





Smarter farming is the way that the agsector can thrive at a time of **extraordinary** change. We've been part of the rural **landscape** for decades, working with the farming community for **generations**. Now, we're shoulder to shoulder with farmers and growers as they adjust to unprecedented challenges and **opportunities**.

Our role in the **food** creation system of New Zealand has already changed. With our nutrient **solutions** and mitigation advice, we help our customer-owners to optimise production and reduce their **environmental** impact.

■ Pictured: Dr Anna Carlton worked as a Ravensdown environmental consultant before becoming an agri manager based at our Amberley store. Her PhD covered the use of plantain in reducing nitrate leaching.



Thriving



in a **changing**  
landscape

Ravensdown exists to **enable** smarter farming for a better New Zealand. Our products, expertise and technology help **farmers** reduce environmental impacts and optimise value from the land. Whether it's food grown for livestock or for humans, we are an integral part of the **food creation** process. We are the only co-operative on the planet that tests for, advises about, buys, manufactures, ships, stores, spreads, measures and maps nutrients and fertiliser in a truly **integrated** way.

About the report

This report is the co-operative's third integrated report and sets out its key integrated strategies, governance, performance, outlook, risks and opportunities. The primary purpose is to explain to all stakeholders how the co-operative creates value in the short, medium, and long term; and how it eliminates, mitigates, and/or reduces the erosion of value over time.





"Knowing what's impacting on our customers' world increases the chances of **anticipating their needs**, not just meeting them."

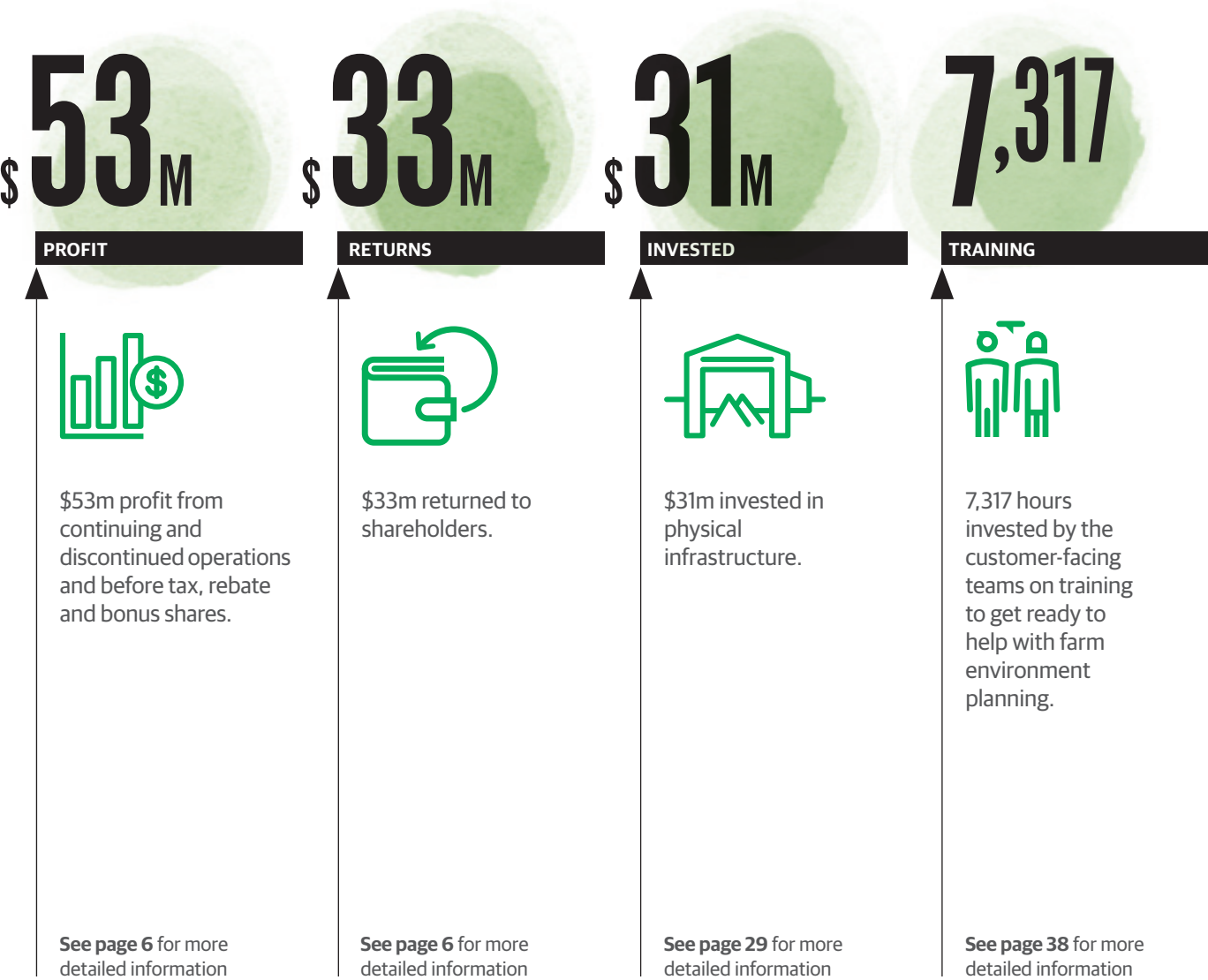
■ **Agri Manager**  
**Eva Brakenrig** working with shareholder Sean Nixon to minimise nitrate leaching in the sensitive Taupō catchment.



As a co-operative, we are here to supply the right amount of farm nutrients to our customer-owners; not the most. We also provide solutions that help with environmental mitigation and agronomic needs. When it comes to the growing prosperity of New Zealand, stronger rural communities and a progressive, environmentally considerate agsector, Ravensdown is part of the solution.

**Supplemental information is available online and the full set of audited accounts is available in a separate annual report on our Integrated Reporting website: [integratedreporting.ravensdown.co.nz](https://integratedreporting.ravensdown.co.nz)**

Thanks to the support of many stakeholders, Ravensdown continued to play its part delivering an essential service.





4,370

## TRACEABILITY

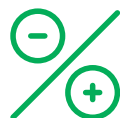


4,370 active users of HawkEye decision-making software.

See page 41 for more detailed information

78%

## EQUITY



78% equity ratio.

See page 6 for more detailed information

\$5.8M

## RESEARCH AND DEVELOPMENT



\$5.8m invested in R&D.

See page 36 for more detailed information

39

## LOYALTY



Net Promoter Score.

See page 25 for more detailed information

12,339

## GREENHOUSE GAS EMISSIONS



CY scope 1 – Carbon Footprint tCO<sub>2</sub>-e.

See page 26 for more detailed information

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JOHN HENDERSON AND GARRY DIACK

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Our role in helping New Zealand earn vital export income through the efforts of Aotearoa's hard-working food creators has never been more visible. Our contribution in helping shareholders reduce their environmental impact has never been so important. A better New Zealand depends on smarter farming – more than it ever has.

The co-operative ended the year in a strong financial position while minimising supply disruption, investing in infrastructure and retraining its customer-facing team to gear up for the growing demand for farm environmental planning.

A healthy balance sheet, strong shareholder support, good cost control and a profit from continuing and discontinuing operations before tax, rebate of \$53 million meant we were in a position

to pay a rebate of \$30 in total: returning a total of \$33 million to eligible farmer shareholders.

The team worked incredibly hard to secure the flow of essential nutrients so that they were available to farmers and growers in the right amount at the right time. Our shipping joint venture and long-term relationships with reliable suppliers proved valuable as supply disruption impacted so many other industries.







## Valued expertise

Our shareholders are expecting us to be their farm nutrient and environmental experts and, with ever-increasing regulatory pressure, the co-operative has been adjusting to the growing demand for its services. We have been investing in our capability to deliver quality farm environment plans (FEPs) at scale. The co-operative's customer-facing team invested four times as much training time on helping farmers with their farm environment plans despite only a 0.5% increase in training spend.

To allow more time to focus on our core specialism, we exited the animal health business in March. Thanks to the help of the team most impacted by that transition, the business was wound down without serious disruption or cost. The synergies between crop establishment, protection and nutrient management remain strong and we expect to see growth in the agronomy services with products such as agchem and seeds.

The growing efficiency with which farmers are putting nutrients to use is a win-win both for food production and the environment. As a co-operative, Ravensdown is here to listen and advise, not to tell farmers what to do or supply them with more products than they need.

## Commitment to the environment

Nearly \$6 million was invested in environmental R&D with a research focus on better testing for soil nitrogen to avoid any over-application, coated nitrogen products that reduce losses to air or water and a HawkEye "heat map" that assures compliance with the new national N limit of 190kg/ha. N-Protect (coated urea), which saw another record year, ultimately helps cut farmers' greenhouse gas emissions from fertiliser. In terms

of its own footprint, Ravensdown's core emissions reduced by 9% and is tracking well towards its target of a 30% reduction by 2030 (16% reduction against base year 2017/18).

Soil tests at our independently accredited laboratory rose by 36% and ARL continues to explore automation as it is set to break an annual record of 100,000 tests in 2021-22.

Application was avoided on 42,000 hectares of hill country farmland identified as not requiring fertiliser, thanks to more precise world-leading aerial diagnostics and spreading.

As an increasingly popular decision-support tool, HawkEye is a critical part of our integrated advice cycle. Its ability to help with nutrient decision making and compliance reporting has led to 11% more customers using the software. In addition to all those spreading companies with XC-10 control units installed, 1,110 customers can now send HawkEye orders to and receive proof-of-placement maps from their TracMap-enabled spreaders.

## Commitment to people

Investing in asbestos replacement and updating our physical infrastructure is of benefit to our staff and neighbours and safety remains a key focus. Investments in Christchurch's stormwater management and new intake system were well managed and are already delivering stakeholder value.

The transition to a new CEO has gone extremely well and the decision for the Chair to remain available for support and continuity is proving worthwhile. The support from all employees, the leadership team, our customers and other stakeholders is greatly appreciated.

The cautious optimism with which we viewed 2020-21 was justified as the year proved volatile from a commodity price and product supply perspective. The precautionary cost controls, carefully managed capex and a focus on the core business combined with strong customer demand to deliver a strong result.

The total profit from our continuing and discontinuing activities was \$53 million. To assist our stakeholders to focus and understand our future, the remainder of this report compares our continuing operations as is our normal practice.

We delivered a profit from continuing operations before tax and rebate of \$52 million (2020: \$69 million). In addition to an interim early cash rebate of \$15 per tonne paid in June, a further rebate of \$15 per tonne of fertiliser purchased in 2020-21 was declared. This amounted to \$33 million being returned to shareholders by the co-operative with \$16 million retained for improving physical assets and service-enhancing technology.

The reduction in profit was due to the volatility in global commodity prices meaning increases were not passed on as quickly as they might have been. Revenue was down slightly to \$712 million (2020: \$750 million) but was on forecast as we had anticipated a slight reduction in tonnages sold.

The balance sheet was strong with negligible net debt (\$0.3 million), an equity ratio of 78% and an operating cashflow of \$56 million before rebates to

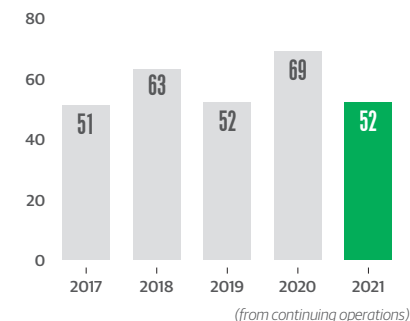
shareholders. Inventory was in line with last year and accounts receivables were down; a reflection of good payments from our customers.

