
Fit for a
Better World
Aotearoa | New Zealand
2023
Progress Update

Ministry for Primary Industries
Manatū Ahu Matua

Publisher

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Disclaimer

The *Fit for a Better World* Roadmap sets the course for accelerating New Zealand's food and fibre economic potential. The objective is to consolidate and enhance New Zealand's reputation for producing safe, high-quality, sustainable food and fibre.

Three pillars – productivity, sustainability and inclusivity – guide the work, which backs the food and fibre sector to thrive and tackle its greatest challenges and opportunities.

This report shows work under way, charts the progress and details a range of projects within the strategy. It is a snapshot of activity across the country – involving farmers, growers, fishers, foresters, producers, businesses, industry bodies and government.

Taiao ora, tangata ora

If the natural world is healthy, so too are the people

Contents

Fit for a Better World Vision

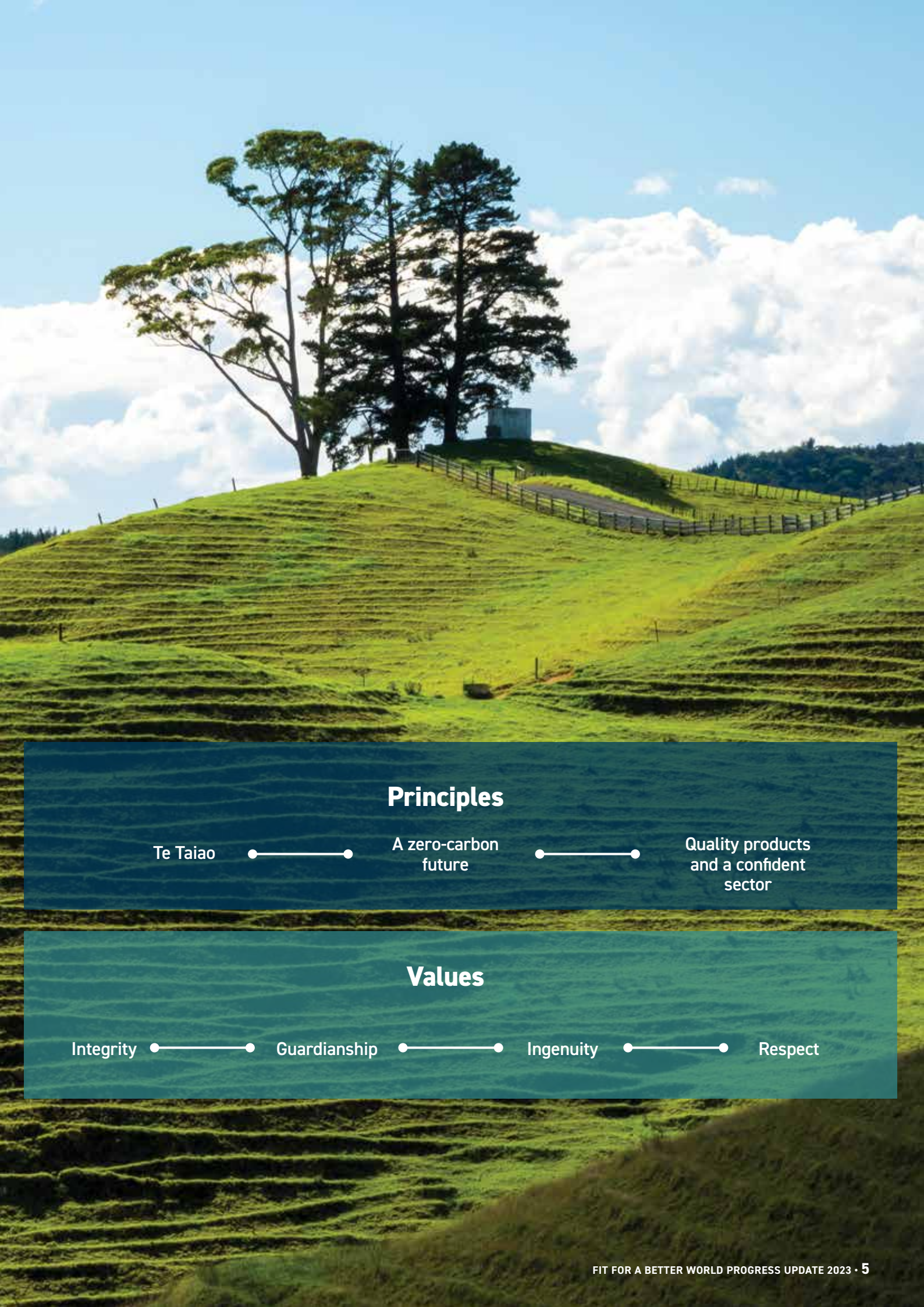
We aspire to an enriched future by providing the world's most discerning customers with outstanding, ethically-produced food, natural fibres, drinks, co-products and bioproducts, all sourced from our land and oceans.

Outcomes

Productive — Sustainable — Inclusive

Approach

Vision-led — Business and Community-driven — Government enabled



Principles

Te Taiao — A zero-carbon future — Quality products and a confident sector

Values

Integrity — Guardianship — Ingenuity — Respect

On the journey

In mid-2020, the *Fit for a Better World* Roadmap was released, setting a clear direction ahead for sustainable prosperity in the food and fibre sector and outlining three targets to reach by 2030.

Three years in, our farmers, growers, fishers, foresters, processors and entrepreneurs have taken thousands of actions every day to be fit for a better world.

In an ever-changing operating context globally, the sector has made significant progress towards our productive sustainable and inclusive goals:

- Food and fibre export revenue is projected to reach $56 billion in the year to June 2023, on track to surpass the goal of reaching $67 billion in the year to June 2030.
- Agricultural methane emissions have been maintained at a roughly stable level over the last five years.
- Over 16,000 people have been placed into food and fibre work through attraction campaigns, such as *Opportunity Grows Here*.

These headline numbers do not reflect all that has been achieved.

The partnership approach has led to over $170 million committed over four years through the Centre for Climate Action Joint Venture, and almost $560 million invested through the Sustainable Food and Fibre Futures fund since its launch in 2018.

Collaboration across the food and fibre sector, Māori, and government has also led to co-design of industry transformation plans and action plans, there is a focus on retaining and growing our workforce.

Aotearoa New Zealand is known for high standards, quality, safety and performance. But we must not rest on our laurels.

Jenny Cameron
Chief Transformation Officer
– *Fit For a Better World*

We must keep improving to not only stay competitive, but to keep reducing our impact on the environment. The Roadmap creates a holistic framework for progress and assessing impact.

We are continuing to focus on securing and enhancing our competitive advantage, improving outcomes for tangata and taiao and fulfilling the potential of our food and fibre resource base. There is a renewed focus on expanding innovation and investment, supporting Māori economic prosperity through food and fibre sector opportunities, continuing to deepen understanding of our export markets and consumers, as well as capitalising on our sustainability performance and reputation.

The last three years has seen these strategies and plans evolve through co-design. Commitment is needed from here to stay the course and maintain momentum and enthusiasm with investment and resource.

This is especially true as the challenges and opportunities from climate change, technological progress and customer expectations emerge with more vigour.

Aotearoa New Zealand is in a strong position to capture the potential of a more sustainable global food system. The food and fibre sector will continue to play a key role in New Zealand's future. We achieved this through our ability to innovate, adapting to conditions of weather or market, and giving things a go. We now know a lot more about environmental impacts on water, biodiversity and greenhouse gases, we can be more informed by data, consumer drivers, and technology improvements to keep us leading the way on food and fibre success for global and local customers.

A recent *Fit for a Better World* wānanga in Ōtautahi Christchurch brought together over 100 food and fibre leaders from business, science, Māori, industry, government and youth. As the collective owners of *Fit for a Better World*, we reflected on our progress to date, the original vision from the Primary Sector Council and the context of global shifts. The key takeaway from this process was a renewed support for partnership and collaboration together in this journey.

This *Fit for a Better World* Progress Update provides an overview of our progress to date, identifies some of the key achievements over the past year and recognises the contribution of the different people and groups in our journey. It does not attempt to capture all the mahi happening, but recognises the accumulation of big and small efforts to achieve our goals.

Reflecting on this update and the case studies, I am reminded of how optimistic I am about the future of our food and fibre sector. While there are many challenges still to solve, we have a framework, the plans, the people and the momentum to do it. So let's forge ahead.

Pai tū, pai hinga, nāwai rā ka oti
Keep going and eventually you will succeed

When industry and the Government are heading in the same direction real change can happen for the good of all New Zealand. Having a roadmap like Fit for a Better World to align thinking and investment for the future prosperity of the primary sector is an important part of achieving this. We see a lot of similarities between our long-term strategy and the Fit for a Better World pillars of sustainability, productivity and inclusivity. Fonterra has made the strategic choice to lead in sustainability with an investment of over $1 billion in sustainability initiatives across the value chain. We want to continue to have the lowest carbon dairy products globally and support our ambition to have net zero emissions by 2050 through initiatives like being part of the Centre for Climate Action Joint Venture.

Miles Hurrell, Chief Executive, Fonterra

Fit for a Better World provides New Zealanders and our markets with a roadmap to enhance the reputation of our food and fibre sector. The wine industry's reputation is a key determinant of its export value, and the roadmap helps our sector address risks that could undermine our global position as a producer of premium sustainable wine. The New Zealand wine industry's activities help to demonstrate our commitment to the future; adding value to our members and ensuring we will be fit for a better world.

Dr Edwin Massey, General Manager Sustainability,
New Zealand Winegrowers

The past three years have once again highlighted the enduring importance of food and agriculture to the New Zealand economy and wellbeing of our society. As New Zealand's only specialist food and agri bank we strongly support the cross-sectoral collaboration between government agencies, industry groups and specialist interests enabled by Fit for a Better World. We believe that New Zealand needs to maintain an appropriate balance between a strong economy, food security, reducing emissions from agricultural activity and protecting the health, wellbeing and vitality of our rural communities. In line with Fit for a Better World we see ourselves and our partners engaged in a myriad of activities to drive an equitable food transition for New Zealand as we stand up for our place in the world.

Todd Charteris, Chief Executive Officer, Rabobank New Zealand

The Food and Fibre Youth Network has discussed the many opportunities and solutions for the sector and is excited for the future and the direction the industry is headed with visions such as the Fit for a Better World roadmap.

Cheyenne Wilson, Council Chair, Food and Fibre Youth Network

We know New Zealand has the farms, and the farmers, the world needs. This presents not only a trillion dollar opportunity in the market for NZ Inc but also the chance to create meaningful and enduring change here in Aotearoa, the impact of which will resonate well into the future.

Simon Limmer, Chief Executive, Silver Fern Farms

As a young farmer it is reassuring to see the effort that goes into the strategic positioning of our primary sector going forward. It provides clarity and motivation to strive for a common goal for all of our primary industries.

