farmers and the community to protect a valuable natural area.

Covering more than 4,000ha between the Nelson and Golden Bay regions, part of Tākaka Hill's significance is the karst limestone substrate – the very natural capital that we rely on for lime product from our Ngarua quarry. The Ngarua site alone is home to five rare tree species, including the limestone kōwhai, endangered birds and the endangered Powelliphanta (giant land snail).

Most recently the Trust has been involved in habitat restoration on both sides of Ravensdown's newly formed haul road, using eco-sourced plants to help stabilise about 1ha of road spill on steep sidings. Predator control at Ngarua is ongoing, and Ravensdown has supported several other biodiversity projects, including an ecological survey of the site, Powelliphanta monitoring plots, a community recycling transfer station, and a native nursery propagation area established for the Trust on Ravensdown land.

Tākaka Hill Biodiversity Group Project Manager Charmaine Petereit has been working with Quarry Manager Mark Simkin and Ravensdown Sustainability Manager Allannah Kidd on the Ravensdown projects.

"Mark and Allannah have been great to work with. They understand the connections and join the dots between ecosystems. They understand how important it is to restore and protect the habitat because of the services they provide."

Charmaine says the propagation will attract native birds, contributing towards a bigger project of work to create an ecological corridor for birds between Abel Tasman and Kahurangi national parks.

Ravensdown's project funding has also provided a springboard for the Trust to leverage and gain further grants.

"Wherever we can develop relationships with organisations who think the way we do, then that's really good," she says. "We are very grateful to have Ravensdown working with us."

In 2022/23 we upgraded and improved environmental performance across our manufacturing, stores and quarries sites. Restoration, habitat and sustainability work is underway on some of our sites across the country, and positive outcomes have been achieved working alongside our community stakeholders. No new infringements have been received in the 2022/23 year.

Continuous improvement

Strategic investment and novel solutions are driving continuous improvements across our sites with a strong focus on managing stormwater and dust emissions while improving our environmental footprint.

59

At New Plymouth, the identification of seagulls as a major contributing source of nutrient waste drove a novel solution in the form of roof-mounted laser deterrents. In addition, the swale that conveys stormwater from the retention pond to the Mangaone Stream has been extended to increase residence time in the swale, which once vegetated, provides an opportunity for nutrient-uptake prior to discharge of stormwater into the Mangaone Stream.

In addition to the wharf reinstatement at Dunedin Works, other site improvements were targeted to reducing noise that has been affecting the local community. These included fitting a noise attenuator on to the den scrubber fan and removing audible alarms where they are not specifically required for safety requirements.

Christchurch Works has commenced an upgrade to the fluorosilic acid ponds (FSA is a by-product of the superphosphate manufacturing process) as part of a

broader focus on reducing the effects of the site's activities on groundwater. A resource consent is currently in process to authorise the discharge of stormwater from the site that is not already captured in the three on-site ponds that discharge to the city's trade waste system. These ponds capture stormwater from the high-risk areas of the site (e.g. the intake) where stormwater is more likely to contain elevated concentrations of nutrients.

As described on page 18, the Napier Works was severely impacted by Cyclone Gabrielle.

New discharge permits to air and for stormwater and groundwater take at Napier were granted in December 2022 for the maximum period of 35 years. The air discharge permit includes provision for the installation of a new fluoride scrubbing system for manufacturing (currently being installed), and replacement of the acid plant converter is awaiting approval. Both systems will work to reduce emissions to air for their respective plants.

The stormwater discharge permit included provision for a major upgrade to stormwater infrastructure over time, reducing nutrient loading in water leaving the site and changing the primary receiving environment to land. As part of the cyclone recovery, a stormwater settlement pond has been constructed while work commences on the detailed design for the improved stormwater treatment and irrigation system.

The site proposed for the Habitat Abundance Restoration Project that was committed to with mana whenua, alongside the consenting process, has been significantly impacted by the cyclone. Work with mana whenua will continue to identify a new site to honour the commitment.

The Napier site has started completing actions from their Source Control Management Plan, with doors being installed on storage sheds to minimise dust emissions from site. The first Rapid Roller door was installed in July 2023.

At the Balfour site in Southland, local school children helped the store and sales team plant 1400 trees as part of a school project. The planting is part of a larger on-site surface water control project with the trees reducing contaminants to water.

- • • • • • • • • •
- Geraldine Limeworks undertook a native restoration project planting tōtara and wetland species. As well as protecting ancient rock art, the plantings will improve water quality and flow from a natural spring, all while creating a habitat pocket that was once common here. • •
- • • • • • • • • •



Smarter technology /

Smarter ways of working

Technology is a driving force behind improvement in the agsector, and Ravensdown's technology plays a key part in delivering our strategy of interconnecting productivity and sustainability. By harnessing the power of technology, we can unearth opportunities, remain innovative and market leading, make smart decisions based on robust data, track progress and measure performance. Technology allows us to provide trusted and expert advice around nutrient use and environmental management, ensuring our customers can make efficient use of their resources at a time where regulation and compliance is increasing.

Increasing productivity and sustainability through technology

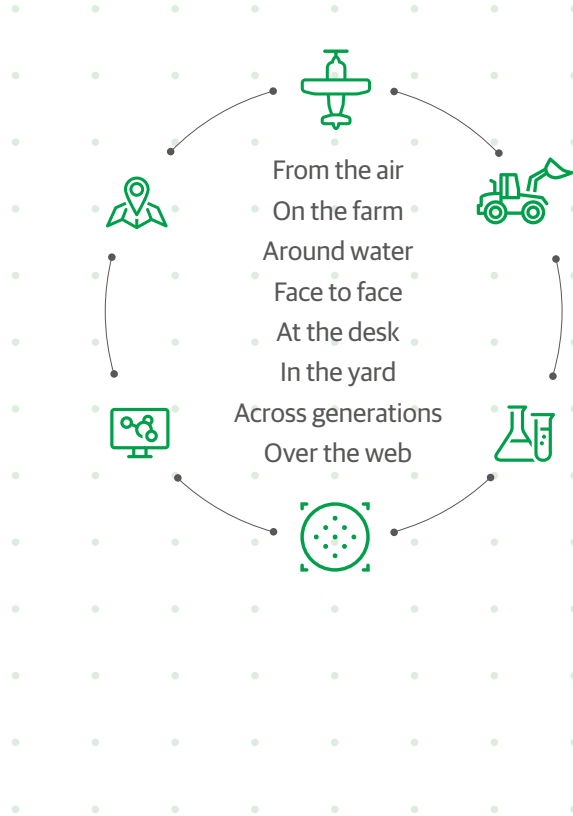
Ravensdown has a robust history of research and development spanning decades. We have invested in scientific research and innovation, as well as further developing our leading-edge technology to ensure that nutrient management and technology integrates better with wider farming systems and performance management capability.