Investment in physical infrastructure increased to \$31 million and asbestos replacement, which is so important to employees and neighbours, continued with \$1.4 million spent during the year. Completed stormwater and intake projects in Christchurch increased environmental performance and efficiency.

Salary and wage costs were contained due to a hold on pay increases and new headcount. The delivery of value and resisting margin erosion will be a focus in order to preserve long-term viability and ongoing investment in services, research and technologies.

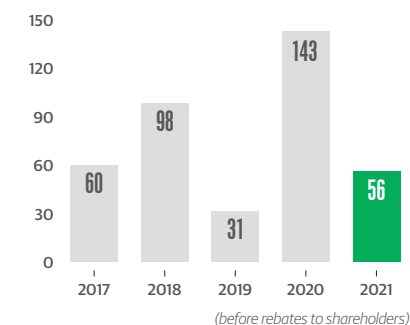
R&D spend represented a sizeable commitment of \$6 million (2020: \$5 million) at a time when evidence-based decision making is more important than ever. We maintained developments in customer-benefitting technology such as HawkEye and a new Customer Centre telephony system with a commitment of \$4 million (2020: \$5 million).

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



Strong profit before rebates to shareholders in a year with volatile global commodity prices.

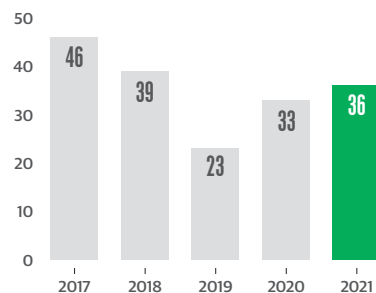
#### OPERATING CASHFLOW (\$M)



Operating cashflows reflects normalised inventory levels and timing of payables.



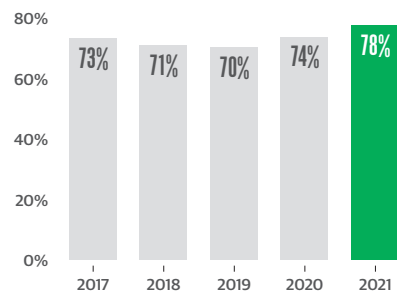
### NET CAPITAL EXPENDITURE CASHFLOW (\$M)



Net capital investment includes investments in intangibles. 2019 comparative included sales proceeds of \$10M.

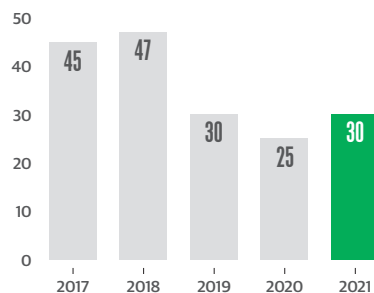
### EQUITY RATIO (%)

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



The equity ratio remains in our targeted band.

### SHAREHOLDER REBATE (\$/T)



In 2021 our rebate of \$30 enables the company to reward our shareholders whilst strengthening our financial position.

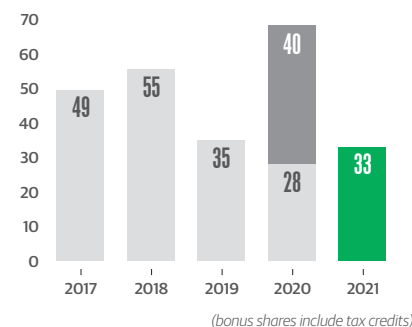
### RESEARCH AND DEVELOPMENT (\$M)



We continue to fund research and support development of new initiatives.

### VALUE OF SHAREHOLDER DISTRIBUTIONS (\$M)

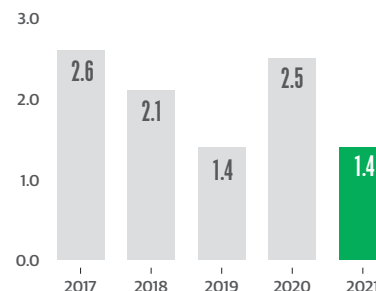
Total dollar of distribution to shareholders comprising rebates and bonus shares



■ Rebates ■ Bonus Shares

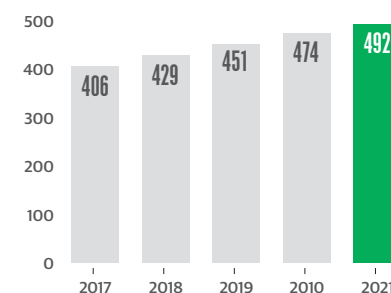
In 2021 we made two distributions: our early interim rebate in cash and a final rebate, totaling \$33m.

### ASBESTOS REPLACEMENT (\$M)



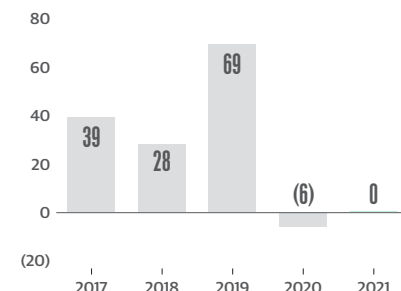
We are committed to our programme of replacing asbestos throughout our network.

### TOTAL EQUITY (\$M)



We have continued to add shareholder value with increasing total equity.

### NET BANK DEBT (\$M)



At year-end we had low net debt as a result of strong autumn sales.

Our business is impacted by, and has an impact on, a wide range of interested parties (stakeholders). We engage with them to better understand what issues are important, how we can work together on common goals and how we can consistently improve our performance.

This year, each of the manufacturing sites and lime quarries undertook a stakeholder identification and engagement planning exercise, which resulted in improved stakeholder engagement. We improved knowledge and awareness of cultural considerations associated with our operations through training of management staff and several engagements with iwi groups, and are planning to do more of this.

Our involvement in policy advocacy has risen as environmental regulations for farming have become increasingly complex. Our contribution to government and policy processes is valued by farmers and local and regional government as we seek to achieve sustainability in agricultural production. We made several submissions to government to guide the direction New Zealand takes on freshwater quality and climate change. We engaged with

industry on our collective response to climate change through our Sustainable Business Council and Climate Leaders Coalition memberships.

We completed an inaugural sustainability survey and evaluated suppliers on performance with recognition given to the top performers and assistance given to those needing to improve.

For employees, a new approach for more continuous measuring of staff engagement was rolled out in August 2021. This tool will assist us to regularly monitor staff engagement in a 'real time' way. It will also enable us to be more responsive in addressing concerns and getting wide-scale feedback on various new initiatives as they are implemented. After they proved so successful during last year's lockdown, regular all-staff virtual events providing access to the Leadership Team have remained a focus area.



**Supplemental information is available online and the full set of audited accounts is available in a separate annual report on our website.**

**"Truly listening to stakeholders is the best way to learn what matters to them so we can act on that feedback."**



■ **General Manager Operations**  
**Stephen Esposito** met many stakeholders this year including at a Christchurch open day to discuss the new stormwater management and intake systems.



Through these efforts, we continue to learn what issues are front of mind for our stakeholders. A full summary of what channels we use for engagement with our key stakeholders can be found online. Right now, the issues we must respond to include:



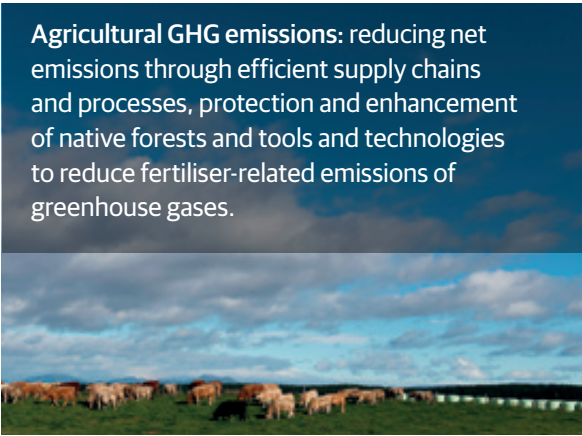
**Nutrient levels in waterways:** Robust internal environmental management as well as providing trusted advice and leading tools, technology and science to enable farmers to reduce their impact on water quality while optimising value from the land.



**Ethical procurement of raw materials:** undertaking adequate due diligence of the supply chain, applying human rights' principles and encouraging and recognising better environmental and social outcomes by supply partners.



**Impacts of our manufacturing plants:** engaging with communities regularly to understand needs and expectations in regard to cross-boundary impacts such as air and water quality, noise and odour, and investing in systems that improve our performance in these areas.



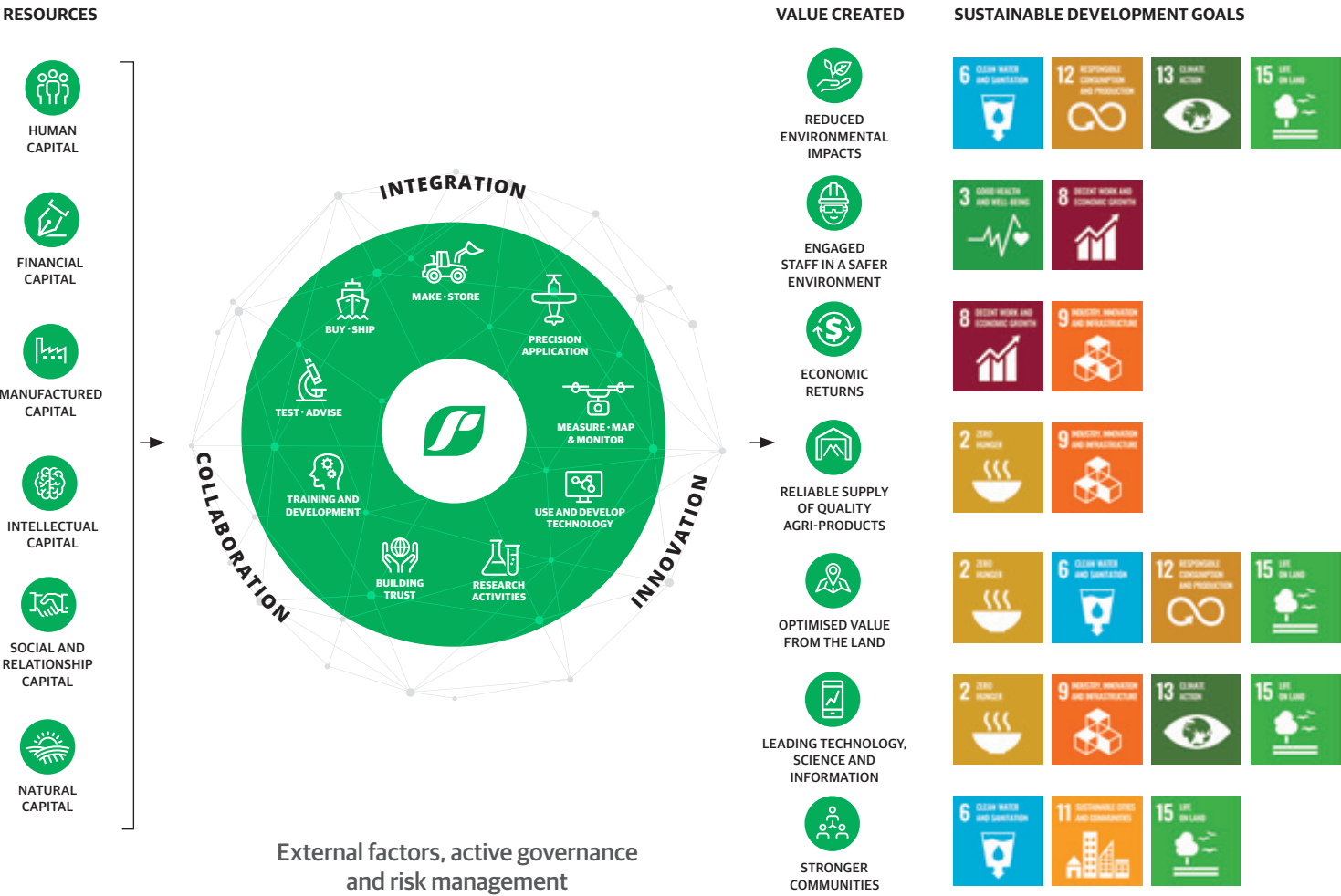
**Agricultural GHG emissions:** reducing net emissions through efficient supply chains and processes, protection and enhancement of native forests and tools and technologies to reduce fertiliser-related emissions of greenhouse gases.