Tim Dangen, 2022 FMG Young Farmer of the year, Food and Fibre Sector Ambassador

Looking ahead, we firmly believe that within the next 30 years, leafy crops and their derivatives will revolutionise food production systems. As we gain deeper insights into the remarkable efficiency of these crops in harnessing sunlight, nutrients, and water, we are confident that this approach will deliver the step change our agricultural systems urgently need. At Leaft, we are dedicated to forging a new path for farming and food production in New Zealand with Rubisco protein, and how this complements the Fit for a Better World vision.

Maury Leyland Penno, Co-founder, Leaft Foods

This past year, more than ever before, the kiwifruit industry has been experiencing our changing climate. This is just one of the challenges for us all to adapt to so we can continue to prosper. Fit for a Better World provides a roadmap to align the collective action being taken by the primary sector, so our global customers choose us for the value we offer. In turn, ensuring our communities and whānau in Aotearoa can thrive too.

Rachel Depree, Executive Officer for Sustainability, Zespri

New Zealand is one of the best in the world at producing quality food and fibre products and Future Foresters is passionate about attracting dedicated and passionate people to forestry in New Zealand. Having a bold vision like Fit for a Better World aligns with Future Foresters ambitions for our sector, and we see ourselves as a way to help deliver on its goals for New Zealand.

Jack Palmer, Executive Committee, Future Foresters New Zealand

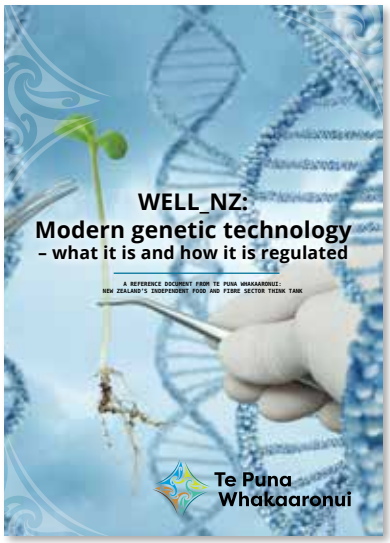
Our Partnership groups

Te Puna Whakaaronui

Food and Fibre Sector think tank

WELL_NZ: Alternative Protein 2022 – establishing a fact-base (Nov 2022)

WELL_NZ: Reframing New Zealand's Food Sector Opportunities (May 2022)



WELL_NZ: Modern genetic technology – what it is and how it is regulated (Feb 2023)

Governance Group

- Sir Brian Roche (Chair)
- Ray Smith (Manatū Ahu Matua | Ministry for Primary
- Industries)
- Dr Caralee McLeish (Te Tai Ōhanga | The Treasury)
- Peter Chrisp (Te Taurapa Tūhono | New Zealand Trade and Enterprise
- Lain Jager (Chair of the Thought Leaders Group)

Thought Leaders Group

- Lain Jager (Chair)
- Dr Laura Domigan
- Andrew Ferrier
- Neil Richardson CNZM
- Murray Sherwin
- Nick Hammond
- Rob Hewett CNZM
- Liz Te Amo
- Dr Nick Smith

Overview

Te Puna Whakaaronui is New Zealand's first fully independent food and fibre sector think tank. On the recommendation of the Primary Sector Council for pan-sector thought leadership, the establishment of Te Puna Whakaaronui was a key action in the *Fit for a Better World* Roadmap.

The think tank helps lead, co-ordinate and accelerate the development of the food and fibre sector by providing research, thought leadership, strategic insights and advice to sector participants, industry bodies, Māori agribusiness, and agribusiness.

Te Puna Whakaaronui was created to have an independent voice (it does not represent Government policy) to enable it to provoke and inform sector conversations on technologies, capabilities, resources, regulations and systems that can ensure the success of both existing and new industries and enhance New Zealand's long-term resilience and prosperity.

Te Puna Whakaaronui

Insights

Global macro forces: climate change, war, demographics and cost-of-living crunch, continue to dominate global news. The narratives often obscure the underlying issue – the need for a more sustainable global food system.

The additional impacts of de-globalisation, the rise of global trade restrictions, growing public and private debt, and the convergence of disruptive technologies are creating the conditions for significant, unpredictable, system level disruption. ChatGPT is a prime example of the kind of step-change we should come to expect. This technology has taken over 50 years to develop but only a matter of days to be adopted and disrupt incumbent technology – the fastest uptake of a new technology in human history. How we navigate change for our collective success is up to us.

Major change events will continue to challenge us over the next couple of decades. Technological advances will seek to address the adverse effects of global macro forces, in particular climate change, while others will seek to drive global productivity gains. The convergence of automation, artificial intelligence and robotics to offset global workforce decline, or the development and implementation of carbon capture/carbon positive technology to address climate change, demonstrate the technologies are already being applied.

New Zealand can, and should, determine its own path through this volatile period of change. Options for the food and fibre sector are many and varied – New Zealand must begin to discuss the changes needed and how it wants to experience change as a nation.

Te Puna Whakaaronui's reports to date have begun framing the global food system drivers of change, innovations influencing the global food system and opportunities for New Zealand. Some of the insights and opportunities identified so far include:

- extending the sector's reputation for production excellence to include sustainability, water and climate change mitigation;
- developing new internationally competitive and scalable industries that add value to our existing food and fibre sector, such as the blue economy, aquaculture, carbon capture, personalised nutrition, high value ingredients, and bio chemicals/materials;
- the potential for alternative protein technologies to scale to become a viable supplier of food ingredients, a food source and meet the quality demands of global food consumers;
- research into the ongoing development of genetic technologies, genetic editing regulatory system change in the UK and potentially the European Union, as well as the application of the technology to food production in our high value markets; and
- insights into the impact of climate change on the global food production system.

Future topics for reports and insights include:

- economic and food ecosystem technologies that help reduce the sector's climate impacts, increase our economy's resilience to climate and global economic shocks, and support our food system's transition to low emissions and greater resilience;
- understanding the global competitiveness of our innovation system, industry policies and the structure of our food ecosystem, and how to apply this knowledge to transition New Zealand's systems; and
- implementing system level capabilities that support greater value capture through renewed value chain and business models, IP management and access to capital that enables companies to remain, and grow, in New Zealand.

The food and fibre sector will continue to play a key role in New Zealand's future. Preserving the attributes that have made the sector successful to date: an ability to innovate and continually improve, responsiveness to markets and a proven record of producing more with less – remain vital.

Focusing and readying New Zealand's underlying systems, capabilities and regulatory environment for a fast adoption of new technologies and practices will be critical to future success.

Companies are exploring their options and implementing change – but 2030 is not far away. Building on sector momentum is crucial to position the sector for success.

Lain Jager
Chair, Te Puna Whakaaronui
Thought Leaders Group

Ngā Pouwhiro Taimatua
Māori Primary Sector Forum

Rautaki mo te Taurikura – Embracing change for Prosperity (Nov 2022)

Membership

- Traci Houpapa MNZM JP (Chair) (Ngāti Maniapoto, Ngāti Tūwharetoa)
- Tane Bradley (Ngāti Maniapoto)
- Ingrid Collins (Ngāti Konohi)
- Bob Cottrell (Ngāti Kahungunu, Ngāti Raukawa)
- Te Kapunga Dewes (Ngāti Porou, Te Arawa, Te Whakatōhea)
- Dr Riri Ellis (Ngāi Te Rangi, Ngāti Raukawa, Ngāi Tahu)
- Dr Tanira Kingi (Ngāti Whakaue, Te Arawa)
- Richard Manning (Ngāi Tahu, Rakiura)
- Nadine Tunley (Ngāi Tahu, Ngāti Wheke, Ngāti Waewae)
- Ray Smith (Manatū Ahu Matua | Ministry for Primary Industries
- Julie Collins (Manatū Ahu Matua | Ministry for Primary Industries

Ngā Pouwhiro Taimatua was established to strengthen partnerships between Māori and Manatū Ahu Matua, the Ministry for Primary Industries. At Fieldays 2022, Ngā Pouwhiro Taimatua and Manatū Ahu Matua MPI launched *Rautaki mo te Taurikura – Embracing change for Prosperity*, which aims to ensure Māori are thriving at all levels of food and fibre sector work and enterprise. We want to partner widely and use resources and skills sustainably and innovatively to deliver quality, high-value and unique products that meet domestic and international demand. In collaboration with Ngā Pouwhiro Taimatua, Manatū Ahu Matua has prioritised three areas for the coming 12 months; partnering with Māori, investing in the development of emerging and new products and services, sectors and supply chains and building Manatū Ahu Matua services to meet the aspirations of and deliver for Māori. Combined, this approach will enable Māori to lead their own transition and adaptation of their whenua Māori resulting in a more resilient and sustainable Māori primary sector.

Traci Houpapa MNZM JP
Chair
Ngā Pouwhiro Taimatua

Food and Fibre Partnership Group

The Food and Fibre Partnership Group (FFPG) is a high-level strategic group comprised of chairs and chief executives from across the sector, Māori and government who come together in partnership for the benefit of all New Zealanders.

The FFPG focuses on opportunities to increase volume (such as production efficiency and land optimisation) and/or value (such as product attributes, branding and supply chain integration) that exemplify excellence in environmental stewardship and progressively, the regeneration of New Zealand's natural environment. Promoting co-ordination of activities, two-way engagements and partnerships, the FFPG provides the momentum needed to ensure the success of the Vision.

Membership

- Mike Petersen (Chair)
- Traci Houpapa MNZM JP (Federation of Māori Authorities)
- David Rhodes (Forest Owners Association)
- Kate Acland (Beef + Lamb NZ)
- Barry O'Neil (Horticulture NZ)
- Jim van der Poel (DairyNZ)
- Philip Gregan (NZ Winegrowers)
- Jeremy Helson (Seafood NZ)
- Miriana Stephens (Wakatū Incorporation)
- Ray Smith (Manatū Ahu Matua | Ministry for Primary Industries)
- Carolyn Tremain (Hīkina Whakatutuki | Ministry of Business, Innovation and Employment)
- James Palmer (Manatū Mō Te Taiao | Ministry for the Environment)
- Peter Chrisp (Te Taurapa Tūhono | New Zealand Trade and Enterprise)

This year has seen a continuation of high product prices but also a number of challenges for the food and fibre sector, particularly from rising input costs and increasingly volatile weather. Many of our growing regions have had a tough start to 2023, and the path back to prosperity will take time. The determination of farmers and growers will prevail, and there remains a bright future ahead for New Zealand food and fibre products with strong demand for what we create. There is no doubt that the sector is transforming and working hard to deliver millions in value-add to its exports, employing thousands of Kiwis in good jobs and protecting taiao. Change is hard, and these are important times to focus and stay true to our goals. With three years since *Fit for a Better World* was launched, we held a confronting yet uplifting forum in early 2023 with sector leaders to ensure the roadmap was relevant and fit for purpose in a changing world. Sector leaders recommitted us to that vision, and the Food and Fibre Partnership Group is helping to accelerate the *Fit for a Better World Roadmap* alongside sector participants. It's a group effort, and together, we are helping to ensure our food and fibre sector continues to thrive.