Current state

Best for every farmer and grower

Bringing smarter farming to life

Governance






Variable rate spreading initiatives SlopeScan and SoilScan help ensure fertiliser is targeted to the most productive areas on hill country farms.
Below: benefits of precision spreading.

Precision aerial spreading initiatives

In recent years we have invested in science and technology to enhance productive yield and reduce the overall environmental footprint on-farm. Building upon our Primary Growth Partnership (PGP) work, we released variable rate aerial spreading initiatives **SlopeScan** and **SoilScan** to the market in autumn 2023.

Hill country farms are made up of differing slopes, aspects, soil types and depths, moisture, pasture

 ENVIRONMENTAL Avoid environmentally sensitive areas with precision	 \$12/ha Modelled benefit of slope-based variable rate compared to blanket	 15% of fertiliser can be redeployed to productive areas
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composition and nutrient status. SoilScan and SlopeScan can help identify differences and lead to better nutrient and grazing management.

SlopeScan is an entry level variable rate maintenance fertiliser application strategy based on the premise that pasture production declines as the slope of the land increases due to the effects of slope and aspect on soil depth, water retention and pasture production. A SlopeScan fertiliser application map splits the farm into areas based off the soil fertility, slope and/or aspect of the land. Variable rate fertiliser application is then targeted to more productive areas, lowering rates on steeper slopes and avoiding sensitive areas.

SoilScan is a data-rich decision support tool that looks at multiple factors when applying fertiliser. It considers the physical and climatic factors of the land but uses more in-depth soil testing and modelling (pasture growth and econometric) to gain further insights. The layers of farm-specific data lead to improved economic and environmental outcomes through precise variable rate fertiliser plans.

A further initiative developed from the PGP has been hyperspectral (remote sensing) imagery to identify pasture and tree species. Data-rich maps have been used to identify native bush areas for honey production, while the remote sensing technology enables the mapping of woody vegetation, helping plan how much planting is needed to meet carbon neutrality objectives. The technology can also give shareholders an exact measure



of their effective pasture, or the breakdown between pasture and non-pasture on their properties.

Potentially Mineralisable Nitrogen (PMN) testing

PMN testing allows arable farmers to understand the soil's mineralisable N levels (N released from organic matter throughout the season) better, resulting in more precise and targeted use of applied N.

Until recently, accurate measurement and prediction of mineralisable N supply in soil has been limited. Ravensdown partnered with Plant & Food Research to develop a new method to measure mineralisable N and better interpret results in the real world. Tests are carried out by agri managers and analysed at ARL using a specially built calculator that interprets the numbers based on region and climate data over a typical growing season.



Current state

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and grower

Bringing smarter
farming to life

Governance



62

HawkEye lets customers order fertiliser from their farm map, with requests going directly to their spreading operator.

Insight and data technology

With data and recording becoming increasingly important in farming, Ravensdown strives to provide a cohesive, user-friendly experience for our customer base via our farm decision support and mapping software, **HawkEye**.

HawkEye enables farm mapping and data recording, and customers can order Ravensdown fertiliser from their farm map, with requests going directly to their spreading operator. It allows customers to monitor against their agronomy plan, use feed budgeting and keep an eye on nutrient limits, a crucial function with the introduction of nitrogen (N) limits (known as N-190).

Despite headwinds for the season, 2022/23 has seen consistent growth for digitisation and digital augmentation of Ravensdown channels and services. Registered HawkEye users were up 23% on the previous year.

Key releases were:

1. **Nitrogen (N) Report** Over 1500 farmers submitted reports for the first N-190 cap reporting period to their local councils.
2. **Universal interfaces** for outbound spread files and inbound proof of placement were built by Ravensdown and Precision Farming.
3. **Online ordering** has been updated to include Liquid-N.
4. A revamped **HawkEye Mobile** offering was launched in March 2023, with user interface improvements, offline use for remote areas, standalone ordering and spread requests. Approximately 450 new users have registered since the launch.