What issues are important to our stakeholders?	
EMPLOYEES	BANK/LENDER
<ul style="list-style-type: none"><li>Fair remuneration and good conditions of employment</li><li>Safety and wellbeing</li><li>Training &amp; career development</li></ul>	<ul style="list-style-type: none"><li>Financial performance</li><li>Climate risk</li><li>Ethical procurement</li><li>Sustainable agriculture practices</li></ul>
CUSTOMERS	COMMUNITY
<ul style="list-style-type: none"><li>Dependable supply</li><li>Innovative &amp; customised farm solutions</li><li>Regulation assistance</li><li>Product quality</li><li>Financial performance</li><li>Farm environmental impacts</li><li>Community support</li></ul>	<ul style="list-style-type: none"><li>Impacts of main sites (dust/noise/ stormwater)</li><li>Operational GHG emissions</li></ul>
GOVERNMENT	IWI
<ul style="list-style-type: none"><li>Water quality</li><li>Climate change/ decarbonisation</li><li>Biosecurity</li><li>Ethical procurement</li></ul>	<ul style="list-style-type: none"><li>Water quality</li><li>Impacts of main sites</li><li>Waste to land</li><li>Sustainable land use</li></ul>
	SUPPLIERS
	<ul style="list-style-type: none"><li>Long-term trusted partnerships</li><li>Shared values</li><li>Responsible sourcing</li><li>Resource use/GHG emissions</li></ul>

Our business is impacted by, and has an impact on, all six capitals described in the Integrated Reporting Framework as specified by the International Integrated Reporting Council (IIRC).



More details are available from the interactive business model in our Integrated Reporting website.





## Managing the intersecting capitals

The six capitals listed on page 10 interact with each other in a series of trade-offs that need to be managed to deliver value.

### Example 1 Use of phosphate rock

The limited availability of phosphate rock choices became more evident this year. As an example of natural capital, additional sources to the rock supplied from Western Sahara were processed with the use of manufacturing capital. The other sources from Togo, Vietnam and China are more energy-intensive to work with, so financial and human capital was impacted as the team worked harder to produce the same amount of superphosphate. This product contained elevated fluoride and cadmium levels (though they remained within industry limits). These challenges occurred despite a massive effort to manage the extra supply risk (impacting on social and relationship capital) and challenges to our blending/manufacturing operations.

### Example 2 Online ordering and smart reporting

HawkEye and associated technologies are examples of use of financial capital to develop intellectual capital.

By offering precision spreading across an increasing number of groundspreading trucks and aerial spreading aircraft, we help farmers improve their management of natural capital (land and water) as well as increase their social and relationship capital (with neighbours and regulators for example).

We recruit and train employees with the right software and hardware skills so that human capital continues support and development of this solution.

“Offering farmers a system that records N-use for compliance takes effort to build in ways that are **effortless to use**.”



■ **Product Manager Phil Barlow** on the new N-190 Heat Map which is a visual audit of applied nitrogen. It is used by farmers and Ravensdown advisors, improving human capital.

In pursuing our goals towards creating and protecting value for our stakeholders in the short, medium, and long term, we proactively manage risk and opportunities in a dynamic operating context. In 2020-21 we faced challenges and risks associated with various events including Covid-19 that significantly impacted our business.

We manage risk to ensure delivery of our strategic objectives.

Our risk management framework requires and ensures that the following is in place:

- Risk Management Policy
- Governance Structure
- Procedures
- Reporting Requirements

We have taken a closer look at Ravensdown's level of climate change risk this year and are planning our response to climate risk disclosures over the coming years.

We continue to monitor the pandemic situation as impacted by vaccination effectiveness, rollouts and travel limitations.

The Audit and Risk Committee reviews a number of the top risks at each meeting.

**The following are some of our top risks and not in any particular order.**

#### RISK TITLE

Changing government and shareholder priorities affecting our industry in relation to climate, emissions and the use or protection of natural resources

**Response:** We will continue to meet with central and regional government to provide examples of managing within environmental limits while optimising farm production.

**Medium/long-term view and opportunities:** The demand for Farm Environment Planning, proof-of-placement compliance and environmental mitigation will become even more important.

Interruption to the supply of key fertiliser inputs, arising from either global or domestic events or constraints

**Response:** We have enduring relationships with long-term suppliers of our key fertiliser inputs which we continue to assess. We explore back-up options to ensure we can meet supply commitments to our customers.

**Medium/long-term view and opportunities:** Keep developing second sources as back-up supply options whilst maintaining the long-term relationships with our high-performing supply partners.



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**RISK TITLE**


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Inability to deter or recover from cyber security incidents

**Response:** We continue to invest in strengthening our existing security systems, processes and practices to detect, prevent or recover from cyber security threats.

**Medium/long-term view and opportunities:**

Cyber threats will continue to grow in volume, with phishing and ransomware attacks likely to remain the largest threat given their relative effectiveness.

The growth in cloud platforms and services is making it easier for hackers to operate globally and bringing greater risks to New Zealand. Security controls both for personal and business mobile devices will be increasingly important as hackers seek to use this vector to commit fraud or gain company information or system access.

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**RISK TITLE**


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Changing public opinion on the role of agriculture in NZ

**Response:** Align where practical with government plans to increase primary sector export value, to attract and retain more workers by 2024 and help farmers with their greenhouse gas emissions.

**Medium/long-term view and opportunities:**

With improvements and even better environmental mitigation, New Zealand's well-managed pasture-based systems can continue to be the world's most carbon-efficient food producer.

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Failure to embed a culture, systems and processes that prevent or can appropriately respond to material safety, health or security dangers or incidents

**Response:** Our Safety and Wellbeing strategy has a focus on three key pillars – visible leadership, critical risk management, and simplified systems and assurance. Key metrics are in place to support visibility of performance against each of these pillars and a strong culture of reporting hazards and incidents is encouraged.

**Medium/long-term view and opportunities:**

Ensuring a clear implementation plan for each of the key pillars is in place, understood and supported across all parts of the business.

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Ravensdown is **clear** on why it exists and how it helps turn this goal into reality. The following pages are focused on how we are progressing on our **five priorities**.

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#### WHY

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To enable smarter farming for a better New Zealand.

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#### HOW

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By providing products, expertise and technology to help farmers reduce environmental impact and optimise value from the land.



Supplemental information is available online and the full set of audited accounts is available in a separate annual report on our Integrated Reporting website.

## PRIORITY

01.

**Enabled  
People**

Working smarter and farming smarter go hand in hand – we focus on helping our people do their best work together.

02.

**Trusted and  
Leading**

We have an ambition to lead and will never stop trying to do what we say we will do.

03.

**Quality Agri  
Products**

Quality is about delivering promised performance – how it is experienced is the bedrock of our offering.

04.

**Science**

We work with others to discover new approaches to the thorny challenges – the science never stops moving and neither will we.

05.

**Technologies and  
Services**

Armed with supporting technology, our employees work with each other and customers to deliver excellent service.



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PRIORITY

ENABLED PEOPLE

01.

Best work together

Enabling people takes constant focus and a positive, safety-oriented culture. Learning and development have always been prioritised, and staff and contractor wellbeing is increasingly important.

Our people help us to achieve our common purpose – enabling smarter farming for a better New Zealand – by doing their best work together.

This year we systematically worked through revisions of all our people-related policies and procedures and introduced new technology to simplify our recruitment and onboarding processes.

A project was undertaken to review our current hazard management and incident reporting system. RavSafe significantly simplifies the reporting and vastly improves accessibility and user-friendliness of the tool for our people. This in turn will enable more accurate reporting and improved responsiveness.



“The team at Ravensdown do their **best work together** and share a common purpose.”

■ **Store Manager**  
**David Hirst** leads the Whanganui store, supported by Tyrone Purcell and Kane Compton.

Key Focus Areas



Meaningful Work



Safe and Sustainable



Positive Leadership



Inclusive Culture



Opportunities for Growth





## Safety

We are now well on our way to implementing some of the key targets of our revised safety and wellbeing strategy which centres around three core pillars:

1. Critical Risk Management
2. Visible Leadership
3. Simplified Systems and Assurance

One of the most significant changes has occurred through carrying out "Safe Work Conversations" with the Board, Leadership Team and line managers across the business recording some of the everyday discussions we have about safe work. This has given us proactive, positive insight into the way the business is being run and the attention our workers give to safety every day.

■ More safety conversations at work and a simpler reporting tool all help improve a culture that is prioritising safety and wellbeing.

New vehicle standards are aimed at improving safety and environmental impacts for everyone visiting and picking up products from our sites.

In April 2021, we achieved tertiary-level accreditation for the second year in a row after the annual audit as part of the Accredited Employers Programme. The audit was carried out at Dunedin Works and included an in-depth review of our injury management practices.

## Recordable Injuries

This year 24 of our people sustained a recordable injury, meaning they were injured to the extent that they needed medical treatment, restricted duties or time off work. This increase from last year is primarily due to the overall increase we have seen in reporting (18% more incidents reported).

The increase is also due to supporting workers in seeking medical treatment when they have suffered even a minor injury, which has seen medical treatment injuries increase from one last year to seven in 2021. The overall severity of incidents remains low, with minor injuries, strains and contusions making up over 80% of recordable injuries. However, we will never be complacent if our people are getting injured.

### Focus on Injuries

Total recordable injury frequency rate (TRIFR) and lost-time injury frequency rate (LTIFR) targets have been achieved this year\*. Musculoskeletal injuries continue to be the primary cause of our recordable injuries, with a developing focus on early intervention. In the coming year, focus will be given to injury management and how to better support our workers in a meaningful way when returning to work. This should result in a significant decrease in lost-time injuries.

From 1 August 2021 we introduced minimum standards for vehicle loading and unloading on all of our sites. This is part of a collaborative initiative to ensure visitors operate safely while on our sites and to ensure we're looking after the environment, with equipment designed and maintained to ensure product is secure throughout its journey. The feedback received from stakeholders will help us shape the final standards we put in place.

A review of our permitting system has seen some changes being made to the way we view routine and non-routine work in the business. These changes will ensure pre-planning work focuses on the risk assessment in the form of a Job Safety Analysis (JSA). Training for all staff will be rolled out to ensure there are adequate controls in place for non-routine work and that they are applied consistently.