Mike Petersen
Chair
Food and Fibre Partnership Group

Food and Fibre Partnership Group contributors

beef+lamb new zealand
DairyNZ
NEW ZEALAND TRADE & ENTERPRISE Te Taurapa Tūhono
Ministry for Primary Industries Manatū Ahu Matua
FOMA ME URU KAHIKATEA
Horticulture New Zealand Ahumāra Kai Aotearoa
Seafood New Zealand
MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT HĪKINA WHAKATUTUKI
FOREST OWNERS ASSOCIATION
New Zealand Wine Altogether Unique.
Ministry for the Environment Manatū Mō Te Taiao

Megatrends

The application of new technologies and precision agriculture has been estimated to increase crop yields by

70%

(HDI Global, 2021)

To **2030**, global productivity is likely to grow at its slowest rate since **2000**
(World Economic Forum, 2023).

GDP per capita for South-East Asia and India are expected to match China's current level by **2050** (Euromonitor, 2022).

NZ food and beverage is highly associated with **sustainability, ethical and environmental practices** by our target consumer audience in the UK, USA, Japan, China & Australia. Expanding taste and trust attributes is an opportunity.
(*Made with Care* , NZTE, 2023).

China's population is expected to shrink by

109 million people by **2050** (United Nations, 2022).

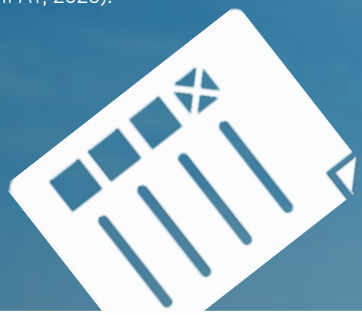
Global investment into **Sustainable Aviation Fuel** is expected to reach

$600 billion by **2050**
(World Economic Forum, 2022).

The number of people aged **65+** living in New Zealand is likely to hit **1 million** by 2028

In **Asia**, more than **1 billion people** will join the middle class by 2030
(Bloomberg, 2021).

The EU's **Green Claims Directive** proposes that any environmental claims on products sold in the EU must be substantiated using set criteria
(MFAT, 2023).



Among **60** of the world's largest **meat, dairy, and seafood** companies, **half** are investing in **alternative proteins**
(Good Food Institute, 2023).

Changing Climate

Global GHG emissions are continuing to rise reaching record highs in 2022. The impacts of climate change on production and output are already front of mind for the sector, but beyond just addressing the problems, there are economic, social and environmental opportunities to be found for New Zealand to capture.

Increasingly Complex Consumer Preferences

Taste, price and quality remain paramount, but preference for sustainable, ethical, healthier and more convenient options is growing. Consumers, retailers, and governments want products to carry proof of their claims. Our food and fibre sector can deliver on these preferences, but being responsive to the consumer is key.

Technological Progress

Technological progress is unlocking new frontiers for food and fibre while also increasing pressure on traditional production methods, business models and value chains. There are new opportunities for the sector – embracing technological advancement quickly will maximise value capture.

Spotlight on Food Security

Food security is increasingly in focus across the world, driven by factors such as climate change, supply chain disruption and recent inflation. New Zealand has its own challenges as a food exporting nation driven by global prices, and a net food exporter.

Demographic Shift

The global population is expected to reach 9.7 billion by 2050, but growth and change won't be seen evenly, changing the landscape for New Zealand's exports. Eight African and Asian countries will comprise half of all growth. In Europe and North America, up to a quarter of all people will be 65+ by 2050.

Changing Growth Patterns

Inflation and interest rate increases are currently being felt globally, and there are signs that the 2020s could be a decade of slower growth – but not for everyone. While average global economic growth is expected to slump through 2030, strong and sustained growth in emerging markets like India and Vietnam is expected to continue.

Fit for a Better World in action

Whaihua | Productivity

Target: Adding $44 billion in export earnings over the next decade through a focus on creating value.

Since 2020, New Zealand's food and fibre sector has faced significant headwinds and tough challenges: the COVID-19 pandemic, the war in Ukraine, supply chain issues, workforce challenges, increased input costs, inflationary pressures and significant damage from Cyclone Gabrielle and other adverse weather events.

Despite all these challenges, food and fibre export revenue is on track to exceed $56 billion in the year to June 2023. It is a remarkable demonstration of the sector's resilience and its commitment to providing high-quality food and fibre products to our customers at home and abroad.

Export revenue has exceeded expectations over the past three years and this is expected to continue over the next three years. If this strong start to the decade continues, New Zealand will be on track to surpass the $44 billion cumulative additional earnings target set by *Fit for a Better World* in 2020.

Although this projected cumulative additional earnings figure is notable, we determined that it is too early to modify the current *Fit for a Better World* productivity target. Reasons for this include that the full impact of Cyclone Gabrielle is yet to be fully quantified, unpredictable weather conditions, changing customer expectations and a decrease in wood available to harvest.

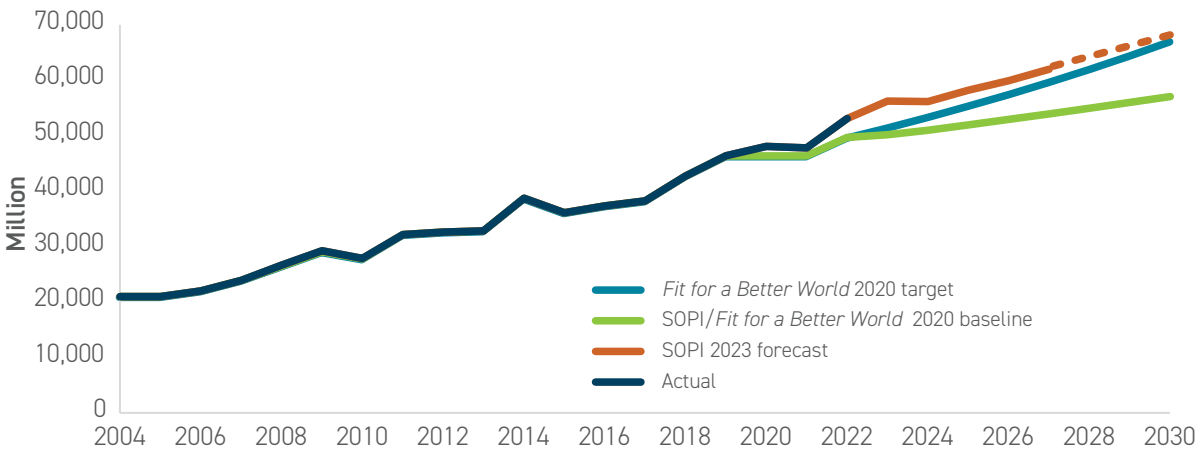
Maintaining positive momentum and continuing to deliver on strategic priorities is vital for the future success of our food and fibre sector. By focusing now on accelerating investment and innovation, expanding Māori food and fibre and growing our connection to global customers and consumers, we will set the foundations for greater growth opportunities later this decade.

Actions now will help the sector to face the impact of any future challenges and capture the opportunities presented by increasing returns across our value chains by focusing on higher-value products, the fast-growing middle class in Asia and Africa and new free trade agreements with the European Union and United Kingdom.

Through industry and government partnerships, key initiatives such as the Sustainable Food and Fibre Futures Fund, the Industry Transformation and Action Plans, the *Accelerator Programme*, *Rautaki mo te Taurikura*, *Made with Care*, and the *Fit for a Better World* Investment Accelerator team will facilitate and boost opportunities for further prosperity.

Annual food and fibre export revenue is projected to reach $67.7 billion by 2030, up from $48 billion in 2020.

Forecast export revenue



Source: *Situation and Outlook for Primary Industries (SOPI)*, MPI (2023)

Agriculture/horticulture 138 projects $204.8 million	**Wood processing** 25 projects $78.2 million
Climate resilience 69 projects $613.1 million	**Aquaculture** 19 projects $52.3 million

The Ministry of Business, Innovation and Employment (MBIE) Kānoa – Regional Economic Development & Investment Unit (REDIU) works with other government organisations, industry, communities, iwi and local government to manage and deliver funds to enhance economic development opportunities across our rural and regional areas. Kānoa – REDIU works to create sustainable jobs, enable Māori to reach full potential, boost social inclusion and participation, build resilient rural and regional communities, and help meet New Zealand's climate change targets.

Kānoa
Regional Economic Development
& Investment Unit

investment ready
POWERED BY MPI AND THE FACTORY

The *Investment Ready* programme based in Palmerston North – funded by MPI and delivered by The Factory – prepares selected food and fibre sector businesses to become ready for investment. The twelve-week capital-raising preparation programme is designed to equip food and fibre businesses with the tools to prepare for and successfully raise investment capital for business growth. Topics covered include understanding customer and market, intellectual property, financial analysis, forecasting, extensive pitch refinement and practice, and building a capital strategy. The Factory has a proven track record of working with businesses and founders and has successfully raised $60 million of investment. The core Investment Ready team is supported by an independent advisory group, plus wider networks.

Offshore innovation centre

Fonterra has opened a new application centre focusing on developing beverages in Shenzhen, southern China, as part of its strategy to share New Zealand milk with Chinese consumers in innovative ways. The dairy co-operative already has four other application centres in China, where innovative dairy applications are developed to specifically meet the needs of its customers. The investment in the new facility will explore the potential of combining Fonterra's dairy products and innovation expertise with the rich flavours of Chinese beverages. The centres in China are a central part of Fonterra's global innovation programme, with an on-the-ground presence enabling it to better understand Chinese consumer preferences, spot emerging trends within the market, and commercialise the Co-op's R&D.

Robotics Plus

Tauranga-based Robotics Plus has developed an autonomous hybrid vehicle that can carry out a range of orchard jobs, including spraying, pruning, weed control and crop analysis. It uses a combination of vision systems and other technologies to sense the environment around it and uses that information to improve efficiencies. The technology also provides data-driven insights intended to offer growers and orchardists solutions to real-world problems. One application is intelligent spraying, with the vehicle able to vary flow rates to ensure spray efficacy and reduce inputs. The multi-purpose vehicle replaces tractors and other tools. It can also help ease the stress of labour shortages, as one skilled operator can control up to five of the vehicles at once.

Developing the blue economy

Moananui, a new organisation based in Nelson, is focused on developing and fast-tracking growth of New Zealand's blue economy. They will connect with potential investors, boost innovation and focus on sustainability outcomes. With New Zealand home to the fourth-largest marine estate in the world, the Moananui project presents a real opportunity to position ourselves as a world-leading blue economy.