Current state

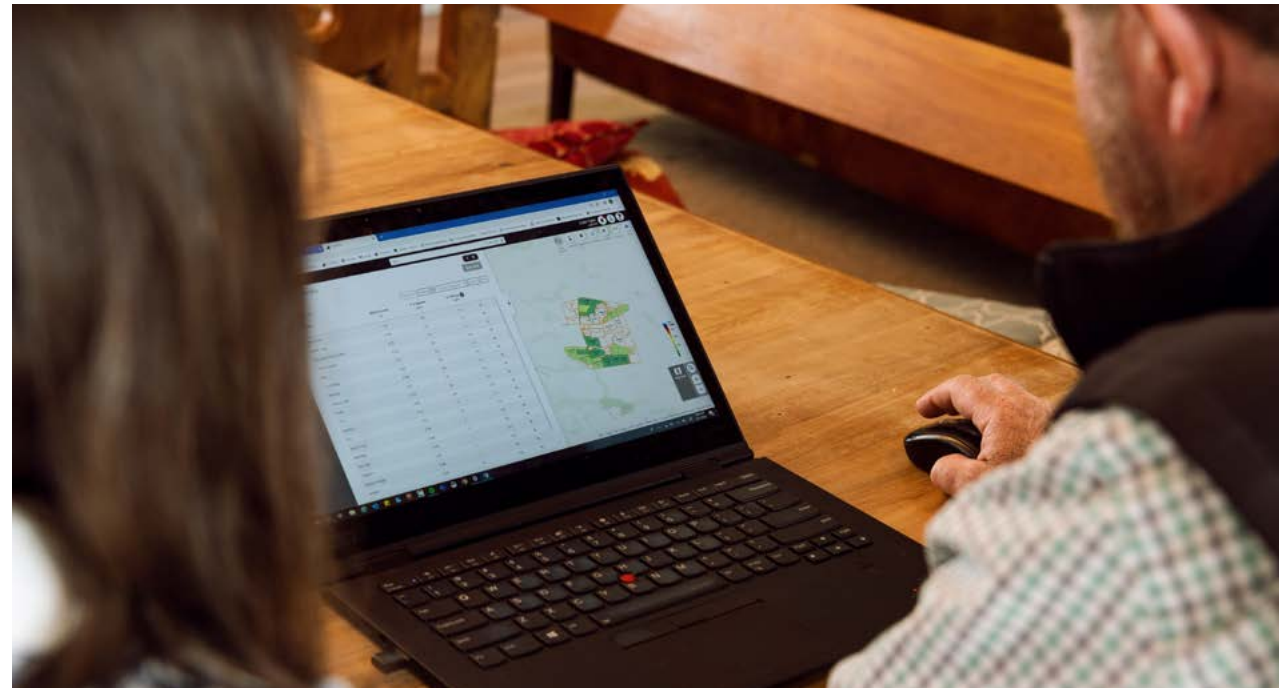
Best for every farmer and grower

Bringing smarter farming to life

Governance

5. Following Cyclone Gabrielle, **HawkEye Response** was launched to help agri managers and farmers in the Eastern North Island identify impacted land areas for cyclone recovery. Over 200 farmers used the service in the Hawke's Bay and Tairāwhiti Gisborne regions (see page 65).
6. A real-time **notification service** was built to deliver both ad-hoc announcements, such as pricing changes and automated messages, for example when farmers are approaching 190kg nitrogen application limits.

Led by our farmer stakeholders, we've introduced some new features to our decision support software, HawkEye.



Development and engagement

We learnt that:

- the fundamentals (easy ordering and a bug-free app) were of crucial importance to farmers
- with notifications around how fertiliser is used - approaching limits was most desired
- the ability to record fertiliser 'events' (including when fertiliser is self-spread and other activities such as chemical applications or pasture measurements) in the app would drive adoption
- based on HawkEye analytics, we understand that recording activities is a highly desired feature across farming operations nationally.

Cyber security

Cyber security threats to public services, businesses and individuals continue to escalate globally and New Zealand is seeing an increased share of malicious activities and the associated social and financial harm.

Highly credible online scams are now a daily occurrence and unfortunately such scams are no longer easy to spot and prevent. Cert NZ recently noted that financial losses from cybercrime were up 66% in the first quarter of 2023.

Ravensdown takes cyber security very seriously and continues to undertake regular external assessments and evolve systems, processes and practices to better protect customers, shareholders, and staff.

Over the last financial year there has been a concerted effort to not only improve prevention measures for cyber-attacks, such as strengthening access control through improved multi-factor authentication, but also improve detection and recovery measures to limit any potential business impact.

Key initiatives include increasing the capability and skills available to respond to cyber incidents through partnering and outsourcing, and a shift to a Zero Trust security philosophy across the IT systems architecture.

By taking a Zero Trust approach to systems design, the level of harm that could result from a successful cyber-attack is significantly reduced, ensuring that any access by individuals or systems is both rigorously checked and the resulting access is limited to just what is required.

Registered HawkEye users up

23% 

from the previous year.

Sales through the HawkEye channel were down

19.9% 

y/y, however revenue via the HawkEye channel is up as a result of market forces and higher prices.

HawkEye remains a popular channel for ordering - up

37% 

in Feb 2023 y/y.

In conjunction with myRavensdown, self-service sales were up

9% 

from 32% of total orders - exceeding 41% for the month of February 2023.

Case study / Smarter technology / HawkEye Response

09.

With an eye on the ground and in the sky, HawkEye Response is proving to be a timely innovation for Cyclone Gabrielle-affected farmers. An extension of Ravensdown's existing smart technology tool – HawkEye – it's the latest addition to a suite of solutions that are supporting smarter farming in New Zealand.

[Read more >](#)

65

Smarter farming with HawkEye Response

HawkEye Response brings together pre- and post-Cyclone Gabrielle satellite and aerial imagery to calculate area lost to slips.

Material issues:

- Community commitment
- Innovative solutions
- Trusted relationships





HawkEye Response maps (pictured left) support the post-cyclone calculation of areas lost to slips, fenceline damage and can help support insurance claims.

66

The destruction caused by Cyclone Gabrielle was a catalyst for fast-tracking the launch of HawkEye Response – a tool to help flood-affected farmers.

It brings together pre- and post-Cyclone Gabrielle satellite and high-resolution fixed-wing aerial imagery to identify slips. That information is overlaid against a shareholder's existing fenceline, captured by Ravensdown's HawkEye software solution. This means areas lost to slips can be calculated, helping farmers to understand the impact on grazing areas and stocking rates. It also supports the calculation of distance of fences damaged and provides visual evidence for insurance claims.

Arai Matawai – Kaikoura Station Farm Manager Pat Brick is enthusiastic about HawkEye Response. When Cyclone Gabrielle passed over the 1,330ha farm, it dumped more than 470mm of rain.

"In the middle of it all, we were hit with a magnitude 4.1 earthquake, power outage and a large slip next to the house.

"The following day, there were slips everywhere and water running off in all directions. The main road to the property was also cut off for five days."

Already a keen user of HawkEye, Pat was pleased to hear about HawkEye Response.