METRICS - PERFORMANCE SECTION	2017-18	2018-19	2019-20	2020-21	TARGET
Total events reported	714	860	946	1110	–
Total recordable injuries	33	27	14	24	
Total lost-time injuries	14	14	9	13	
Rolling 12-month Total Recordable Injury Frequency Rate average (per 200,000 hrs)	4.7	4.4	2.2	3.56	4.66 Industry benchmark*
Rolling 12-month Lost-Time Injury Frequency Rate average (per 200,000 hrs)	1.44	1.96	1.41	1.78	1.96 Industry benchmark*
Safe work conversations logged			1,049	2,327	

\*Business Leaders' Health & Safety Forum 2020 Benchmarking Report for all workers (employees and contractors combined)

## Wellbeing

Our employee wellbeing programme 'Thrive' has been in place for 12 months and continues to evolve. Over the past year we have run campaigns on mental health and financial wellbeing. Our 'Money Bites' webinars had high participation rates and it was great for our people to share these with their whānau. We recently signed up to a new platform called 'My Everyday Wellbeing' which will be a great addition to our existing 'Thrive Online' web-based resources. We are continuing our focus on mental health this year by rolling out a series of workshops to help our people managers identify and manage mental illness challenges in their teams. Our training on coping with stress and uncertainty in challenging times has been provided across most parts of Ravensdown with only a few teams to complete the programme in 2021.

## Resourcing & Workforce

The introduction of our applicant tracking system ('Snaphire') in September 2020 provided a platform that was cost-effective, attracted positive user feedback and created efficiencies for our hiring managers and HR team, enabling:

- Faster approvals – saving two days on average
- Decreasing time to hire by an average of two weeks per role
- Integrated psychometric testing completed through online testing software saved the team five minutes per candidate
- Talent database of 2,000+ potential future employees

Despite a necessary 'freeze' on our forecasted remuneration increases in 2020 due to Covid-19, we maintained our commitment to paying the NZ Living Wage to all fixed-term and permanent employees.

	2018-19	2019-20	2020-21	TARGET
# FTE	658	660	631	–
% staff turnover	11.3%	11.07%	12.17%	≤10%

After seven months at <10% turnover (with a record low of 9.02% in November 2020), we experienced a spike in turnover for the last quarter of the financial year, creating an overall increase of 1.1% on last year. This correlates with the initial uncertainty following the alert level 4 lockdown, followed by an increase in external market competition due to NZ border restrictions. The headcount figures are offset by a number of vacant roles to be filled.



Learning & Development

In the post-COVID recovery, a cautious approach was taken to learning and development, with many external opportunities being limited due to the risk of alert level changes. We have provided our teams with the opportunity to attend virtual training sessions where possible.

Our Digital Security training has continued to support awareness and prevention of the threat of cyber security attacks.

We develop our future leaders through participation in the emerging leaders programme offered by the New Zealand

Institute of Management & Leadership, and Next Level Leadership offered by the Agri Women’s Development Trust.

We have also invested in growing the knowledge of our agri managers and Customer Centre by expanding our suite of online training modules. In addition to this, in conjunction with Massey University, we have upskilled teams on farm systems and farm environment plans through the introduction of three new courses – all delivered online. All agri managers, environmental consultants and Customer Centre staff will complete these courses over the next two years.

	2018-19	2019-20	2020-21
Spent on targeted training and development	\$1.1m	\$940k	\$945k
Total training hours	2,572	2,968	4,582
% internal appointments	36%	47%	33%
# of secondments	6	13	16



“Farmers know they need to **improve in this environmental space** and look to their co-operative for help.”

■ *Senior Agri Manager James Livingston* was one of the first participants on Massey University’s new Advanced Farm Environment Planning course.

## Capability

Our operational teams continue to develop capability. Aerowork has focused on building depth across the engineering team, critical for keeping our planes in A1 condition. We now have two Group One rated engineers and a number of engineers working their way towards this level. Our inventory stores team also continued their development, working through Level 3 Aeronautical Storekeeping during the year.

This year saw us implement a training programme for agpilots which will help support hyperspectral scanning in the upcoming season (see page 37). Systems were implemented to support our pilots and customer service.



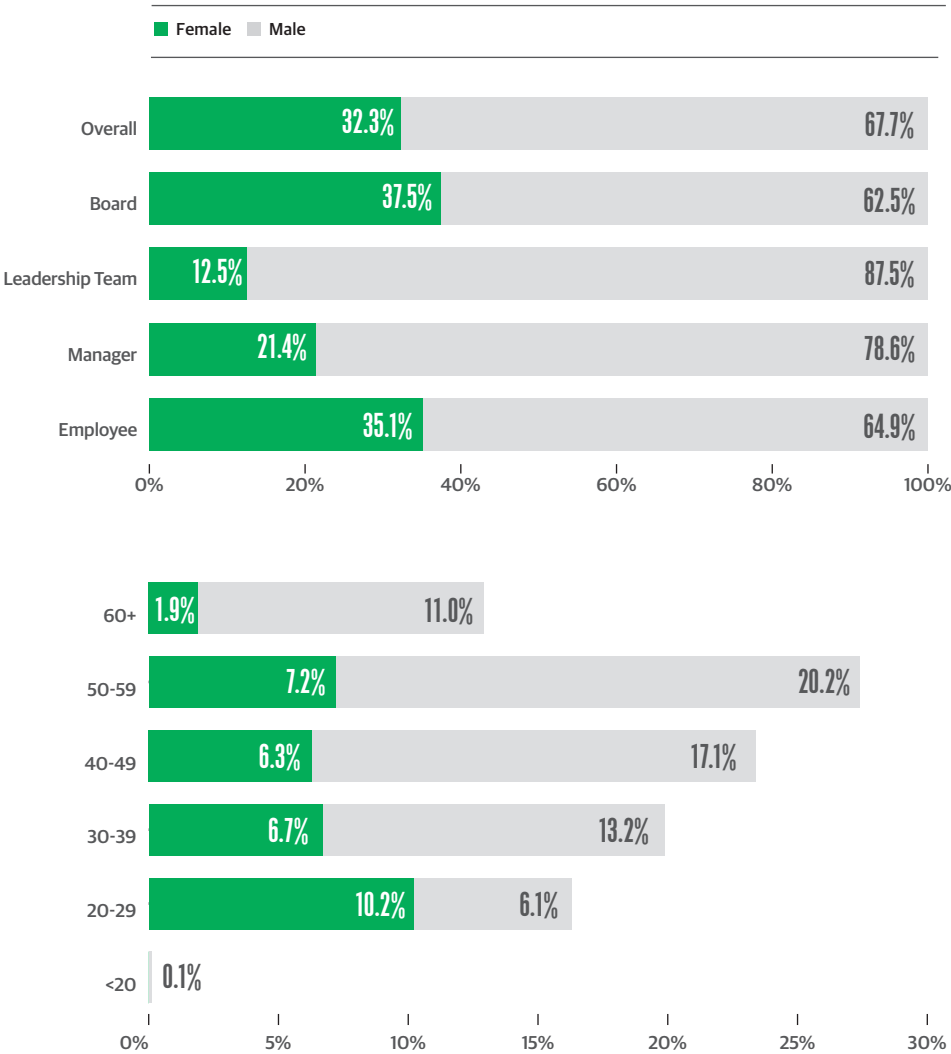
■ Aerowork pilot Mike Harding seen here spreading fertiliser, completed his Ag1 training this year.

Diversity

In July 2020 we engaged with Diversity Works to complete a 'stocktake' of our diversity and inclusion progress. The stocktake identified that, while we had interventions and foundations already in motion, there were still opportunities to develop a more formal, strategic, and well-informed approach to diversity and inclusion management. Our next step is to develop a comprehensive Diversity and Inclusion plan.

Our current diversity statistics show 35% female representation in our workforce, 22% in managerial roles, 20% in senior leadership and 37.5% on our Board. Our capture of ethnicity data continues to increase through our onboarding technology and we now have details of about 68% of the permanent workforce.

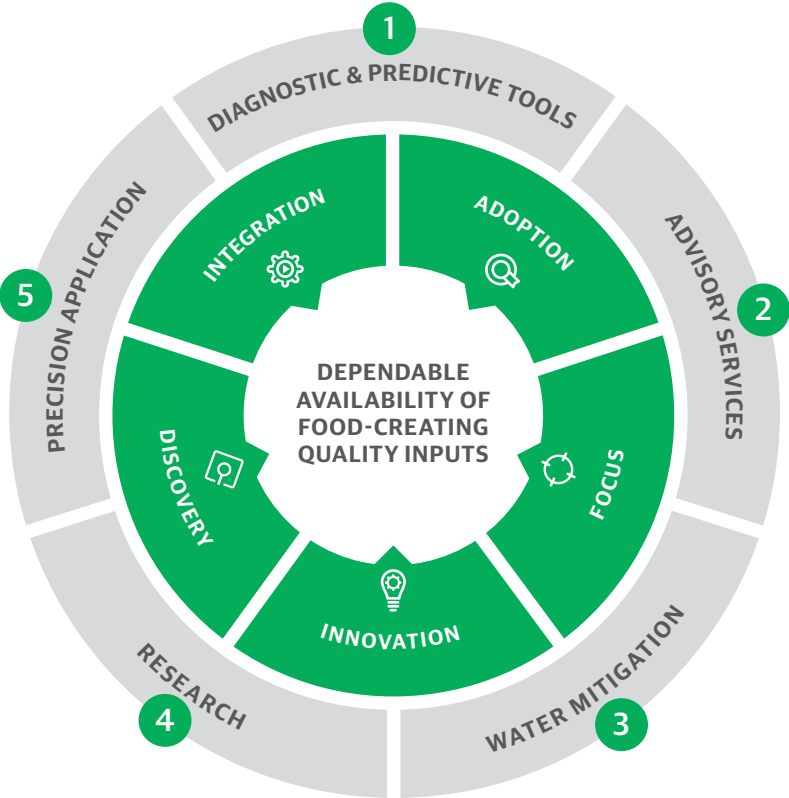
A Cultural Competency workshop was held in March 2021 with senior leadership in our Operations division. Following the necessary adaptation to new ways of working through the course of 2020, in September we introduced our first flexible working policy as a more structured step in supporting employees to thrive at work and at home. While all forms of flexible working are not possible with all roles in Ravensdown, our aim is to support these opportunities where we can.





Our people are adapting in order to help customers thrive in a changing landscape.

The core provision of nutrients is complemented by science, technology and services all aimed at helping farmers reduce their environmental impact and optimise production.



1. Diagnostic & predictive tools

**Analytical Research Laboratories**  
Measure nutrient levels in soils and plants to inform predictive models and derive fertiliser recommendations.

**Robust models** Predictive tools improve decision making about phosphate-loss mitigation or nitrogen-use efficiency.

**Remote scanning** Emerging technology to determine plant and soil nutrient levels and vegetation types.

**ClearTech®** Dairy effluent treatment system reduces fresh water use and kills micro-organisms such as *E.coli*.

4. Research

**Precision coatings and blends** Smart fertilisers including N-Protect with a coating that reduces gaseous emissions.

**Collaboration with others**  
Supporting evidential research into more efficient use of nutrients to minimise losses to water and air.

2. Advisory services

**Farm nutrient and environmental experts**  
Farm Environment Plans, nutrient budgets and good farming practice for optimised nutrient use.

**Certified advisors** Trusted advice improves chance of on-farm adoption (training includes GHG mitigation).

5. Precision application

**IntelliSpread®**  
Computer-controlled topdressing aircraft doors adjust spreading rate and avoid sensitive areas/waterways.