The Nelson Tasman region accounts for more than 30 percent of New Zealand's economic activity in fishing, aquaculture and seafood processing. The Moananui – Blue Economy cluster is being backed by $500,000 from MPI's Sustainable Food and Fibre Futures fund and various contributors, including Port Nelson, Sealord, Cawthron Institute, the Nelson Regional Development Agency and Plant & Food Research.

Value from by-products

A new matchmaking service will connect food and fibre producers with local organisations looking for ingredients to create animal feed products from by-products created during food production. The Bioresource Database has been developed by partners in the Bioresource Processing Alliance – including Plant & Food Research, AgResearch, SCION and Callaghan Innovation. The service allows producers to redirect by-products – such as seeds, stalks, and low-grade produce – away from landfill or low-value uses, and enables nearby companies to source nutritious ingredients. A pilot version of the Bioresource Database is now live for the Canterbury region. It is estimated that more than 200,000 tonnes of food production by-products could be redirected using the database if rolled out nationally.

Adding value through processing

The Government and New Zealand wood processors are partnering to grow capacity for products like sawn structural timber and engineered wood to move our forestry sector from volume to value, lift our economic performance and create high-wage jobs in our regions. By producing more high-value products on shore, the sector can support New Zealand's goals and commitments to decarbonise the economy. Wood processing produces residues that can be turned into a range of biofuels to support decarbonisation, which contributes to reducing emissions. Current projections will see hundreds of jobs generated from the project and current estimates show that this funding support will see $500 million to $650 million of additional GDP over the life of the fund investments.

Clean energy investment

New Zealand Green Investment Finance (NZGIF) is providing a $10 million facility to Solagri Energy to help roll out solar energy to New Zealand farms. Solagri provides an innovative "solar as a service" offering, tailored specifically for dairy farms in New Zealand. Solagri arrays are normally ground mounted, on about a quarter hectare, close to the dairy shed and provides the farm with lower-cost electricity and improved long-term energy price security. The debt finance facility is expected to finance around 120 solar arrays over the next three years, helping to avoid about 36,100 tonnes of CO_2-e emissions over the life of the assets.

The investment offers farmers capital free and affordable renewable energy and is another step towards decarbonising our agricultural sector, while also increasing net electricity generation capacity.

Wool Impact

Creating innovative products and new markets is the focus of the joint industry and government *Wool Impact* programme. Wool Impact works to get strong-wool products into markets quickly, speed up returns to farmers and develop opportunities in areas such as furnishings and interior design. It promotes strong wool as a natural, versatile and sustainable option for ethically minded consumers. Innovation by companies such as Floc, Wisewool and Honest Wolf is now driving demand, with forecasts predicting increases in the domestic use of strong wool in the next two years. The three-year project has $6.9 million investment from sheep sector partners and $4.5 million through MPI's Sustainable Food and Fibre Futures fund.

Sustainable Food and Fibre Futures

by the numbers

With a budget of approximately $40 million a year, Sustainable Food and Fibre Futures provides a single gateway for entities to apply for investment in a range of projects that deliver economic, environmental and social benefits.

Total dollar value of projects contracted since Sustainable Food and Fibre Futures launch

$559,678,539

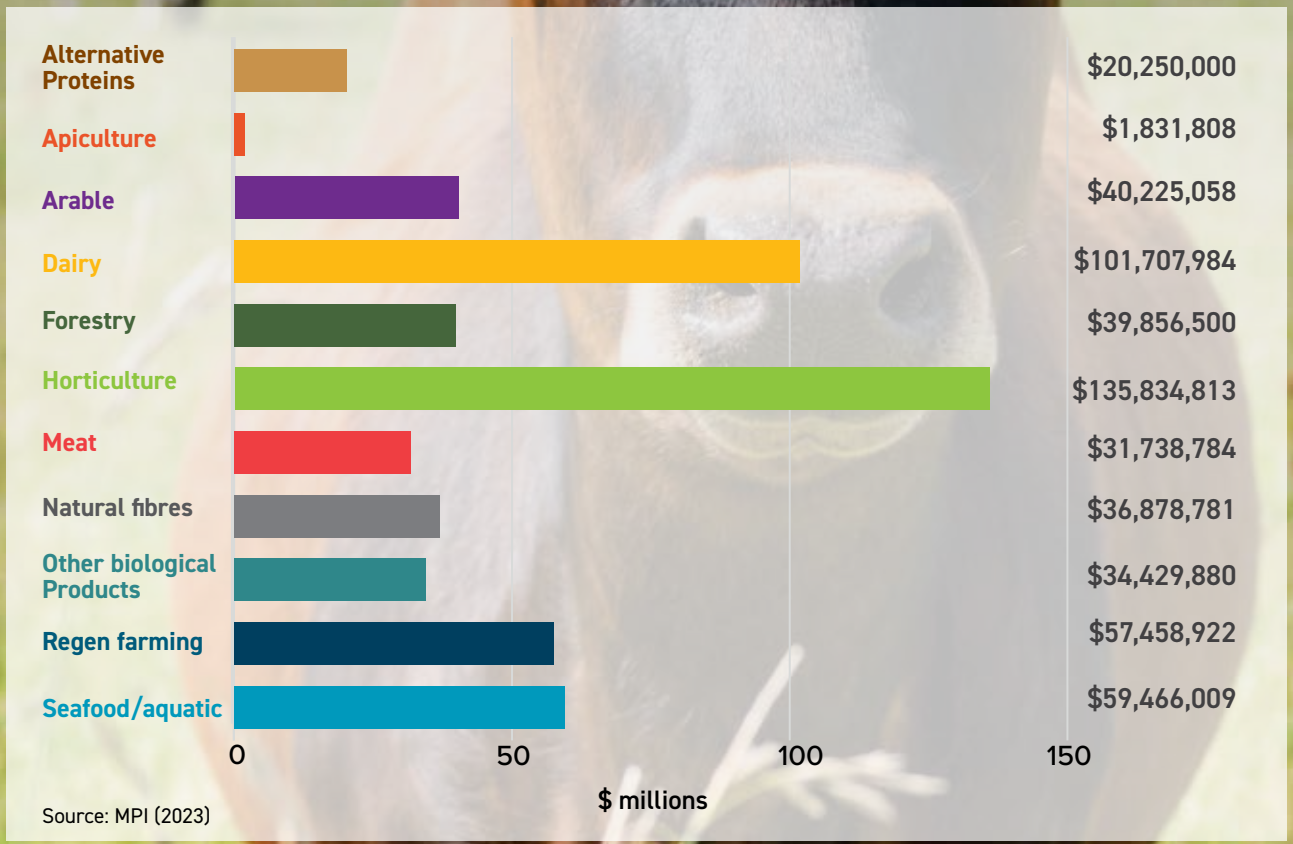
Food and fibre sector funding

$299,515,398

MPI funding

$260,163,141

Total investment in projects (MPI + industry) June 2018–April 2023



Source: MPI (2023)

Vertical farming projects

Unlocking the potential to provide strawberries for consumers year-round is the ambition of a pilot project in Foxton backed by the Sustainable Food and Fibre Futures fund. 26 Seasons Limited will identify the most cost-effective method to grow high-yielding, out-of-season strawberries using a controlled-environment growing system.

26 Seasons Limited is aiming to grow plants that will produce fruit for at least eight months of the year while using 90 percent less water and 90 percent less land than traditional horticulture methods. Its indoor hydroponic system recycles water, uses mobile vertical racks, pulsing light and doesn't require the pesticides or herbicides that are used in traditional strawberry production.

Mount Cook Alpine Salmon

The development of a land-based salmon farm near Twizel is expected to at least double Mount Cook Alpine Salmon's annual production to between 6,000 and 8,000 tonnes of fish. The farm will cost $16.7 million to build, with $6.7 million funded by the Sustainable Food and Fibre Futures fund.

Mount Cook Alpine Salmon's new facility will bolster supply of high-quality, high-value product at a time when global demand for healthy and sustainably produced aquaculture products continues to grow. The facility is expected to become zero-waste, with 10 percent of the water used for the project to be returned to its source after purification.

Ryegrass pasture productivity

The Sustainable Food and Fibre Futures fund is partnering with Barenbrug NZ Limited to deliver new ryegrass pastures by developing a faster hybrid breeding system. The new pastures are expected to increase on-farm productivity by around 20 percent.

It could also provide farmers with further options to reduce nitrate leaching, increase carbon sequestration and improve water use efficiency. The research and development project is expected to run for five years, with $800,000 from the Sustainable Food and Fibre Futures fund and $1.8 million from industry partners.

Growing market access

Why this matters

Around 80 percent of New Zealand's food and fibre production is exported each year, rising to over 95 percent in some industries. This accounted for 81.4 percent of merchandise exports in the year ending 30 June 2022 and 10.7 percent of GDP in the year to March 2022, positively contributing to the everyday standard of living and wellbeing of all New Zealanders.

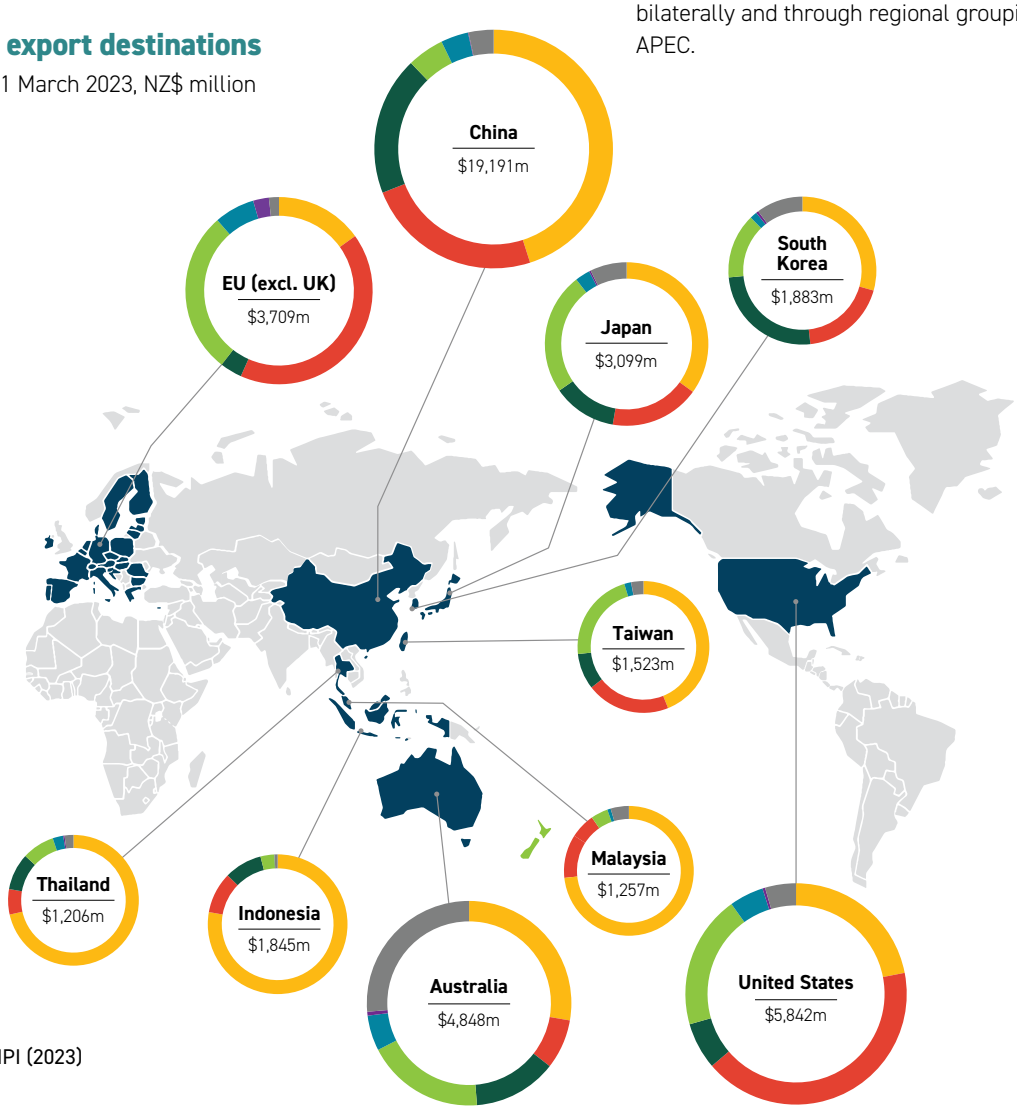
Trade barriers continue to cost our food and fibre exporters up to $15 billion each year. New Zealand supports international rules that enhance market access and food and fibre value creation, including through the development of health and sustainability-related claims in existing and new products. We also pursue reduced tariff costs through new bilateral and plurilateral Free Trade Agreement (FTA) negotiations, as well as upgrading existing FTAs and focusing on enhanced implementation of all of our FTAs to support our businesses and producers.