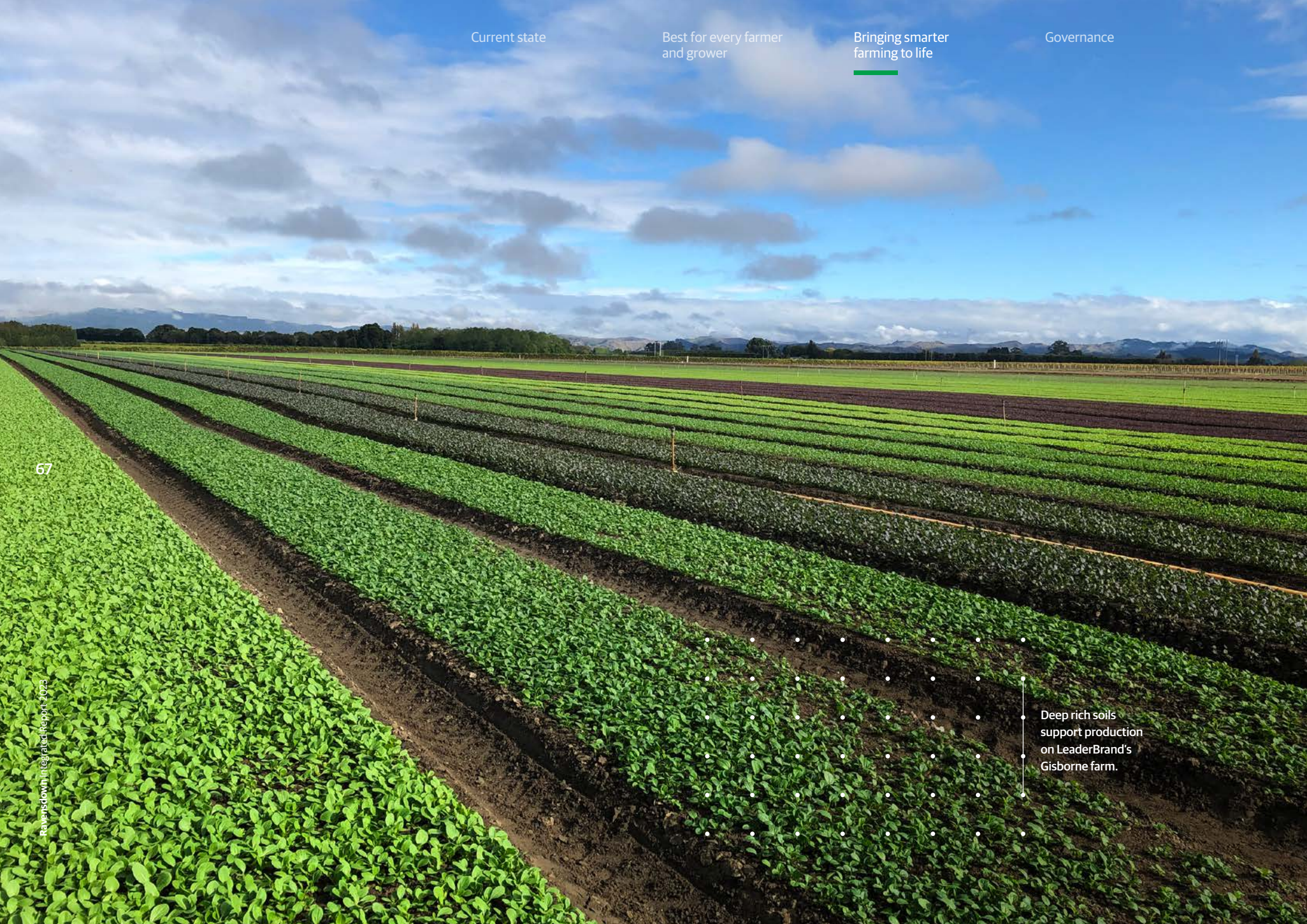
"Using HawkEye Response, we were able to identify all slips, which had taken out 54 hectares of grazing ground and 5.5 kilometres of fencing.

"The software assisted with rerouting 250 metres of fencing, assessing available grazing areas and updating safe zones. It also provided us with a comprehensive package to support our insurance claim."

HawkEye Response is also helping farmers to better prepare for future weather events by identifying erosion-prone areas.

Other opportunities that harness smart technology like HawkEye Response continue to be explored by Ravensdown. They offer a glimpse into an array of possibilities that will help transform the future of New Zealand farming.

Deep rich soils
support production
on LeaderBrand's
Gisborne farm.



Community commitment /

Part of the fabric

Ravensdown is committed to being part of the communities we operate in, whether that's in the form of sponsorship, lend-a-hand days, or just good old-fashioned mucking in. We are also involved in community initiatives such as catchment groups and we're supporting our burgeoning agricultural leaders in their studies and careers.

Our presence in the community is also backed up with on-site hospitality at field days and events across New Zealand – our way of saying thank you to our shareholders for their ongoing support.

As part of our support for the New Zealand Dairy Industry Awards, we sponsor the Ravensdown Sustainable Pasture Awards. Ravensdown Director Jacqueline Rowarth presented the award to Jack Symes, Dairy Manager of the Year 2023 (pictured), and CEO Garry Diack presented to Hayden and Bridget Goble, Share Farmers of the Year 2023.

Ravensdown's Hugh Williams Memorial Scholarship 2023 was awarded to 19-year-old Georgia Higinbottom. Georgia is from the Wairarapa and in her second year of studying towards a Bachelor of Agricultural Science at Lincoln University.



Ravensdown is a major sponsor of the FMG Young Farmer of the Year, and our regional teams help support the competition by running modules for contestants across the seven regions. In 2022, Northern region's Tim Dangen took out first place in the grand final following some long days and tough conditions in Whangārei.

The New Zealand Agricultural Show Boys and Girls Ag Day is sponsored by Ravensdown and held at Canterbury Agricultural Park during November. To qualify, participants attend a school pet parade day and an area/group day within their region and need to complete a full project on the care, handling and rearing of their pets.

The WNI sales and stores team on the BBQ at the Hunterville Huntaway Festival, home of the Shepherds' Shemozzle.



Three years after taking on the role of groundsread truck driver, 27-year-old Nigel Nunn won the Ravensdown Young Achievers' Award at the 2022 Groundspread Awards. Recognising and rewarding excellence is one way we can support the groundsreading industry to attract vital young talent.



There was a great turnout at Wānaka A&P show for our 'Breakfast Bites' session on options for managing greenhouse gases on farm. Dr Derrick Moot, Professor of Agricultural Sciences at Lincoln University, was joined by Mike Manning, Ravensdown's Chief Science Officer.



Scientific Officer Dr Will Talbot and Senior Farm Environmental Consultant Mark Crawford supported Southland's Makarewa Headwaters Catchment Group in a Thriving Southland project to identify nitrogen, phosphate and sediment loss hotspots across the catchment. Will and Mark have also been involved with catchment work in the Shag Valley, Otago.