**Precision spreading** GPS-guided certified groundspreaders reduce risk of under- or over-application of nutrients.

3. Water mitigation

**Integrated Catchment Management**  
A collaborative multi-stakeholder approach to environmental management at a catchment level.

**HawkEye®** Visual mapping tool eases decision making and can demonstrate compliance.





## PRIORITY

## TRUSTED AND LEADING

## 02.

**On the front foot**

Trust is built by accounting for multiple perspectives and being transparent across a range of measures.

We aim to lead by prioritising environmental stewardship and social responsibility.

**Dependable nutrient availability**

In a year of unprecedented supply chain disruption, it has been more important than ever to have strong long-term supplier relationships. The support from our key suppliers across the financial year was critical in ensuring we provide the farm inputs our shareholders require when they need them.

While we were not immune to unprecedented impacts, we managed imports, with the help of our suppliers, to ensure shareholder impacts were minimal. We acknowledge the stress to our customers and employees this year

■ IVS Swinley Forest (above) discharging urea and MV Deneb Harmony discharging sulphur in Lyttelton. Both vessels are new builds, providing increased fuel efficiency leading to reduced GHG emissions.



when we encountered lower-than-planned volumes of superphosphate in the North Island last autumn. By providing clear demand requirements to our product supplier partners, we ensured our requirements were built into their manufacturing planning early. Continued engagement directly with these suppliers ensures we are kept up to date with disruption risks as they emerge.

This year marked the tenth anniversary of our shipping venture (Ravensdown Shipping Services) and its value has enabled us to ship bulk products when others have struggled to do so. Container freight has been managed with the assistance of Toll Global Forwarding and Maersk, often going above and beyond to ensure supply disruption is kept to a minimum. For both product and shipping suppliers, being in strong supply partnerships, communicating clearly, being open and honest and working together collaboratively has proved yet again the benefits gained in dealing directly with our stakeholders.

## Long-term supply partners

Long-term supply partners are highly valued by Ravensdown. To manage ever-emerging risks, we qualify new supply sources to ensure we have more options to call upon should we encounter disruptions going forward.

	2018-19	2019-20	2020-21	TARGET
% direct spend under management with long-term supply partners	91%	94%	91%	>90%

## Net Promoter Score

The last two years have seen the net promoter score, used as a measure of customer loyalty, continue to rate highly. This is very pleasing and indicates the focus is working on making life easier for our shareholders, ensuring our teams are well trained to give the best advice, and providing consistently high-quality product. A score over 35 is considered an outstanding result.

	2018-19	2019-20	2020-21
Net Promoter score	26	40	39

## Positive Leadership

One of the five key focus areas of our new Culture and People Framework is 'Positive Leadership', a philosophy especially important through times of change and crisis as we saw during our response to Covid-19. We are designing a new leadership development programme alongside a 'Stepping Up' programme focusing on the fundamentals of self-leadership and personal responsibility.

Our commitment to providing an employee experience second to none has been acknowledged through the 2021 HR Director magazine's Employer of Choice Awards where Ravensdown was formally recognised for the achievements and initiatives we have put in place across several areas, including learning and development, wellbeing, leadership and flexible working.



"Ravensdown doesn't just pay lip service to leadership – **it backs its people.**"

■ **Ashleigh Harrison** (Store Worker, Winton), Jennifer Henderson (Lab Team Leader, ARL) and Marco Hambley (Acid Plant Engineer, Christchurch Works) successfully completed the Emerging Leaders Programme.

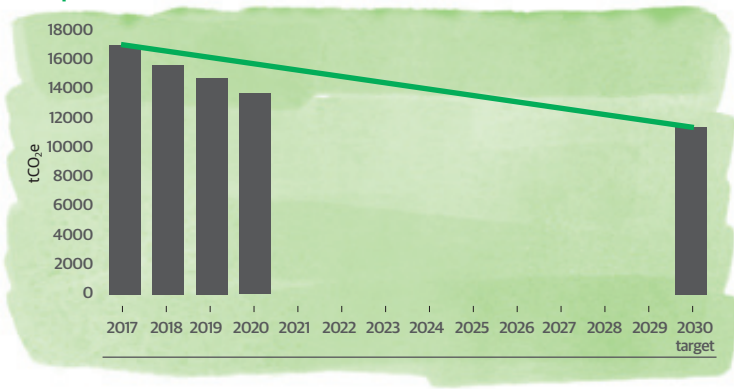


Carbon Footprint

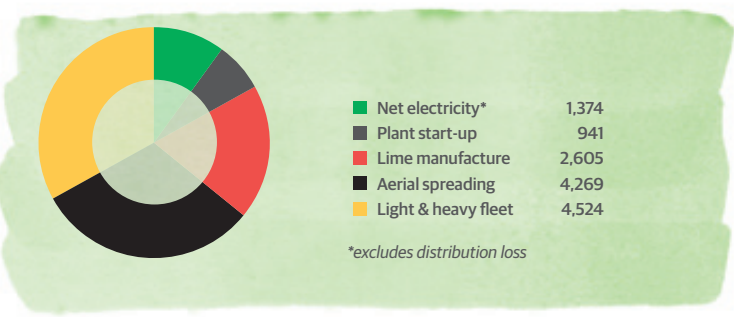
We see climate change as a significant global threat and therefore track our greenhouse gas emissions and climate-related risks.

This year Ravensdown’s direct carbon emissions reduction target was increased to 30% reduction by 2030. The current year’s performance is already 16% below the base year and GHG intensity also fell by 5% this year. Some of this year’s initiatives are listed overleaf.

Ravensdown operational GHG Emissions to date & reduction target, scope 1+2



2020 core emissions only



Emissions composition TOTAL in tonnes of CO<sub>2</sub> equivalent

	CY 2019	CY 2020
UPSTREAM – Scope 3		
Coastal shipping	182	448
Shipping	91,259	80,346
CORE – Scope 1 and 2		
Manufacturing start-up	525	941
Heavy & light vehicle fleet	4,870	4,524
Net electricity	1,350	1,528
Lime drying	3,353	2,605
Aerial spreading	4,850	4,269
DOWNSTREAM – Scope 3		
Waste	195	238
Air travel	546	239
Distribution	29,365	29,416
GHG losses on farm direct from fertiliser	1,095,694	1,163,593
TOTAL	1,232,190	1,288,146

Scope 1: sources owned by company.  
Scope 2: purchased electricity.  
Scope 3: sources not owned or directly controlled.  
(<https://ghgprotocol.org/corporate-standard>)

Carbon footprint is calculated on a calendar year. The rest of the Integrated Report is related to the financial year.  
Calendar year 2019 emissions have been updated to reflect the latest emission factors.

"SABIC is taking a leading role in carving the path toward a **low-carbon economy**."



■ **Dr Bob Maughon**, EVP Sustainability Technology and Innovation at Ravensdown supplier SABIC, outlines the scale of investment at the global leader in urea production. [Sabic.com/en/sustainability](https://Sabic.com/en/sustainability)



- We significantly reduced coal use by 22% and progressed with technical investigations into renewable fuels along our pathway to phase out coal. In the coming year we will implement some of the identified initiatives and undertake further lab tests and investigative work.
- We are introducing electric forklifts to our large fleet of diesel-powered forklifts and sought a supplier partnership to assist with this.
- We continue to see the benefits of remote working styles and flexible working policy with reduced travel emissions.
- We more than doubled the movement of product via coastal shipping, taking trucks off the road and reducing diesel emissions. We will continue to look for opportunities to do so.
- Carbon emissions in manufacturing increased due to the number of acid plant start-ups, which required more diesel. Once started, our acid plants generate electricity which is used in our manufacturing plants with excess exported to the national grid.
- We continue to investigate the use of biodiesel in mobile plant and acid plant start-ups.
- Small projects were completed for efficient electricity use including LED lighting, electricity monitoring and solar generation feasibility investigation.
- The company vehicle policy was updated to better support Climate Leaders Coalition commitments.



■ Ravensdown has committed to plant trees at selected sites to restore the landscape, provide habitat and sequester carbon. We also help farmers to do the same. This volunteer day involved planting 1,000 trees at a Rakaia dairy farm.

- We have taken a closer look at Ravensdown's level of climate change risk this year and are planning our response to climate risk disclosures over the coming years.

Limited assurance for our GHG emissions inventory has been provided by EY. Their statement is available at <https://integratedreporting.ravensdown.co.nz/>

Environmental Performance

There have been significant improvements and a focused effort to improve standards across all of our New Zealand network that go beyond compliance:

- All of Ravensdown's 55 sites are assessed regularly for RMA compliance and environmental impacts are increasingly monitored regardless of a consent obligation to do so.
- Stormwater discharge sampling was doubled, continuing to make improvements to better understand our environmental impacts.
- Incident management software was updated to better record, analyse and respond to environmental hazards and events, as well as health and safety events. Reporting of events through our incident reporting platform continues to improve, with 120 submitted this year. The more reports we receive, the easier it is to identify trends and respond to risks.

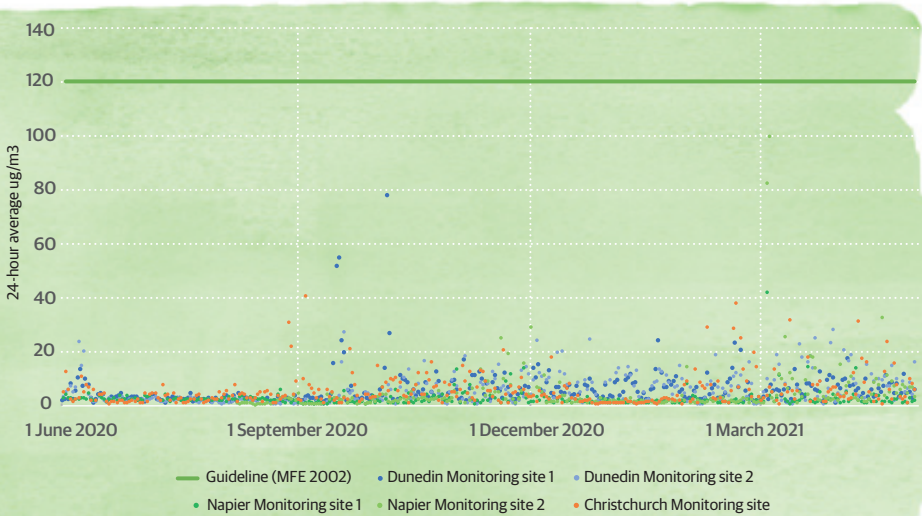
- Environmental management plans and associated communications tools were upgraded across our network.
- We received a single infringement notice this year, at the Dunedin Works, after an accidental release of some residual diesel from a drip tray entering the stormwater system. The spill was immediately cleaned up to the council's satisfaction. In response to this event, we have installed an interceptor and undertaken refresher training with staff and a thorough risk assessment of the high-risk areas of the plant.

Ravensdown holds a number of resource consents at various sites which require careful management. For example, the three superphosphate manufacturing sites hold consents to discharge sulphur dioxide to air from our sulphuric acid plants. All three sites have maintained 24-hour average discharges within the Ministry for Environment (MFE) guideline of 120ug/m<sup>3</sup>.



■ The stormwater treatment system at the New Plymouth site was further enhanced to improve water quality and compliance. Site staff worked closely with the local nursery to keep pests out and plant more wetland species so they can fully establish.