What has been achieved

- New Zealand recently concluded Free Trade Agreements with the United Kingdom and the European Union, creating meaningful opportunities for the food and fibre sector. The NZ-UK FTA entered into force on 31 May 2023 and the NZ-EU FTA will enter into force in 2024.
- New Zealand secured access for products into new markets, including strawberries and buttercup squash to Vietnam from 1 December 2022.
- Negotiations are under way as part of the Indo-Pacific Economic Framework for Prosperity (an economic initiative involving 14 nations, launched by the United States in May 2022) with a focus on addressing non-tariff barriers.
- The launch of *Rautaki mo te Taurikura*, the MPI plan for supporting the Māori food and fibre sector to prosper, has brought a much sharper focus to our Māori agribusinesses, their innovation and our indigenous trade workstreams, which we continue to promote both bilaterally and through regional groupings such as APEC.

Top 10 export destinations

Year to 31 March 2023, NZ$ million



Source: MPI (2023)

The New Zealand-United Kingdom Free Trade Agreement entered into force on 31 May 2023. The UK is New Zealand's seventh-largest trading partner and a crucial market for some of our key exports. The agreement is expected to boost New Zealand's GDP by up to $1 billion and expand New Zealand's goods exports to the UK by over 50 percent. 99.5 percent of current exports will enter the UK duty-free through a combination of tariff elimination and duty-free quotas, saving our exporters approximately $37 million per year in tariff elimination. A dedicated chapter on Māori Trade and Economic Cooperation recognises the unique relationship that exists between Māori and the Crown as original signatories of the Treaty of Waitangi and provides a platform for cooperation on areas of importance to Māori.

The New Zealand-European Union FTA creates new opportunities by cutting costs for producers through more favourable access to the EU. It plays an important role in the New Zealand Economic Trade Recovery Strategy. 91 percent of New Zealand's trade into the EU will be duty-free initially through tariff elimination and duty-free quotas. When fully implemented, 97 percent of trade will enter the EU duty-free. The EU and New Zealand also agreed on provisions to promote important trade and sustainable development outcomes. We have preserved the unique status of the Treaty of Waitangi. The agreement increases opportunities and reduces barriers for Māori businesses in one of the world's biggest markets.

New Zealand ranked first in the Sustainable Trade Index 2022 from a list of 30 other economies, including all members of APEC and the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP). The Index assesses three core pillars – economic growth, environmental protection and societal development. Within these, New Zealand scored particularly highly on labour standards, political stability, air pollution and environmental standards in trade. This success goes to the heart of our global brand and endorses the *Trade for All* agenda and the NZ Inc economic recovery strategy, formed to help the country rebound from the impacts of the COVID-19 pandemic. The ranking also demonstrates the commitment by our exporters to produce high-quality, sustainable and ethical produce.

Māori food and fibre building momentum

Why this matters

Māori enterprises are a significant part of New Zealand's food and fibre sector. Māori own $23 billion in agriculture, forestry and fishing assets, including 30 percent of all beef and lamb production in New Zealand. Māori-owned horticulture has grown 300 percent in 12 years. As such, Māori have a pivotal role to play in the growth and future development of our food and fibre sector.

The Māori food and fibre economy is growing quickly, more than doubling in asset value from 2013 – 2018. The entire Māori economy is projected to grow to $100 billion by 2030.

Māori interests in the sector are diverse, with only 38 percent of the 3,864 Māori food and fibre businesses currently being considered medium or large.

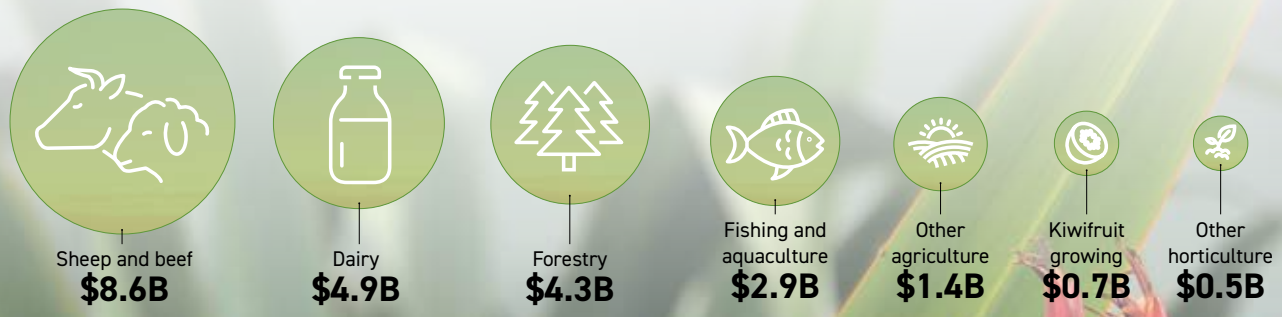
Grasping further growth opportunities will require collaboration involving iwi, hapū, whānau, government, business and the community. Economic growth and sustainability must enhance te mana o te taiao, underpinned by values of whanaungatanga, mātauranga, mana and kaitiakitanga.

What has been achieved

- *Rautaki mo te Taurikura – Embracing change for prosperity*, a detailed plan to support the growth of the Māori food and fibre sector, was released in December 2022. The plan is the result of 18 months of collaboration between the government and Ngā Pouwhiro Taimatua | The Māori Primary Sector Forum.
- *Rautaki mo te Taurikura* builds on existing investments to put extra Māori agribusiness advisors in the regions and to support Māori-led innovation and mātauranga-based approaches to reduce on-farm emissions. This includes the use of workshops, targeted groups, field days and other on-farm activities to share the most up-to-date information on low-emissions practices. Collaboration will create training opportunities and jobs and develop innovative practices and products to grow Māori exports.
- Māori entities are being supported through $35 million funding as part of the Centre for Climate Action on Agriculture Emissions to develop tikanga-based approaches to change farm practices and enable Māori-led actions towards emissions reduction.
- This includes the *Biological Emissions Reduction Science and Mātauranga Plan* released in May 2023, which supports engagement and partnerships to create solutions from science and in mātauranga Māori. It has a focus on ensuring that mitigation solutions fit the needs and aspirations of Māori agribusinesses and landowners.
- The *Forestry and Wood Processing Industry Transformation Plan*, released in November 2022, recognises that Māori landowners are well positioned to contribute to and lead change, investment and innovation in forestry and wood processing. Māori own approximately 40 percent of New Zealand's forestry. The aspirations of Māori foresters include seeing diverse forests grown and processed while considering wider benefits such as recreation and wellbeing.
- In March 2023, Kānoa – Regional Strategic Partnership Fund invested $5.1 million in four Māori horticulture businesses in the Bay of Plenty. The investment includes the development of kiwifruit orchards, a truffle tree orchard and a purpose-built contracting yard that will provide nursery services to support ecological restoration, planting and ecosourcing seedlings on Māori freehold land.

Agriculture, forestry and fishing assets

Māori Agriculture, forestry and fishing asset base worth $23 billion in 2018.



Source: *Rautaki mo te Taurikura*, MPI

Seaweed potential

In October 2022 it was announced that Te Huata Charitable Trust, representing Te Whānau-ā-Apanui, had signed a seaweed research and farming deal with BLU3, a California-based climate tech company. BLU3 and Te Huata have developed a programme to commercialise large-scale seaweed research, including a nursery and farming activities, with several hapū within Te Whānau-ā-Apanui. The venture will include several research and commercial projects focusing on the potential of seaweed to capture and store carbon, as well as ways it can be used in food, bioenergy, construction, and biopharmaceuticals. The project will create meaningful employment opportunities and enable Te Whānau-ā-Apanui to explore ways to mitigate the effects of climate change – contributing to the wellbeing of people and the environment.

KANAPU Hempery

Growing via organic and regenerative farming systems, KANAPU Hempery grows across several Whenua Māori land blocks in Hawke's Bay in both Waimārama and Otāne. Working within the principles of kaitiakitanga, KANAPU Hempery focuses on methods including crop rotations and animal manures to help maintain soil productivity. KANAPU Hempery also uses ecological principles that seek to enrich soils, improve watersheds, enhance soil carbon and nitrogen sequestration, and improve biodiversity. Growing hemp for the health of whenua and whānau, team KANAPU channels the energy of their ancestors, who for centuries walked, farmed and lived off this same land and sea. KANAPU Hempery produces ingredient food products including hemp seed oil and hemp seed flakes. Value-add products are on the horizon, with Aotearoa's first hemp seed milk soon to be launched in 2023.

Māori kiwifruit to Hawaii

The country's biggest group of Māori kiwifruit growers is exporting fruit to Hawaii in a first for Zespri-Māori collaboration, with other markets also being considered.

The 40-plus members of Māori Kiwifruit Growers Incorporated (MKGI) has signed a collaborative marketing partnership to send Zespri-branded kiwifruit to Hawaii from May, supplying fruit directly to Zespri's distribution partner Fresh Aloha Direct. MKGI, whose members are a mix of Māori land trusts and incorporations, are expected to export around 80,000 trays or 13 containers of fruit to Hawaii in 2023.