Massey University hosted their annual awards dinner celebrating excellence inside and outside the classroom. Gordy McCormick, Ravensdown Upper South Island Regional Manager, presented the Excellence in Agriculture and Horticulture Award to Gemma Bayly and Katya de Silva (first equal, pictured) and Sophie Johnston (third place). All three are working towards Bachelor of Agricultural Science degrees.



Te Ara Kākārki is doing great work to create a network of 'greendots' across the Canterbury Plains. Sustainability Manager Allannah Kidd lent a hand at this native planting day to expand one of these greendots by a few hundred trees.

Case study / Community commitment / Michelle Ruddell

10.

As a strategic partner of the Agri-Women's Development Trust (AWDT), Ravensdown is empowering women working in agri-business. The AWDT delivers a range of development programmes including an accelerated leadership and governance course, Escalator. Ravensdown scholarship recipient and shareholder Michelle Ruddell completed Escalator in 2022 and shares what she discovered.

[Read more >](#)

70

Escalator to agri success

A passion for leadership and community empowerment are two things Michelle Ruddell gained from AWDT Escalator.

Material issues:

- Leadership
- Trusted relationships
- Sustainable agri
- Community commitment





Michelle Ruddell, shareholder and recipient of the Ravensdown scholarship for the AWDT Escalator programme.



Michelle Ruddell knows what it means to be a leader in all areas of her life.

A busy mum of three, she runs an 800-cow split calving dairy farm west of Whangārei with her husband. She is also chairperson of the Northland Rural Support Trust and Northland Dairy Environment Leaders (DEL) group and a member of both the National Advisory Committee to DairyNZ's DEL project and the Dairy Women's Network Coast to Coast Business Group.

In her spare time, she is the local squash club treasurer, and coaches and manages her daughters' netball teams.

Michelle completed the 10-month Escalator course with the support of a Ravensdown scholarship. The programme provides best-in-class leadership, governance, and personal development.

"I purposefully, actively, and whole-heartedly grew as an individual and a leader, returning to my communities to empower others. I now know that I am worth it and have plenty to offer by sharing my opinion, time, and vision for life," Michelle says.

She describes leadership as a passion – not a person or position.

"An effective leader is assertive, listens, compromises, understands their why and purpose and shares that with others. Ultimately, leadership is a journey not a destination."

She says some women in the agri-sector can lack the confidence and courage to speak up.

To address this, she recommends women create space to complete self-development courses.

"Understanding what leadership looks like from the ground up is important. The word 'leadership' can exclude people because they simply don't view themselves as being that."

When it comes to future goals and aspirations, Michelle is focused on continuing her farming mahi/work and following 'opening doors'.

Those doors have included being a panel member of The Big Rural Check-In and attending the KPMG Emerging Leaders Forum.

Finance at a Glance /

Accountable to you

Ravensdown faced several major challenges during the 2022/23 year that, when combined, materially affected our profitability.

On the supply side, themes of international uncertainty remained, however pressures eased in the second half of the year, particularly for sourcing, supply chain and pricing.

The primary challenges for the year were, without doubt, demand-and-operationally driven.

These issues drove our sales volumes lower by 27% on last year. Fertiliser prices peaked towards the end of the first half of the year, resulting in shareholders spending roughly the same amount on fertiliser as for the prior year, but for less tonnage.

Furthermore, a fire in September, followed by Cyclone Gabrielle, shut the Napier plant down for a substantial part of the year. This impacted the servicing of our North Island market and drove costs higher as we procured alternative product for our customers. Cyclone Gabrielle also materially curtailed sales to sheep and beef farmers in our eastern North Island market.

Overall, lower volumes sold combined with lower margins on higher-priced inventories drove significantly reduced gross profits. A relatively high fixed-cost structure compounded this into a break-even outcome, also taking into account depreciation, significantly increased interest costs and insurance.

While this was disappointing, the business nonetheless remains in a solid financial position. Equity of \$620 million is 74% of assets, and well above historical levels. Cash generation was also strong with easing supply chain and procurement pricing enabling inventories to be managed down from recent highs. This is an ongoing process as we re-balance inventory, surety of supply and pricing with the increased costs of working capital.

This last year also highlighted the ongoing strength of our banking relationships. Our syndicate provided strong support throughout the year, reflecting a seasoned understanding of our business and the cyclical nature of our industry. The syndicate's willingness to support our good understanding of strategy helps make our business more resilient.

A key initiative is our recently executed plan to remove costs from the business. This is designed to support the business's financial resilience in a lower volume environment.

While we expect some uplift in volumes from recent lows as prices and markets normalise, maturity of the dairy sector, a focus on emissions mitigation and the sector shift to using fertiliser in a more targeted way through technology and precision application signal a future of lower overall fertiliser volumes.

Positioning for this lies at the heart of our Smarter farming for a better New Zealand strategy.

This year also saw some consolidation of our subsidiary and early-stage activities under our new structure, Ravensdown Ventures Limited, trading as Agnition. Its aim is to enable those activities to scale and commercialise more effectively and to support our customers as they adapt to the profound ongoing change reshaping New Zealand's primary production sector.

Ravensdown Shipping Services, our bulk freight joint venture, again delivered a strong profit contribution to the Group, albeit down from the record profits of last year. This was consistent with a general increase in global freight capacity and lowering of global freight rates following the elevated rates of recent times.

We continued investment into maintaining and improving our physical infrastructure. Inflation impacts continue to affect costings, particularly in the eastern North Island, with elevated demand for resources managing the cyclone clean-up.

Given the need to continue managing the business prudently and ensure we can continue to deliver the best possible service and price outcomes for customers, we will not be paying a rebate this year. This will better position the business to deliver competitively priced product by charging a lower margin on inventories acquired at record prices.

It will also support our ongoing drive to reduce costs and make our business as efficient and resilient as possible as we transition with our shareholders and the primary sector generally.