Daily Ambient Sulphur Dioxide Level - three manufacturing sites





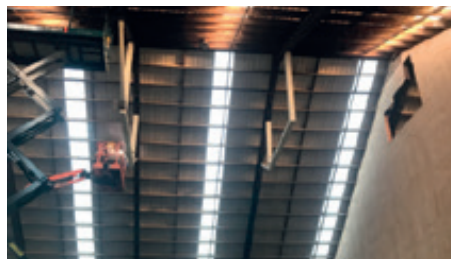
## Investments

Our infrastructure upgrades focus on improving safety for people and visitors, reducing environmental impact and improving efficiency. This year saw the introduction of a formal sustainability assessment of all major construction projects to help minimise risk and improve project delivery.

Nutrient and stormwater management remain our key environmental management priorities across the stores' network. Improvements include sealing road surfaces, installing electric rapid doors, improving stormwater capture and disposal, and enclosing dispatch areas.



■ The multimillion dollar stormwater upgrade in Christchurch was a chance to listen to residents before the site's 100<sup>th</sup> anniversary in 2022.



### Aircraft fleet

Thirteen new fully HSNO-compliant loader trucks were purchased which improve safety and efficiency. Four further replacement trucks are planned for 2021-22. The sealed cabs of the new trucks allow the operator to undertake all tasks safely from within the loader cab.

### Dust Control

The old open-air despatch area at McNab store was replaced by a new fully enclosed despatch area. This will vastly improve our environmental footprint on site as well as improving processing capability.

New dust curtains were installed at Seadown and New Plymouth.

### Asbestos Removal

A programme is being progressively completed across our building stock to improve the safety of our staff, neighbours and visitors. To date we have spent \$14.2 million out of a planned \$24 million over a 10-year period. Highlights this year include a full re-clad of our Gisborne Store (pictured), with the Masterton store scheduled for completion next year.

### Seadown Development

To improve customer service, maintain product quality and improve efficiency at the Seadown Service Centre, we are continuing a staged upgrade. We completed a dressing plant upgrade and started installing a new urea conveyor and adding a second despatch lane. These upgrades will help to maintain product quality throughout storage and handling and provide customers and transporters with improved service delivery.



Christchurch Works Store 7 was strengthened for compliance, safety, asset protection and extension of life.



Dunedin Works' yard sealed surfacing improved environmental performance and reduced nutrients in stormwater.



Supreme Electrical upgrade for compliance, safety, asset protection and reliability leading to increased efficiency and automation.



Geraldine primary crusher was replaced to meet increased demand at lower cost and with reduced fuel use and emissions.



Christchurch and Dunedin Acid plant Economisers: Replacement of end-of-life asset to increase reliability, lower repairs and maintenance costs.



Christchurch intake replacement was a large-scale project resulting in increased reliability, ease of maintenance, improved environmental performance and improved safety.



Dunedin dynamic separator improved processing capability while reducing operational and maintenance costs.



Upgraded intake system at the Napier store improved safety and environmental management along with greater efficiency.





**"We're working with the community to help the providers of food to the community."**

■ **Hamish Price** is a maintenance fitter at the Napier site where staff are preparing their permit renewal application for the site's air and water discharges.

An application to renew the air and water discharge permits for Napier Works is being prepared. We are taking the opportunity to engage with local stakeholders and interested members of the public so that any application is informed by an open and transparent engagement process, and community issues are appropriately understood and addressed.

Ravensdown is committed to reducing our environmental footprint and is already making investments to achieve this goal. More information can be found at <https://www.ravensdown.co.nz/ravensdown/napier-21-consent>

Consents at our other sites are being renewed or updated where required.





PRIORITY

QUALITY AGRI PRODUCTS

03.

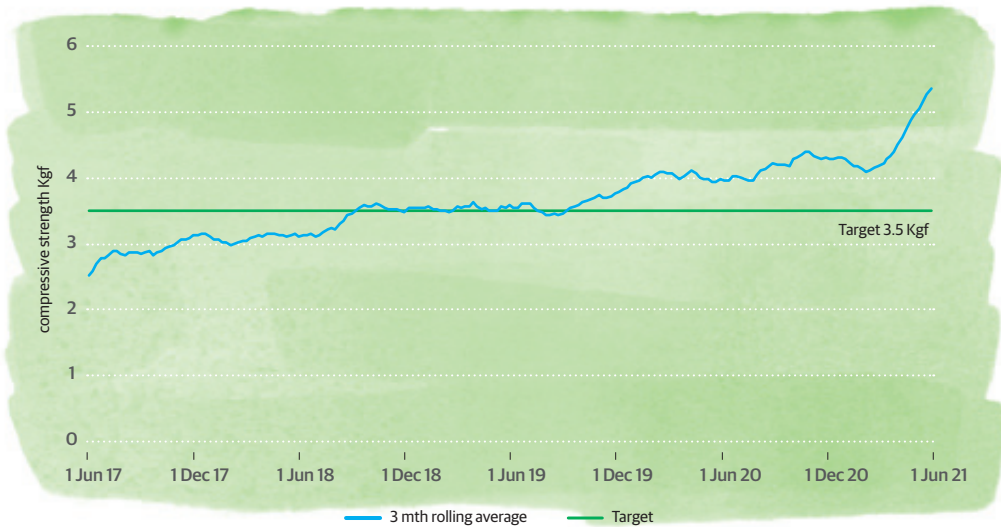
Reliability and dependability

Whether it's fertiliser, lime, seed or agchem products, farmers and growers need products that are fit for purpose, suitable for New Zealand conditions and available when needed.

Increased compressive strength means the fertiliser granules break down less during handling and blending. This means less dust and better, more precise spread during application. Our stated superphosphate target is 3.5kg force and we have been achieving results at or greater than this on average across the three works sites for the past three years. This target is exceeded by sourcing quality rocks, and focus from our manufacturing and process teams.

Compressive strength

Superphosphate Compressive Strength (kg force) Three works rolling average



■ Stronger superphosphate granules deliver better environmental and agronomic outcomes.

Fertiliser quality

All Ravensdown lime quarries and major fertiliser products continued to be Fertmark registered.

In the past 12 months, all chemical quality results have been within Fertmark standards.

Despite sourcing and processing challenges (see page 11), all superphosphate products leaving the plant were below the industry-set limit of 280mg of cadmium /kgP.

Dependability and quality remained a key focus with virtually no complaints received.



Product quality ratings

	2018-19	2019-20	2020-21
Overall product quality rating for fertiliser, lime, agchem and seed products	74	75	75

Product quality remains consistently high on a scale of 0=poor to 100=excellent. All products have performed well reflecting an ongoing focus on improving manufacturing processes, strong relationships with key suppliers and our ongoing focus on quality from procurement, through logistics, handling, testing and regulatory compliance. This year we made the decision to exit our animal health dips and drench range as we focus on our core business of nutrient management, environmental advice and agronomy.

Product quality for the agchem and seed businesses remained consistently high. New varieties of improved seed from Cropmark are being added to the range as other varieties are phased out. Over the next year, the way we provide agronomic advice is being improved as we focus on specialised advice to suit farmers’ needs beyond immediate solutions to a longer-term approach.



### Low risk imports – protecting our borders

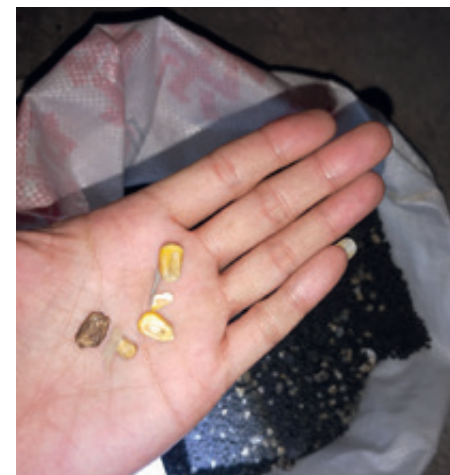
	2018-19	2019-20	2020-21	TARGET
Applied fertilisers via bulk vessel imported as “low risk” biosecurity	98%	100%	97%	> 95%
% Imported bulk fertiliser met physical and chemical quality specifications	97%	98%	98%	> 95%

Our “Low Risk” system for importing bulk vessel fertiliser proved its worth again in 2020-21. As supply of DAP tightened, we were offered a cargo from an alternative source. Our assessments highlighted several risks and the cargo was rejected at the origin port. Reinforcement and clear expectations of biosecurity measures were communicated to our preferred supplier, who was then able to review its supply point and offer a suitable replacement cargo that met our standards.

### International supplier performance

	2018-19	2019-20	2020-21	TARGET
% international suppliers' performance is evaluated	86%	91%	100%	> 90%

Ravensdown completed evaluations on 100% of our preferred suppliers sharing the feedback with them. Given the supply chain challenges across the globe, this highlights the value our key suppliers place on providing quality products at the right time. The supplier review system has now been extended to capture most indirect preferred suppliers that support our sites across the country.



■ After discovering unacceptable contamination during pre-loading, the DAP shipment was rejected at the origin port.





"N-Protect (urease inhibited urea) keeps more nitrogen for the plant so it makes **environmental and economic sense.**"

■ Southland shareholder and Mid-Aparima **Catchment Group Chairwoman Jolene Germann's** PhD is focused on collaborative approaches to better water outcomes.



PRIORITY

04.

SCIENCE

Investing in the future

When it comes to reducing the potential impact of fertiliser on the natural environment, precision, speed and accuracy are the key.

	2018-19	2019-20	2020-21
Expenditure funding Research and Development (\$m)	5.2	5.0	5.8

Centred on the theme of nutrient efficiency, the research focus on the past year has been:

- Faster and better testing for soil nitrogen to avoid over-application.
- Coated nitrogen products that reduce losses to air and water.
- Clarification systems that turn dairy effluent into usable water and reduce leachable nutrients.
- Faster and more precise aerial application for more accurate placement around sensitive areas and exclusion zones.

Ravensdown is participating in a group exploring a faster and much more accurate nitrogen test technique to determine how much soil N is available to the plant. Customers in the arable and horticultural sectors will receive a result from Ravensdown's independently accredited laboratory ARL that can then be used to reduce nitrogen surplus with subsequent benefits for water quality.

"Much of New Zealand's highly productive land is vulnerable to over-application of nitrogen, so it's **important to have a more precise view** of how much is available to the plant."



■ **Dr Hendrik Venter** and the rest of the ARL team commissioned the new improved potentially mineralisable nitrogen test.

PROJECT*	BENEFIT	STATUS	CHALLENGE	FUTURE FOCUS
IntelliSpread+	Proven precision aerial spreading optimises nutrient application and avoids sensitive areas.	Five planes fitted, >95% of all jobs receive fast automated rate control. Total ha was 228k (153k ha <sup>^</sup> ) of which 42k (31k ha <sup>^</sup> ) did not need or receive fertiliser.	Fixed engineering capacity and demand on Aerowork fleet delayed fitting of all aircraft.	After the December install, explore options to complete remaining four aircraft.
AirScan	Hyperspectral scanning will enable remote testing and 3D mapping to accurately diagnose how much phosphate is needed where.	Eight applications directly based on AirScan data.	18 month extension to improve the remotely sensed Olsen P values in appropriate seasonal windows.	Completing commercialisation work as programme concludes. Adoption rates of 15% by 2024 and 40% by 2031 remain the target.
ClearTech	System kills 99.9% of <i>E.coli</i> in dairy effluent, drastically reducing water use and risk of pond overflow.	Six additional commercial dairy farm applications and four livestock truck washing applications.	Uncertainty of macro economic factors and regulatory factors.	Continue education efforts and explore potential commercial market which needs to re-use water.