To reinforce the venture, MKGI is also planning to roll out a cultural links marketing programme in Hawaii in 2024, which it could also use as a foundation for expansion into other markets in the future.

Getting closer to our customers

Why this matters

Discerning consumers expect transparency and traceability. Sharing the story of our values and our processes is essential for attracting and retaining customers around the world. New Zealand is working hard to protect and grow its trade profile by reinforcing and promoting its credentials, particularly around sustainability, animal welfare and food safety.

Trust in New Zealand's reputation and sustainable attributes are a key purchase driver for an increasing number of consumers around the world who are willing to spend more on premium food and beverage products – and drive greater value for the sector.

For our customers to understand the value in our products, we must continually demonstrate our credible and verifiable sustainable, ethical practices and robust animal welfare standards.

The food and fibre sector is continually working to find better, smarter ways of producing world-class products to meet the expectations of our customers. Our distance from global markets means that we must consistently innovate and improve the efficiency and sustainability of our production processes in farming, horticulture, forestry and fishing.

Analysis has shown that, even when emissions from shipping are included, New Zealand consistently performs highly in producing low-emissions agri-food products. Efficient production has been achieved without compromising New Zealand's strong commitment to climate change mitigation, biodiversity and water protection and animal welfare.

Research by New Zealand Trade and Enterprise (NZTE) shows that New Zealand's food and beverage sector maintains very strong brand perceptions for producing organic food, for farming with responsibility and care and for products that come from a clean and safe source.

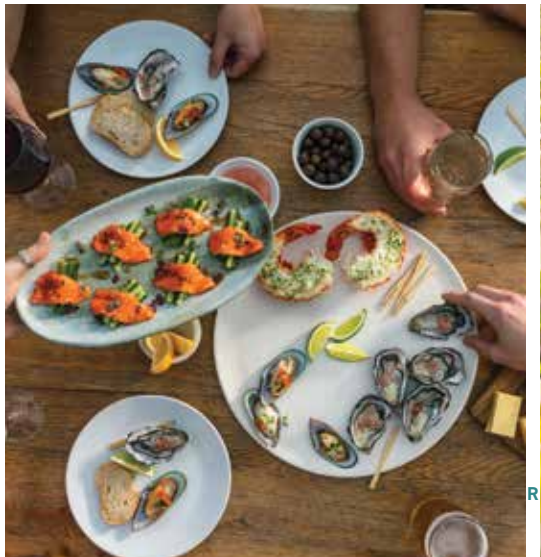
What has been achieved

- We are working with like-minded countries to align ourselves with a set of international co-operation principles to support sustainable food systems globally. This includes our active participation and leadership in the Global Research Alliance on Agricultural Greenhouse Gases our bilateral research programmes with European partners in Ireland and other countries and work under the UN Framework Convention on Climate Change and UN Food and Agriculture Organization.
- The New Zealand Merino Company launched ZQRX – a regenerative agriculture index that helps farmers work with nature to continuously improve human, animal and environmental outcomes. It was a collaboration with founding partners Icebreaker, Smartwool and Allbirds. ZQRX has a set of 15 key performance indicators across elements such as biodiversity, climate, animal health and community and challenges growers and brands to enhance their practices. Certified ZQ growers meet standards for fibre quality, animal welfare, care for the environment and social responsibility.
- The global health and wellness market is a growth opportunity for New Zealand deer velvet, particularly in South Korea. Velvet is used in health products like herbal supplements and teas. South Korea is the first country that Deer Industry New Zealand launched *Nature's Superpower*, which is a campaign that tells customers about New Zealand's venison and velvet. The campaign focuses on elements such as our environmental credentials, the superior health and nutritional benefits of venison and therapeutic potency of velvet and the luxury and quality of the products.

Made with Care is a global marketing campaign to drive awareness, preference and appeal for Aotearoa New Zealand's premium food and beverage products.

- Launched in October 2020, the *Made with Care* campaign – led by NZTE – set out to raise awareness of New Zealand's premium food and beverage and build consumer preference for our products, initially as a COVID-19 trade recovery initiative.
- *Made with Care* continues to support New Zealand's food and beverage sector by targeting premium consumers and buyers, telling our unique story and positioning our products as safe, tasty, premium quality, nutritious, ethically produced and worth paying a premium for. It also proudly captures New Zealand's core brand values as a country that cares for people, the planet and our future generations.
- Since its launch, the *Made with Care* campaign has recorded global reach of 154 million people through paid media, in-market promotions and online activity, as well as over 100 million views of campaign video content (as of January 2023).


MADE WITH CARE
NEW ZEALAND



NEW ZEALAND.COM
Licence No.123456

FernMark Licence Programme

For any exporter, building trust and authenticity with both consumers and distributors is becoming more and more vital. The FernMark Licence Programme helps to promote and protect Aotearoa New Zealand products on a global scale.

The trademarked government FernMark is managed by the New Zealand Story Group, an initiative working to enhance New Zealand's international reputation. As the custodian of this national symbol, the programme gives licensees the right to carry the FernMark as a simple way to authenticate connection to, and leverage the positive reputation associated with, Aotearoa New Zealand.

The FernMark now has trademark protection in more than 30 export markets and is licensed for use by New Zealand Government entities, for major events, by FernMark Ambassadors and for qualifying export businesses under the FernMark Licence Programme.

Grass-fed Beef and Lamb

Beef + Lamb NZ led targeted initiatives in China and the United States last year to drive awareness of New Zealand's grass-fed beef and lamb under its *Taste Pure Nature* country-of-origin brand. A food truck sampling tour enabled consumers throughout Los Angeles to try grass-fed beef and lamb from New Zealand. It provided a novel platform to tell the New Zealand grass-fed story through a collaboration with Los Angeles chef Alvin Cailan.

Beef + Lamb NZ also joined forces with meat exporters Alliance Group and Silver Fern Farms to launch a pilot project of beef and lamb meal vending machines in Shanghai. The initiative included convenient and nutritious ready-to-eat meals featuring New Zealand premium grass-fed meat for busy consumers, fusing traditional Chinese flavours with western food trends.

Award-winning Rockit™

Rockit Global Limited, an innovative Hawke's Bay-based company driving exports of snack-sized apples, won the coveted Supreme Award at the New Zealand International Business Awards in October. The award reflects Rockit's efforts to produce, distribute and market its small, juicy, snack-sized fruit as a unique branded offering, with a primary focus on China and other key Asian markets. Rockit's special tube packaging fits in well with the tradition of gift giving in China, particularly during Chinese New Year celebrations. The company's team in China have provided valuable market insights to help the New Zealand apple producer meet the needs of consumers. With a goal to become the world's most loved apple brand, localised brand partnerships, collaborations with influencers and limited-edition packaging have also helped to attract millions more consumers and drive Rockit sales.

Boost to NZ Wines

NZ Winegrowers has worked closely with NZTE to weave the *Made with Care* campaign logo into its marketing materials as it seeks to bolster its market position. Being part of a global strategy to promote New Zealand food and beverages has strengthened NZ Winegrowers' efforts to expand global awareness and understanding of our diverse, premium sustainable wines.

The *Made with Care* campaign helps to ensure that NZ Winegrowers achieves a greater marketing reach in markets such as the United States, the United Kingdom, Australia and Canada. NZ Winegrowers also launched a new logo and global brand identity in January – *New Zealand Wine, Altogether Unique* – giving the New Zealand wine industry a fresh start for 2023.

Biosecurity: protecting our sector

Why this matters

Biosecurity consistently ranks as the number one priority for the food and fibre sector in KPMG's annual Agribusiness Agenda. Biosecurity protects our food and fibre sector, native flora and fauna, whenua, freshwater and marine environments, as well as our culture, livelihoods and health. New Zealand's national system is greater than the sum of its individual parts. It's a multi-layered, interconnected network of individuals, businesses and communities, infrastructure and technology, processes, and regulatory activities.

New Zealand has some of the world's toughest biosecurity measures, but the threats we face are growing in scale and complexity, as risk pathways change due to climate and other factors. New Zealand's biosecurity system has three interlocking layers of protection – offshore, border, and domestic. From establishing best practice and guidance, creating engaging campaigns, to inspections, surveillance and regulations, our robust system helps prevent new threats from establishing in Aotearoa.

Biosecurity is a core part of operational activity for our farmers, foresters, fishers, growers, crafters and business entities. Biosecurity New Zealand works with councils, iwi, community groups, non-governmental organisations, and across government agencies ensures that our biosecurity protections remain robust.

What has been achieved

- Biosecurity New Zealand, DairyNZ and Beef + Lamb New Zealand have worked to control the last known pockets of *Mycoplasma bovis* infection as part of the 10-year programme to eradicate the cattle disease from New Zealand. Background surveillance will continue throughout the life of the programme until we will have achieved our objective of eradicating *M. bovis* from New Zealand.
- New Zealand has never had a case of foot-and-mouth disease (FMD) before, and we want to keep it that way. There are robust biosecurity controls in place to prevent this, but the effects of an outbreak here would be significant for our people and economy so it is vital that as a nation we effectively manage it, should it occur. In 2022 MPI set up a dedicated FMD taskforce involving stakeholders and other government agencies to focus our readiness work for the unlikely event of an incursion.
- The *National Wilding Conifer Control Programme* won the Government Award at the 2022 Biosecurity Awards for collaboration between central and local government, industry sectors, mana whenua, communities, researchers, and landowners. Around 70 percent of the known infestation has seen at least one round of control work. That control work protects habitats of rare native species, and proves that with consistent, coordinated effort, landscape scale control is achievable.
- Ensuring the survival of our iconic kauri for future generations means doing everything we can to prevent the potential spread of the pathogen that causes kauri dieback disease. With a partnership between the Crown and Māori at its heart, the *National Pest Management Plan* brings together Māori, councils, communities, DOC and MPI, to lead and work together on kauri protection, spearheading a collaborative and Treaty-grounded approach to saving this taonga species.
- More than 300 New Zealand companies have become signatories to the *Biosecurity Business Pledge*. Developed by business in partnership with Biosecurity New Zealand, the Pledge provides a framework for managing the risks of unwanted pests and diseases disrupting individual businesses or even whole sectors. Two guidelines have been released to strengthen biosecurity at the governance table – a CEO guide to management of biosecurity risk, and a Biosecurity considerations for Boards document.

Five years on and the ***Mycoplasma bovis*** eradication effort – a world first – is on track.

The world authority on animal health elevated MPI's Animal Health Laboratory to the top tier of expertise in two major honey bee diseases – a first for New Zealand.

42 **cruise vessels** made **880** **port calls** with a total of **192,099** **passengers** over the 2022-2023 cruise season

More than **300** **New Zealand businesses** signed up to the **Biosecurity Business Pledge**, working collaboratively for better biosecurity outcomes.