Our results in more detail

View Ravensdown Limited 2023 Annual Report at <https://rav.link/ar2023>

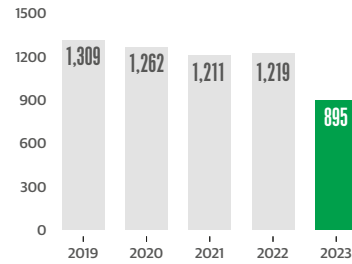
Current state

Best for every farmer and grower

Bringing smarter farming to life

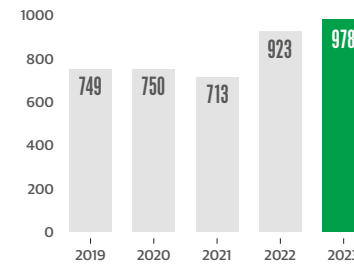
Governance

FERTILISER SALES (thousand tonnes)



Lower fertiliser volumes were a result of weather events across the country and higher commodity prices reducing demand.

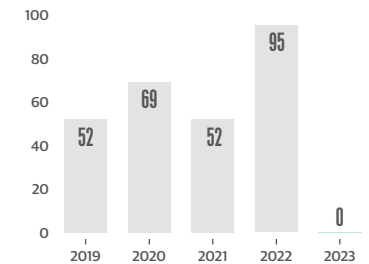
REVENUE (\$M) (before rebates and bonus shares)



(including insurance proceeds and results from discontinued operations)

Revenue was up on prior years due to higher commodity prices being passed through to customers. Revenue also includes insurance proceeds from flooding and a fire in Napier during FY 2023.

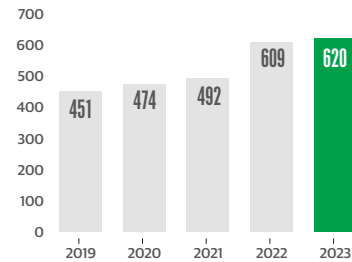
PROFIT FROM CONTINUING OPERATIONS BEFORE REBATE, BONUS SHARES & TAX (\$M)



(from continuing operations)

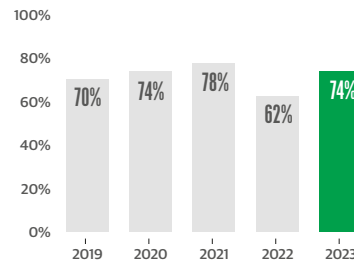
Profit before rebates to shareholders was impacted by lower sales volumes and higher commodity prices.

TOTAL EQUITY (\$M)



Equity remained stable as a result of fair value improvements.

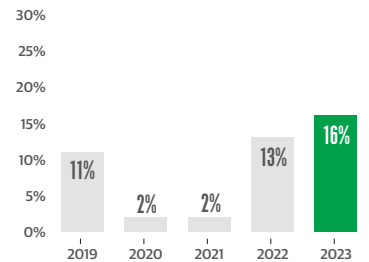
EQUITY RATIO (%)



The ratio of equity to total assets compares the money creditors and banks contribute to the business with the money owners contribute

The equity ratio improved by reducing the working capital requirements funded by creditors.

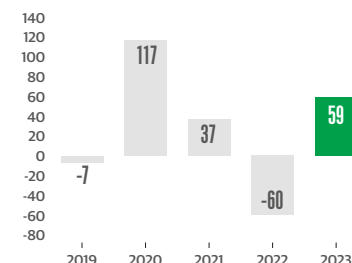
DEBT RATIO (%)



Bank debt divided by total tangible assets illustrates how much bank debt is used to fund assets

Higher commodity prices required more bank debt to fund working capital.

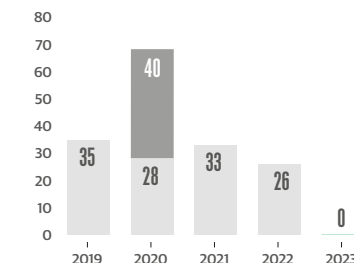
OPERATING CASH FLOW (\$M)



(after rebates to shareholders - 2019 to 2020 restated)

Operating cashflows improved as inventory converted to cash to repay creditors.

VALUE OF SHAREHOLDER DISTRIBUTIONS (\$M)



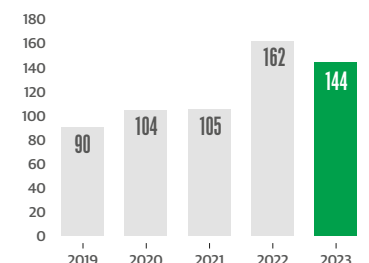
(bonus shares include tax credits)

Total value of distribution to shareholders comprising rebates and bonus shares

Legend: ■ Rebates ■ Bonus Shares

During 2023 there was insufficient profit to declare a rebate or bonus issue.

WORKING CAPITAL (\$M)



Current assets less current liabilities

Higher working capital in 2022 and 2023 reflects the covid-disrupted supply chain and higher commodity prices of the past two years.



Section /



75

76
Key risks and opportunities

78
Company structure

80
Directory

How we manage our risks and relationships

Key risks and opportunities /

Business interruption and resilience

Financial Year 2022/23 has seen several events that have put our business interruption processes, controls and resilience to the test.

These events included the ongoing impacts of Covid-19 on our supply chain and people; a fire in our Napier plant on 27 September 2022; Cyclone Gabrielle that caused significant flooding to our Hawke's Bay operations and reduced sales/margins in a challenging operating environment.

Short term – risk response and mitigation

We successfully put a business continuity plan in place and our readiness was assessed by an independent consultant.

Our fire response was rapid and resourced, so the plant was operating within four months of the event, minimising our business interruption claim with insurers.

Cyclone recovery is ongoing with a programme of work in place and active engagement with the local community, iwi and council.

Ongoing risk mitigations

Our business continuity planning system will be updated over the next 18 months.

A fire prevention programme has been extended with both the Leadership Team and Board taking an active role in monitoring the outcomes.

Asset and system replacement, relocation or repair is being planned with future resilience in mind.

Opportunity

Process re-engineering is expected to provide efficiency and safety gains in the way we manufacture product.

We are building future resilience into our assets and IT systems to minimise future disruption. This may include location reviews, modulation of IT systems, critical spares' storage and supply chain alterations.

Climate risk

The events of 2023 have also forced New Zealand to take notice of the fast-approaching impacts of climate change.

Climate risk is considered to overlay, and in many cases exacerbate the eight risks specified on page 56. Our work to identify physical and transitional climate-related risks and opportunities is shown on the same page. Three temperature scenarios were developed to assess the extent of impacts and their interrelationships.