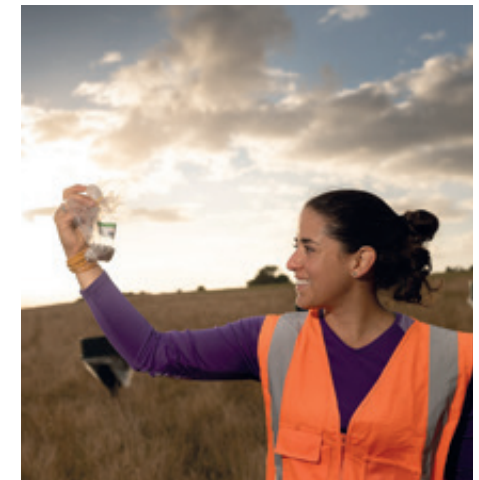
\* Project descriptions and other details available [integratedreporting.ravensdown.co.nz](https://integratedreporting.ravensdown.co.nz)

<sup>^</sup> bracketed numbers relate to 2019-20.

A calculator developed in conjunction with Plant and Food Research also estimates how much N will be available to a plant across five months, so nitrogen applications of the right amount can be planned.

The Primary Growth Partnership to transform aerial spreading is coming to an end (after an 18 month extension granted due to COVID disruption). New computer-controlled doors on an IntelliSpread+ aircraft adjust at least twice as fast as other aircraft, and this

improved accuracy becomes more important near environmentally sensitive areas. Application and avoidance areas are automatically logged in the HawkEye mapping system for planning and compliance.



■ Proving precision is painstaking work but vital if feed production and environmental impact are at stake. A researcher from Massey University conducts an independent assessment of the placement accuracy of the aerial application of the IntelliSpread+ system.





PRIORITY

TECHNOLOGY AND SERVICES

05.

Insights and support

Technology is a key driving force behind agsector improvement. It opens up new opportunities; new ways to track progress, make decisions, demonstrate performance and make connections with end consumers.

Trusted advice

As the regulatory landscape changes, the need for the right advice from a trusted advisor is more important than ever. With an increase in on-farm training and specialised learning and development for our teams, we are seeing all customer-facing staff and their support network deliver consistent, high-level service to our shareholders.



Government mandated most farmers to have a Farm Environment Plan (FEP) by 2025, so the focus is on 'quality at scale' with respect to providing FEPs, nutrient budgets and agronomy plans. Roles have been streamlined, training for agri managers has been provided and we exited the animal health business knowing that shareholders are expecting more help in our core specialism: farm nutrient and environmental expertise.

	2018-19	2019-20	2020-21
Average rating of agri manager advice and service	75	76	77
Number of Certified Nutrient Management Advisors	70	68	68
Training hours completed by our customer-facing teams (hours)	2,789	1,448	7,317

There was a 'catch up' in training hours after Covid-19 restrictions. But the majority of the fourfold increase was the significant investment in training for farm environment planning and nutrient budgeting.

"Ravensdown has helped us with **environmental guidance** on N-loss and GHG emissions as well as whole-farm soil testing as we adjust to new limits around nitrogen use."



■ **Independent farm consultant Paul Lawrey** is located in the Waikato and is focused on nutrient use efficiency.

### Farm environmental consultancy

Ravensdown remains a provider of choice in an increasingly crowded farm environmental consultancy market. The majority of work involves OverseerFM nutrient budgets to meet regulatory requirements, but an increasing amount of more complex scenario modelling is being requested as farmers look to make changes to their farm systems in order to achieve reductions in nutrient losses.

We are fortunate to have qualified resource management planning staff who can both advise on resource consent requirements and prepare resource consent applications. The total number of hours helping farmers has dropped primarily due to a reduction in staff numbers and is expected to increase as staff numbers grow again and regulatory requirements become clearer.

	2018-19	2019-20	2020-21
Number of hours Ravensdown environmental consultancy helped farmers	13,578	17,494	16,588

### ARL testing

The number of customers requesting tests remained constant over the last 12 months with more samples tested per customer. There has been a significant increase in soil testing due to a catch up from the previous year when Covid-19 interfered with soil testing. The increase in other diagnostic tests is largely

attributed to growth in plant tissue testing and feed quality testing as demand for these services rises. We expect soil test numbers to continue to increase as customers measure nitrogen efficiency more closely with superior testing capability and tighter regulations.

	STATUS	BENEFIT	FUTURE FOCUS
Test	Soil tests from our independently accredited laboratory increased by 36% in 2021.	Fast and accurate diagnosis of nutrient requirements underpins more precise planning.	Automation for faster processing at peak times. Whole Farm Soil Testing will highlight variability – areas needing more or less fertiliser.
Plan	6% more agronomy plans were delivered.	Agronomy plans are a useful tool for the advisor to keep within limits required by a Farm Environment Plan (FEP) and for farmers to optimise production more sustainably.	Improving efficiencies and co-ordination to scale up provision of FEPs. Bed down changes in customer-facing team to prioritise nutrient management and agronomy solutions.
Apply	A quarter of all fertiliser tonnages supplied were captured by proof of placement GPS technology.	Spatial records of how much of which fertiliser went where is vital for nutrient use efficiency, managing losses and compliance reporting.	Focus on ease of use and integrating data from other spreaders for example with TRACMAP control units. Per hectare nitrogen limits can be readily validated.
Report	11% more customers are actively using the HawkEye mapping tool.	Improved environmental outcomes and decision making, especially nutrient and feed management.	Increasing mobile capability and compliance reporting. Communicating efficiencies of greater automation.

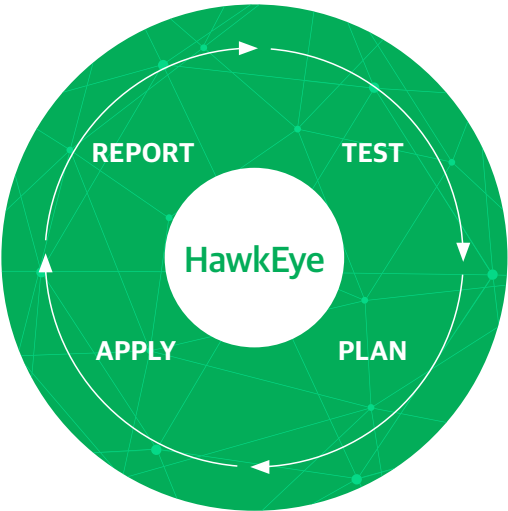
"With the existing relationships and insight into what customers are trying to achieve, we can explore areas for **environmental improvement** in a positive way."



■ Four Senior Agri Managers  
*Kieran Anderson, Thomas Taylor,  
Jane Mayo and Sonya Perkin  
became our new Regional  
Environmental Specialists.*



Integrated advice cycle



	2018-19	2019-20	2020-21
<b>TEST</b>			
Number of customers who have performed soil tests	6,585	5,876	6,115
Number of soil tests completed by ARL	79,194	65,653	89,262
Number of other diagnostic tests completed by ARL	11,704	10,877	14,126
<b>PLAN</b>			
Number of published agronomy plans	8,900	9,501	10,025
<b>APPLY</b>			
% of fertiliser captured by Ravensdown proof of placement GPS technology	21%	23%	25%
<b>REPORT</b>			
Customers actively using HawkEye/SmartMaps during the year	3,209	3,936	4,370

The Board and Leadership Team are committed to creation and preservation of value for stakeholders in the short, medium and long term.

Board meetings take place at least eight times a year and more regularly as needed to achieve governance and regulatory responsibilities. For the reporting period, the Board held eight meetings. Formal meeting agendas include:

- Matters of strategy, risk and opportunity
- Management reports on operational and financial performance
- Governance, compliance and legal matters
- Health, safety and environment

The Board is satisfied that it has fulfilled its responsibilities in accordance with its Board Charter for the reporting period.

All transactions with the Board are carried out on a commercial basis, and the Board does not receive advance notice of price changes. Directors are notified of price changes at the same time as all shareholders.

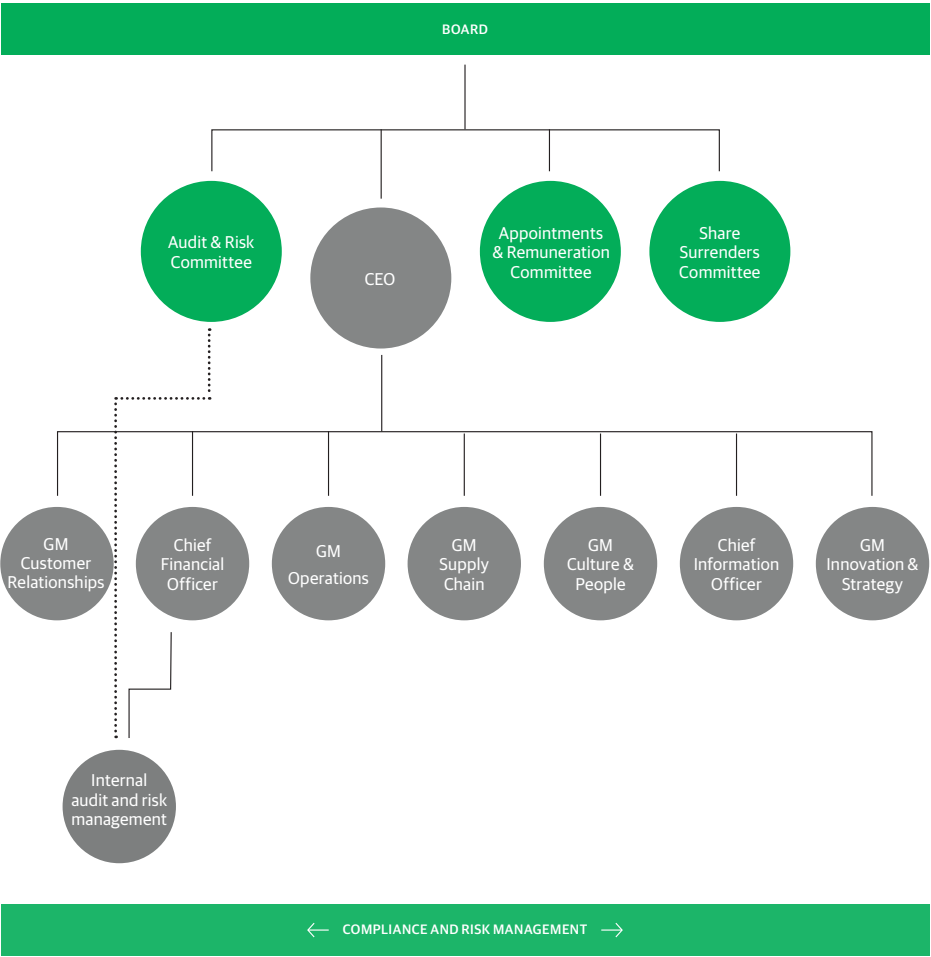
### Board Committees

The Board delegates certain responsibilities to well-structured Board Committees without abdicating accountability. The delegation is formalised by a Board-approved Charter for each Committee and a Board Charter. The Board consists of six farmer elected members and two appointed members.

The Board receives reports and minutes of each Committee meeting. The Board has approved a financial delegated authority, which also sets out the material decisions in respect of which it has reserved the decision-making authority. The composition, mandate and performance of the various Board Committees are reviewed annually

and contribute to the effective discharge of the Board's duties and responsibilities to create and protect value for our stakeholders in the short, medium and long term.

The Board is ultimately responsible for the governance of risk and Integrated Reporting, and these remain key focus areas.