Quarantine officers seized

24000+

biosecurity risk items

from arriving air passengers in just the first 3 months of 2023

Just over **$161 billion** of goods crossed New Zealand's borders in the year to March 2023, up **74%** over the last decade.

99%

of passengers did the right thing when crossing the border

On the lookout for **exotic insect pests** – **37,847** surveillance traps are stationed across the country

Since 2016, the National **Wilding Conifer Control Programme** has searched for and controlled wilding pines on approximately

2,600,000

hectares of land – that's more than the size of the Waikato region!

$42 million

establishment funding for new state of the art Plant Health and Environment Laboratory in Auckland to help New Zealand's multibillion-dollar plant-based sectors grow.

New Zealanders are playing a role in keeping out pests and diseases with over **1000** reports investigated

99.7% of **mail** arriving in New Zealand met biosecurity requirements

23 **industry signatories** (including MPI) to the Government Industry Agreement for Biosecurity Readiness and Response

Kauneke Tauwhiro | Sustainability

Target: Reducing biogenic methane emissions to 24-47 percent below 2017 levels by 2050 and 10 percent below by 2030 plus restoring New Zealand's freshwater environments to a healthy state within a generation.

Climate change is one of the greatest challenges of our time. New Zealand has committed to taking urgent action on greenhouse gas mitigation and climate change adaptation through the Paris Agreement and the Climate Change Response (Zero Carbon) Amendment Act 2019. Nearly half of New Zealand's emissions come from agriculture. Methane, from livestock digestive systems, makes up almost three-quarters of our agriculture emissions.

New Zealand's unique agriculture-dominant emissions profile creates both opportunities and challenges.

Our split greenhouse gas approach is world-leading in recognising the warming impacts of the different gases, with methane on a reduce and stabilise trajectory and carbon dioxide to reach net zero by 2050.

In May 2022, the New Zealand Government published the first emissions reduction plan, *Te Hau mārohi ki anamata – towards a productive, sustainable, and inclusive economy*. The plan sets strategies, policies and actions for achieving climate change targets for all sectors of New Zealand's economy – including for agriculture. It also sets emissions budgets for 2022–2025, 2026–2030 and 2031–2035 and provides direction for meeting our long-term domestic and international climate targets.

Adaptation has come into sharper focus following the devastating impacts of Cyclone Hale and Cyclone Gabrielle.

New Zealand's first National Adaptation Plan *Urutau, ka taurikura: Kia tū pakari a Aotearoa i ngā huringa āhuarangi Adapt and Thrive: Building a climate-resilient New Zealand* was released by the Ministry for the Environment in August 2022, setting out a long-term strategy and responding to the risks identified in the *National Climate Change Risk Assessment 2020*. The actions to deliver on the strategy are a major focus for local and national government over 2023/24.

Our freshwater 2023 was published by the Ministry for the Environment in April 2023, highlighting that much of our freshwater is under pressure from activities on the land, in the water and from a changing climate. While some of our freshwater bodies are in a healthy state, many have been degraded in urban and rural environments. Continuing to improve the data collection and research on our waterway health is a priority.

Our food and fibre sector has an important role to play in protecting our waterways by managing stock access, soil erosion, run-off and debris and limiting fertiliser use and nutrients from animal waste. We have made positive steps, including the fencing and cleaning up of waterways, riparian planting of the upper and lower banks of waterways and protecting and reviving wetlands.

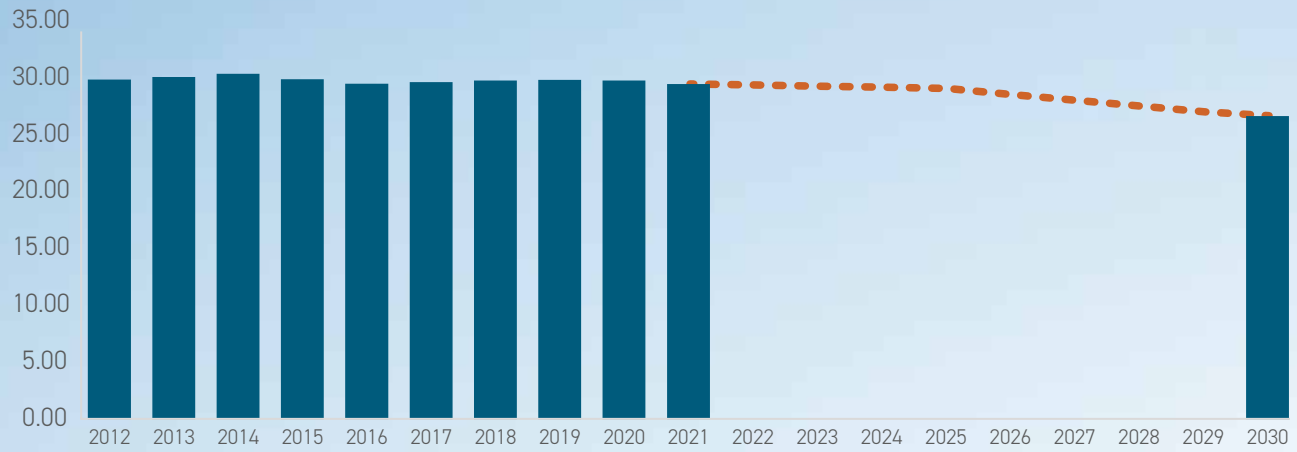
New Zealand is well placed to deliver sustainably sourced agricultural, forest and fisheries products. Many of the building blocks are in place to drive more restoration and environmental improvements, but the focus and effort must be accelerated.

Improving water quality by catchments

Catchment groups provide a valuable platform to promote good on-farm practices and sustainable water management. They enable farmers to share knowledge, access expertise, up-to-date research, tools and support on-farm decision-making. Ngā Matapopore Whenua – NZ Landcare Trust has developed a map to encompass the national catchment collectives, catchment groups and environmental community groups, that NZ Landcare Trust works with. Users can find catchments and community groups in their neighbourhood and view water quality monitoring activities that are or have been undertaken in their catchment. Catchment groups are a vital part of community-based action and enable landowners to better manage their on-farm risks and optimise opportunities for increasing the ecological and economic value of their land.

Methane emissions from agriculture 2012 – 2021

(Mt CO_2e)



Source: Emissions tracker (2023), Ministry for the Environment
Note: 2030 target represents 10% reduction from 2017 levels

Annual Coal Consumption from Agriculture, Forestry and Fishing (2013-2022)

Source: Ministry of Business, Innovation & Employment
Note: Industrial coal use in agriculture, forestry and fishing is primarily for meat, dairy and other food processing, wool, timber, pulp and paper products. A small amount of commercial coal is used by the agricultural sector (mainly in the horticulture sector).

The Centre for Climate Action on Agricultural Emissions will accelerate the research, development and commercialisation of tools and technology to reduce emissions.

The Centre for Climate Action Joint Venture partners **ANZCO, Fonterra, Rabobank, Ravensdown, Silver Fern Farms, Synlait and the Government** will contribute about

$170 million over the first four years to tackle on-farm emissions

Making progress on agricultural emissions

The Centre for Climate Action on Agricultural Emissions was launched in November 2022 to accelerate research, development, and commercialisation of new technology and practices to reduce agricultural emissions. It has two key components – the Centre for Climate Action Joint Venture, and the enhanced New Zealand Agricultural Greenhouse Gas Research Centre.

Since its launch the Centre has already made more than $37 million in investments, alongside industry. Projects include developing a methane inhibiting bolus, using genetic selection to increase the supply of low methane rams, and boosting greenhouse gas measurement equipment and infrastructure.

Centre for Climate Action Joint Venture

The Centre for Climate Action Joint Venture is a 50:50 long-term partnership between industry and Government with a strong commercial focus which will develop projects and raise funds to finance the development of potential solutions to reduce agricultural emissions.

Partners include ANZCO Foods, Fonterra, Rabobank, Ravensdown, Silver Fern Farms, and Synlait. These organisations are working directly with research agencies to discover and develop tools and technologies that can reduce emissions from our livestock systems.

The Joint Venture is projected to see a combined investment of about $170 million over the first four years. It fits with *Fit for a Better World*'s vision of affecting change through meaningful partnerships.

In April 2023 its first investment was announced with almost $1.8 million of funding provided to Ruminant BioTech. The Waikato-based start-up is developing a slow-release, biodegradable bolus capsule that works to deliver a methane-inhibiting substance into stomachs of livestock.

In May 2023 the Joint Venture also announced up to $2.5 million in funding to back programmes researching a methane vaccine and a methane inhibitor for use on New Zealand farms.

By working in partnership, the Joint Venture will help farmers reduce their environmental impacts and meet the sustainability standards increasingly valued by discerning export customers.

Importantly, the Joint Venture takes the pressure off farmers by ensuring they have equitable access to effective and affordable tools and technology to help cut methane and nitrous oxide emissions.

New Zealand Agricultural Greenhouse Gas Research Centre

The New Zealand Agricultural Greenhouse Gas Research Centre's goal is to discover, develop and make available practical and cost-effective technologies and practices for New Zealand farmers and growers to reduce agricultural greenhouse gas emissions.

A partnership between New Zealand's leading research providers working to reduce agricultural greenhouse gases, NZAGRC is a key part of the Government's approach to understanding and managing greenhouse gases from agriculture.

This work is undertaken collaboratively by member organisations and targets cost-effective solutions for reducing emissions in New Zealand's unique farm systems and environments – and contribute world-leading results to the international science community.

Biological Emissions Reduction Science and Mātauranga Plan

The *Biological Emissions Reduction Science and Mātauranga Plan* outlines a research and development pathway to get new emissions mitigation tools, technologies, and practices into the hands of farmers.

Commissioned by the Food and Fibre Partnership Group and released in May, the plan forms part of the *Fit for a Better World* programme and was developed with input from Māori, industry, scientists, and government.

Drawing on New Zealand's unique dual knowledge of science and mātauranga Māori, the plan recognises that enduring responses to climate change will come through the interplay and application of both.

The Centre for Climate Action Joint Venture aims to help pasture-based farmers reduce their agricultural emissions by 30 percent by 2030.

Wayne McNee, Centre for Climate Action director

Beef genetics research

Research has confirmed that genetics play a role in how much methane cattle emit, highlighting the potential for farmers to breed lower methane-emitting cattle in the future. Analysis of 281 bulls showed that some emitted around 15 to 20 percent less methane than the average, with researchers observing genetic variation. The results follow the first year of a research programme run by New Zealand artificial breeding companies LIC and CRV that could help farmers reduce on-farm emissions. The next step in the research is to see if the genetic variation observed in growing young bulls is replicated in their daughters. In partnership with Pāmu, researchers will breed dairy cows from bulls identified to be high or low methane emitters.