Further information on our response and alignment with the Taskforce on Climate-related Financial Disclosures can be found in our supplementary Climate Report.

Short-term risk response

A big part of our immediate response is decarbonising our operations and reducing the GHG emissions of our products through precise and efficient nutrient application, supplier engagement and product development.

Furthermore, engagement and collaboration on climate change is critical. We engage regularly with government on appropriate policy, with suppliers on their emissions, with customers through the provision of enhanced

science and technology. Staff are encouraged to think about their own impact and we learn from and support other businesses through our memberships to Sustainable Business Council, Climate Leaders Coalition, and Aotearoa Circle.

Mid- to long-term risk

We believe the rate of change experienced in the agricultural sector will only increase and we expect significant land-use change to occur.

We believe the human and intellectual capital held by the business will be key to supporting farmers through this change, so will continue to invest in our staff and in R&D.

Nature and biodiversity value cannot be considered in isolation from these issues, so the coming year will focus more on our impacts and dependencies in that area.

Opportunity

A prompt and appropriate climate change response presents opportunity. Access to capital and the credibility of our brand and reputation will be increasingly dependent on such.

Furthermore, New Zealand's brand as a producer will be dependent on our environmental and climate change performance.

We continue to see demand for the provision of technological solutions to ensure sustainability of the sector into the future and see Ravensdown having a pivotal role in that transition.

Mitigations

Strategic

Agility to change strategic direction and decision making in an uncertain operating environment. A pricing policy that can be adjusted quickly to meet market expectations. Active engagement with regulators and industry participants.

Operations

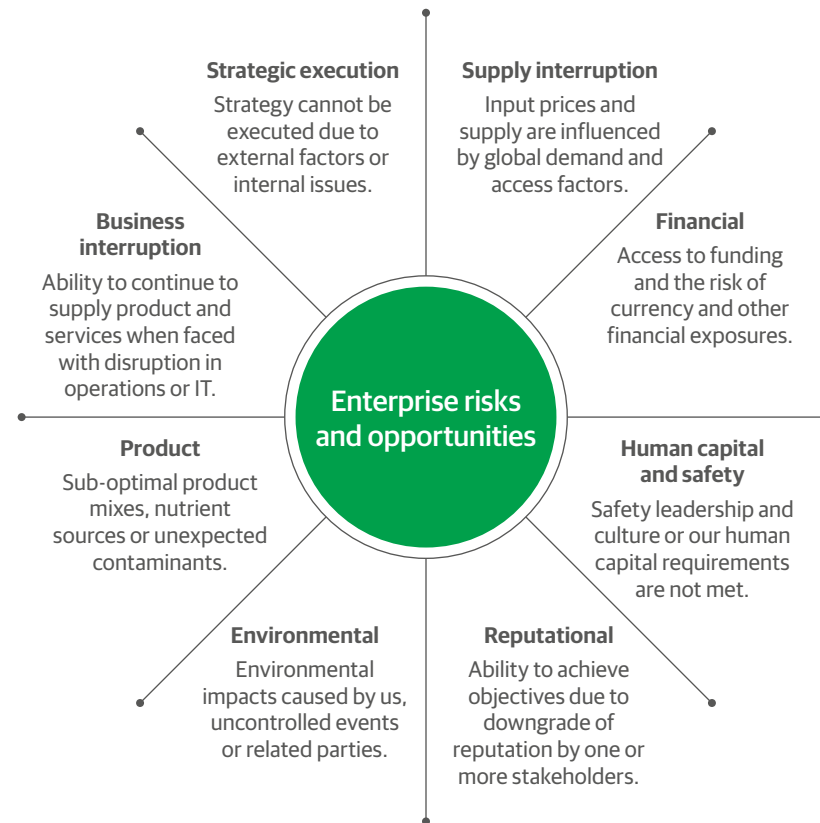
Diversified site locations and resilience built into asset and system investment. A fire prevention programme is underway. In addition to existing IT protection mechanisms, to boost security we have partnered with a cloud-based security service.

Product

Our strategy for sourcing rock is defined. Quality control warning systems and regular laboratory testing. Third party and shipment inspections are performed. Blends have their own controls and checks for compatibility.

Environment

Monitoring systems and control mechanisms for emissions, biosecurity protocols, use of technology and research and development processes are employed to reduce environmental impacts.



Mitigations

Supply

We have diversified suppliers around the world and strong relationships. Our shipping joint venture minimises supply chain disruption. Our logistics agility and extensive sales and operations' planning controls provide forecast robustness.

Financial

Maintain strong banking relationships and open communication. Foreign currency hedging and a strong treasury policy that is audited regularly. Regular forecasting and capital planning controls.

People

Restructuring change management processes, employee support services and talent retention protocols. Safety and wellbeing - visible leadership, critical risk management, systems and assurance.

Reputation

Code of business conduct and human rights impact assessment in place with supply transition projects underway. Continued R&D to reduce emissions/increase sustainability. Application tools for placement accuracy.

Company structure /

Board of Directors

Ravensdown's Board has six shareholder-elected directors and two Board-appointed directors. The Board-appointed directors bring specialist skills and additional experience to the Board and the Constitution allows for up to three directors to be appointed by the Board.

The primary objective of Ravensdown's Board is to act in the best interests of the company by building long-term shareholder value.

The Board's role and responsibilities are set out in its charter.

In terms of composition changes during the year, John Henderson retired as Chair and a Director on 31 May 2022 and was succeeded in the role by Bruce Wills.

Board Committees

The Board has four standing committees.

Audit and Risk Committee

Comprising five to six directors, including two Board-appointed directors (one of whom is the Chair), the committee meets at least four times a year to assist the Board in relation to:

- audit processes
- financial reporting
- financial systems and controls
- budgets and rebates
- risk management
- integrated thinking and reporting.

The Chief Executive Officer, Chief Financial Officer, Risk and Assurance Manager, General Counsel and external auditor also attend this committee's meetings.

Board Appointments and Remuneration Committee

Comprising five directors, the committee meets to:

- review the remuneration and performance of the Chief Executive Officer and the remuneration of senior management
- make recommendations regarding director remuneration
- make recommendations regarding appointed directors.