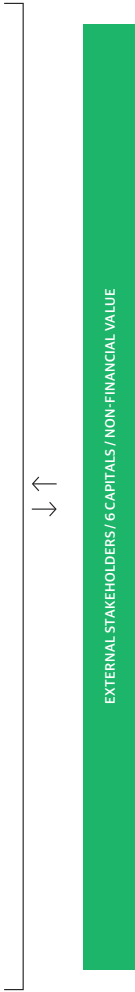
**Strategy**

**Annual Report**

- Integrated Reporting
- Financial Reporting

**Policies**

- Code of Business Conduct and Ethics
- Environmental Policy
- Legislative Compliance Guidelines
- Health and Safety Policy
- Conflict of Interest Policy
- Protected Disclosures Policy
- Fraud Policy
- Diversity and Inclusion Policy





Ministry for Primary Industries (MPI) forecasts sector export values will exceed \$50 billion by 2025. This is to be achieved with less land, fewer animals and smarter farming practices.

Pressure will increase on farmers and growers who are trying to pursue a win-win for production and the environment and Ravensdown stands ready to help support high-performing and sustainable farm systems.

### Managing supply and price risk

Disruption in providing essential nutrients will be a real risk as global supply and demand combine to impact prices and availability. Ravensdown's shipping joint venture and long-term relationships will help mitigate the worst impacts on the supply chain, but the outlook will remain challenging.

Farmers in other much larger food-producing nations are driving fertiliser demand internationally. Meanwhile the extremely limited choice of global sources of essential nutrients such as potash will continue to be challenging.

Similarly, phosphate and sulphur, which are essential for all plant life, require careful purchasing from only

a few available countries that can supply the right quality in a reliable way over the long term.

### Climate and water

In our current financial year, government will be responding to the Climate Change Commission's first budget recommendations. While supporting the Commission's ultimate goals, our focus is on practical and workable solutions with minimal impact on agsector production.

We are also part of the Primary Sector Climate Action Partnership (He Waka Eke Noa) that is developing a pricing mechanism for emissions by 2025. From this financial year, statement of fertiliser purchases will start to include the corresponding product greenhouse gas numbers.

The primary tool used by farmers and their advisors for modelling nutrient losses, Overseer, continues to be improved and now includes modules on greenhouse gas losses.

Improvement to the tool is dependent on increased funding for agri-scientists whose work forms the model's backbone and on support from the co-funders; MPI, AgResearch and the Fertiliser Association.

While there has been some media claims around the health aspects of nitrates in water, it is the guidance of the Department of Health and World Health Organisation on this topic that takes precedent. The co-operative already does a huge amount of work on helping farmers reduce their nitrate leaching as this is needed on environmental grounds.

Ravensdown remains "agnostic" about which farm system its customer-owners select. From biodynamic to conventional farms and at every point on a spectrum of regenerative practices, the choice remains with the farmer or grower. Much of the experimentation currently being undertaken has been made possible by decades of previous investment in maintaining soil fertility levels and there will be lag effects before true changes in soil health and consequential production can be determined.



"The **outlook is positive** and the mindset is of constant improvement."

■ **New CEO**  
**Garry Diack** listening to shareholders at a Marton dinner in his first week.

## Responding to policy imperatives

The Fertiliser Association reported that supply of manufactured nitrogen fertiliser fell by 8% in 2020-21 as farmers responded to the new national nitrogen limit of 190kg/ha. It remains uncertain whether conditions will favour a similar decline in the next three years, although N-Protect coated urea means less total tonnes of nitrogen required to achieve the same production effect.

Ravensdown will continue to assist customers to comply with the limit and explain to government the consequences of further one-size-fits-all input controls.

The Fit for a Better World roadmap from MPI is pushing for an agsector that is more sustainably productive and which is "producing while reducing". Through its continued investment in nutrient use efficiency and its ability to recommend changing practices to its customer-owners, Ravensdown can support shareholders in an evolving policy environment.

There is uncertainty around the detail demanded by government-mandated FEPs plus the workload and costs of production. The co-operative's retrained team is well placed to assist as this becomes clearer.

## Summary

With its commitment to listen and improve for the sake of all its stakeholders, Ravensdown is well positioned to add value into the future.

As farmers face global logistical challenges and regulatory uncertainty, a motivated and knowledgeable team is working hard to help them thrive in a changing landscape. Sound business fundamentals, strong shareholder support and a direct relationship with its customers make Ravensdown ideally placed to help shareholders with their goals related to production and environmental impact.



From left to right.

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**Back row**

**Peter Moynihan**

**Jason Dale**

**John Henderson — Chair**

**David Biland**

**Bruce Wills**

**Front row**

**Jacqueline Rowarth**

**Nicola Hyslop**

**Jane Montgomery**





From left to right.

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**Back row**

**Mike Manning** — GM Innovation and Strategy

**Mike Whitty** — GM Supply Chain

**Garry Diack** — Chief Executive

**Mark McAtamney** — Chief Information Officer

**Stephen Esposito** — GM Operations

**Front row**

**Bryan Inch** — GM Customer Relationships

**Katrina Benedetti Forastieri** — GM Culture and People

**Sean Connolly** — Chief Financial Officer



John Wyatt (centre) became the first person to win all three categories of the New Zealand Dairy Industry Awards. Chair John Henderson presented him with his Ravensdown Pasture Management Award at this year's national event.



Toby Evans receiving the Ravensdown-sponsored Young Achiever's award at the recent NZGFA Conference at Mt Cook, presented by Ant Boyles, National Logistics Manager.



Director Bruce Wills, seen here at an AgriWomen's Development Trust event with shareholders Jo Hay and Donna Cram, was made an Officer of the Order of New Zealand.



As part of their school fundraisers, parents did a sterling job feeding Ravensdown customers at field days and A & P shows.



Dipton lime Quarry Manager Richard Millar shows where the new natives will be planted, while outlining more carbon efficient options for drying aglime.



Beth Archer and Jess Fisher were appointed to new roles in the Customer Centre and are dedicated to helping the new Regional Environmental Specialists.





We continued to support AgRecovery events for recovering plastic from farms for recycling, recovering an additional 6,200kg of bulk fertiliser bags.



We grant staff one day a year to assist a community or environmental group or cause of their choice. The Lyttelton Port and Banks Peninsula Conservation Trust were one charity to benefit from some volunteer planting efforts.



This year we extended our support of the Takaka Hill Biodiversity Group by providing the location for a native plant nursery for propagating native seedlings for habitat restoration, and a grant for monitoring the endangered giant land snail population.



The new multi-million dollar intake system at Christchurch means essential nutrients can arrive from the port in a safe efficient and environmentally responsible way.



Stakeholder engagement is a vital part of the Napier consent renewal process and the Technical Advisory Group ensures dialogue continues.



Last year, the nine ClearTech units that clarify effluent from dairy farms or transporters saved nearly five Olympic swimming pools' worth of fresh water.

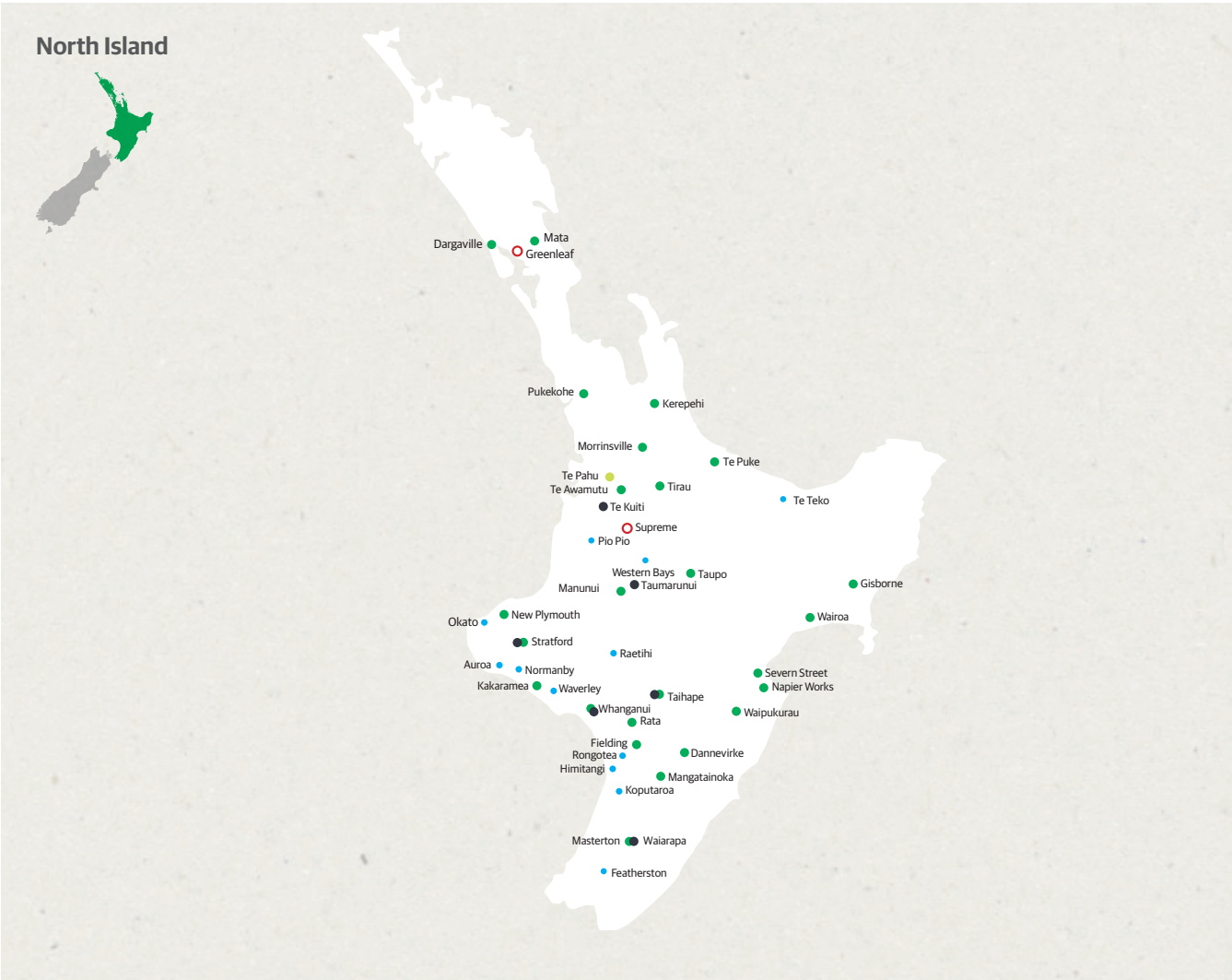


KEY

- Ravensdown-owned stores
- Ravensdown consignment stores
- Ravensdown aglime quarries
- Lime processing plant
- Aerowork

REGISTERED OFFICE

292 Main South Road, Hornby,  
Christchurch 8042, NZ  
0800 100 123



## South Island



All reasonable internal verification efforts have been made in bringing this Integrated Report together in the spirit of disclosure. With the exception of the greenhouse gas emissions inventory, for which Ernst & Young provided limited assurance, no other information in this Integrated Report was externally assured. A full set of audited accounts is available in the annual report on Ravensdown's Integrated Reporting website.

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Enabling **smarter farming** for a better New Zealand —  
Ka pūkekotia a Rongomātāne, ka poho kererū a Aotearoa

Supplementary information available on **integratedreporting.ravensdown.co.nz**