Governance Excellence Committee

Established in 2021 and comprising five directors, this committee is assisting the Board to establish a training programme to promote governance skills and experience within the Ravensdown shareholder base for the benefit of New Zealand agriculture.

Share Registry Committee

Comprising three directors who meet prior to each Board meeting, this committee makes recommendations regarding share surrender, allotment and transfer applications from shareholders.

Code of Business Conduct

Our Code of Business Conduct outlines our commitment to keep our people safe and to safeguard our culture by placing social and environmental governance at the core of our business. It explains our expectations of conduct within the business including our commitments to:

- human rights
- conducting business fairly
- upholding the principles of Te Tiriti o Waitangi
- community development
- environmental protection
- reducing climate change.

Ravensdown's Protected Disclosures Policy encourages employees to report known or suspected incidents of wrongdoing within the company and enables them to do so confidentially. Material breaches to the Code of Business Conduct are required to be reported to the Board and follow-up actions monitored.

We also have a range of other policies to protect our values and people, examples include:

- Supplier Code of Conduct
- Diversity, Inclusion and Belonging Policy
- Flexible Working Policy
- Anti-Bullying and Harassment Policy
- Legislative Compliance Guidelines
- Fraud Management Policy
- Anti-corruption Policy.

Governance of risk

Our Board, Audit and Risk Committee and Leadership Team via the Risk Management Committee are actively engaged in risk management.

Roles and responsibilities for risk are outlined in both our Board and Audit and Risk Committee (ARC) charters.

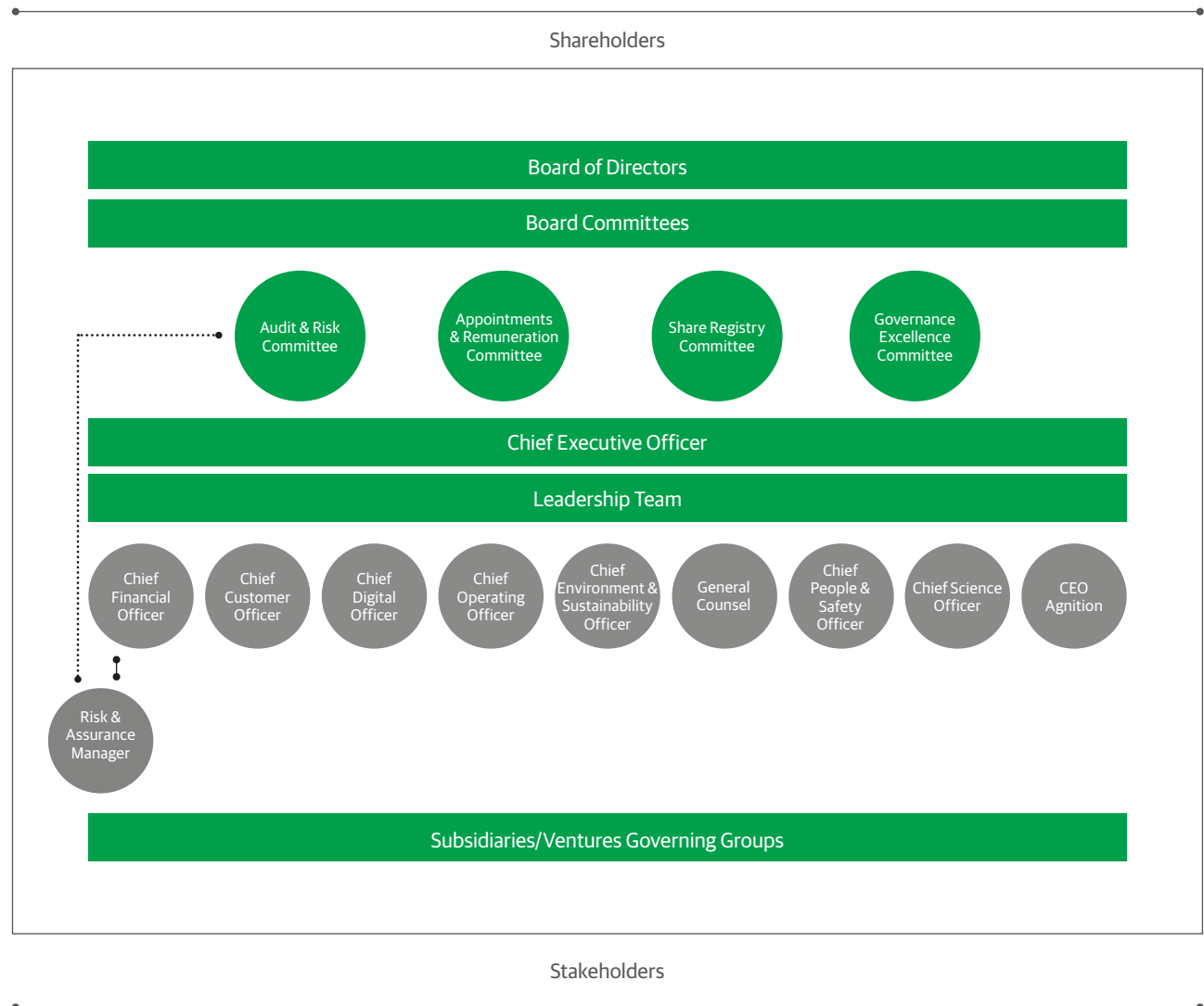
The Board promotes a risk culture, sets risk appetite and approves the risk policy.

The ARC provides oversight and monitors top enterprise risks by performing regular deep dives and actively challenging management assertions.

The Risk Management Committee, made up of our Leadership Team, meets regularly to assess and rate risk and review management activity.

Business units follow one mandated risk management framework. This framework summarises Ravensdown's commitment and approach to risk management and is reviewed by the ARC and approved by the Board.

A dedicated Risk and Assurance Manager is in direct contact with the Chair of the ARC, facilitates the Leadership Team to discharge risk responsibilities and supports a strong risk culture via system documentation, training, and advice.



Directory /

80

REGISTERED OFFICE

292 Main South Road, Hornby,
Christchurch 8042, New Zealand
0800 100 123

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customer.centre@ravensdown.co.nz



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Smarter farming for a better New Zealand / Ka pūkekotia a Rongomātāne, ka poho kererū a Aotearoa.