Ngā Punga o te Moana

As climate change causes shallow coastal waters to warm, innovative thinking is under way to explore the adaptive potential of open ocean aquaculture. *Ngā Punga o te Moana – Anchors of the Sea* – is a five-year open ocean aquaculture research programme led by the Cawthron Institute and financed through the Endeavour Fund. Key outputs of the project will include designing new open-ocean farming structures for shellfish and seaweed and using advanced data science and modelling to explore open-ocean conditions. Investigations about which species have the most potential will be carried out by studying their biology and physiology and learning how to farm them. Analysis will consider how expanding into cooler, cleaner waters will have the potential to reduce environmental impacts on near-shore habitats.

Project Recharge

Project Recharge is a major dairy decarbonisation project by Southland's Mataura Valley Milk (MVM) that aims to completely electrify a dairy site for the first time in New Zealand by November this year. Central to the project is the installation of a modern high-pressure electrode boiler capable of producing steam at up to 40 bar pressure to supply heat to spray driers and other processes. High Pressure Electrode Boilers will replace all current coal-fired heat duties on the MVM site, making it 100 percent electrified. Electrode boilers achieve very high efficiency by passing current directly through the water itself rather than through a discrete heating element. While some are already operating in the dairy industry, none currently produce such high pressure.

Experimental Future Vineyard

The development of the Experimental Future Vineyard in Blenheim will measure soil carbon sequestration by grapevines and ensure supply of quality grapes for New Zealand's wine sector into the future. The facility will enable research within the vine and beneath the soil, allowing researchers to control metrics including soil type, temperature and water availability. Plant & Food Research will operate the facility and develop research programmes alongside partners, including the Marlborough Research Centre and the New Zealand wine industry, within a 600m^2 shelter. The research will guide growers on opportunities to grow the carbon sequestration beneath their vines using the likes of canopy configuration and other viticultural opportunities.

Oxygen technology

Sanford has invested in oxygenating technology to help mitigate the effects of climate change and warming water at its Stewart Island operations. Pontoons designed to carry oxygen-emitting technology are the first of their kind to be widely used in New Zealand. Following successful trials, they will enable all salmon farm pens at Sanford's Rakiura site to be oxygenated – in a similar process to the bubbles you see in a fish tank. Warmer water holds less dissolved oxygen than cold water, so Sanford's investment represents proactive climate change preparedness and adaptation. The oxygen goes into the water in a very fine mist from four tubes in each pen, diffused out about five metres below the surface.

Plantain study

The latest results from the DairyNZ-led *Plantain Potency and Practice (PPP) Programme* show that using Ecotain plantain in pasture can reduce nitrogen leaching from dairy farms by 20 to 60 percent. The results are compared to traditional perennial ryegrass and clover paddocks (the most common pasture types in New Zealand). There was no difference in milk production between the plantain and control pastures in the trial. The *PPP Programme* includes investigating how farmers can successfully establish and maintain high proportions of plantain in pastures across a range of different climates. The $22 million *PPP Programme* is funded by DairyNZ, MPI's Sustainable Food and Fibre Futures fund, PGG Wrightson Seeds and Fonterra, working alongside research and delivery partners.

Protecting biodiversity

Why this matters

The prosperity and wellbeing of New Zealand depends on protecting our natural resources and indigenous biodiversity. For terrestrial-based biodiversity, much of our remaining biodiversity is found on privately owned or managed land. Sheep and beef farmers maintain 2.8 million hectares of native habitat, including 1.4 million hectares of native forest.

24 percent of New Zealand's remaining native vegetation habitat is found on sheep and beef farms.

Across these fragmented landscapes, New Zealand's 1.7 million hectares of plantation forests are important habitat and corridors between isolated native forest remnants. The mix of planted forest and native ecosystems are home to many species, including at least 120 threatened indigenous species, demonstrating the important role our farmers and foresters play in meeting our biodiversity objectives.

New Zealand is known for having one of the most unique marine environments on the planet. We have over 17,000 known species, and more are being discovered all the time.

Experts estimate up to 85 percent of New Zealand wildlife could be in our oceans. Fisheries New Zealand operates the fisheries management system to sustainably manage our fisheries for the greatest benefit to New Zealanders. Its ongoing work includes decision making on sustainable use of fish stocks and allocations by commercial, customary and recreational fishers.

New Zealand's approach to promoting a healthy ocean and ensuring good management focuses on high-quality fisheries science, management advice and improved compliance monitoring. We work with our Pacific Ocean regional partners to protect the sustainability of fisheries resources for future generations.

What has been done?

Te Mana o Te Taiao – Aotearoa New Zealand Biodiversity Strategy – published by the Department of Conservation in 2020 – sets a strategic direction for the protection, restoration and sustainable use of biodiversity, particularly indigenous biodiversity, across marine, terrestrial and freshwater. An implementation plan was announced in April 2022 to support its delivery, which outlines how it will be achieved over the next 30 years, including interim goals for 2025 and areas of responsibility for local and central government.

The Queen Elizabeth II National Trust (QEII Trust) helps private landowners in New Zealand permanently protect special natural and cultural features on their land with open space covenants. The Trust oversees 5000 protected areas, equating to 200,000 hectares. With 70 percent of land in New Zealand under private ownership, protecting biodiversity on privately owned land is critical to reversing the decline of indigenous biodiversity.

We've proven in many parts of the country that, when we remove or manage the threats, restore the habitats and/or modify how we use or interact with nature, it comes back. Programmes such as *Jobs for Nature* and *Predator Free 2050* are making a measurable difference to the health of our landscapes. The science community is coalescing their efforts towards research that will improve the cost, speed and scale of predator eradication. The *Predator Free 2050* programme has seven 2025 targets – their progress is noted below.

The *Fisheries Change Programme* has strengthened and modernised New Zealand's fisheries practices through electronic catch and position reporting, digital monitoring and the wider roll-out of 300 on-board cameras by 2024. This provides a better range of data that can be used to inform more responsive fisheries management decision making. Electronic reporting provides verifiable information about fishing activity in near real time at a much finer spatial scale.

Predator Free 2050 strategy – 2025 targets

- Increase suppression by 1 million hectares.
- Predator eradication achieved in unfenced areas of at least 20,000 ha on mainland New Zealand and defended from reinvasion.
- All mammalian predators are eradicated from New Zealand's uninhabited offshore islands.
- A breakthrough science solution has been developed that can eradicate one mammal predator from the New Zealand mainland.
- Whānau, hapū and iwi lead at least five eradication projects.
- Possums or mustelids are eradicated from a New Zealand city.
- Effective tools and knowledge are available to achieve predator eradication on farmland.

Key

- achieved
- on track to be achieved by 2025
- will not be achieved by 2025
- insufficient data

Source: *Predator Free 2050 5-year progress report*, Department of Conservation | Te Papa Atawhai

Proportion of New Zealand indigenous species found nowhere else on Earth

72%
OF BIRDS (LAND, FRESHWATER AND MARINE)

84%
OF VASCULAR PLANTS (LAND AND FRESHWATER)

81%
OF INSECTS (LAND AND FRESHWATER)

7%
OF MARINE MAMMALS

88%
OF FRESHWATER FISH

100%
OF REPTILES, FROGS, BATS (LAND AND FRESHWATER)

Source: *Te Mana o te Taiao – Aotearoa New Zealand Biodiversity Strategy 2020,* Department of Conservation

Note: This data does not include extinct, exotic or non-resident native (coloniser, migrant or vagrant) species.

Jobs for Nature programme highlights 2020-22

2 YEAR HIGHLIGHTS

5,273,524
plants in the ground

378,706
hectares of land under plant pest control

1,473,029
hectares of wilding conifers controlled

1,499,768
hectares of land under animal pest control

896
hectares of freshwater under restoration

2,631
hectares of land under restoration (excluding freshwater areas)

1,473,029
kilometres of fencing constructed

Farming with Native Biodiversity

Supported by Silver Fern Farms, the Living Water Partnership (Fonterra and the Department of Conservation), the BioHeritage Challenge and MPI's Sustainable Food and Fibre Futures fund, the New Zealand Landcare Trust has launched the *Farming with Native Biodiversity* project. In addition to working directly with farmers, the project has developed practical resources to help farmers, farm advisors and farming groups understand the importance of native biodiversity and how to enhance it within a productive farm system.

New Zealand Landcare Trust is an independent charitable organisation that works with landowners and communities to encourage and support sustainable land and water management.

Water monitoring for restoration

A marae-led initiative to clean up waterways in South Waikato, *Pūniu River Care*, is partnering with Mercury and Adroit to install an environmental monitoring solution to provide real-time data on the health and restoration of the Pūniu River. The Pūniu River is one of the longest secondary tributaries in Aotearoa, running 83 kilometres from the heart of the Pureora Forest to the Waipā River and then on to the Waikato River. The Pūniu River holds cultural significance to local marae, hapū and iwi, taking its name from the patupaiarehe (Māori mythical beings of human form) who travelled down the river from the Pureora Forest to Pirongia.

Pūniu River Care has planted more than 2 million trees within the Waipā, King Country and Waikato regions and completed more than 60 kilometres of fencing to protect waterways since launching in 2015.

Native nursery pilot

A trial nursery project for Waimakariri Irrigation Limited is aiming to enable shareholders to grow their own native seedlings for on-farm revegetation projects. The project will take around three years to complete and forms part of a wider riparian planting and wetland restoration plan focusing on 1,600 hectares of shareholder-owned land.

The trial allows farmers to supply themselves with enough native seedlings for revegetation projects – showing their commitment to protecting the environment.

Producing their own seedlings means the farmers can control the quantity and timing of supply for local conditions, with costs reduced by growing native plants from seed.

Species of plants successfully grown in the trial include harakeke, pūrei, toetoe, and tī kōuka.

Circularity in food and fibre

Why this matters

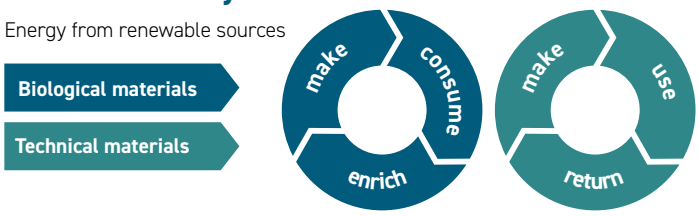
The circular economy establishes a more sustainable production and consumption model in which raw materials are kept longer in production cycles and can be used repeatedly, therefore generating much less waste.

Circular economy thinking shares many values with te ao Māori to focus on not creating waste in the first place and the cycles of continual regeneration.

The whakapapa/kinship between all living things, people and the planet creates connection, respect and responsibility and gives rise to kaitiakitanga/guardianship and our responsibility to actively care for our environment.

New Zealand's natural resources that make up our bioeconomy will provide a significant competitive advantage as the world moves away from fossil fuel-based products to bio-based materials, products and chemicals – wood, wool, seaweed and other food and fibre products have significant potential in this shift. Estimates are that the bioeconomy could create an extra $30 billion for our economy and help reduce greenhouse gas emissions by 12.5 Mt CO_2-e by 2030.

Circular economy



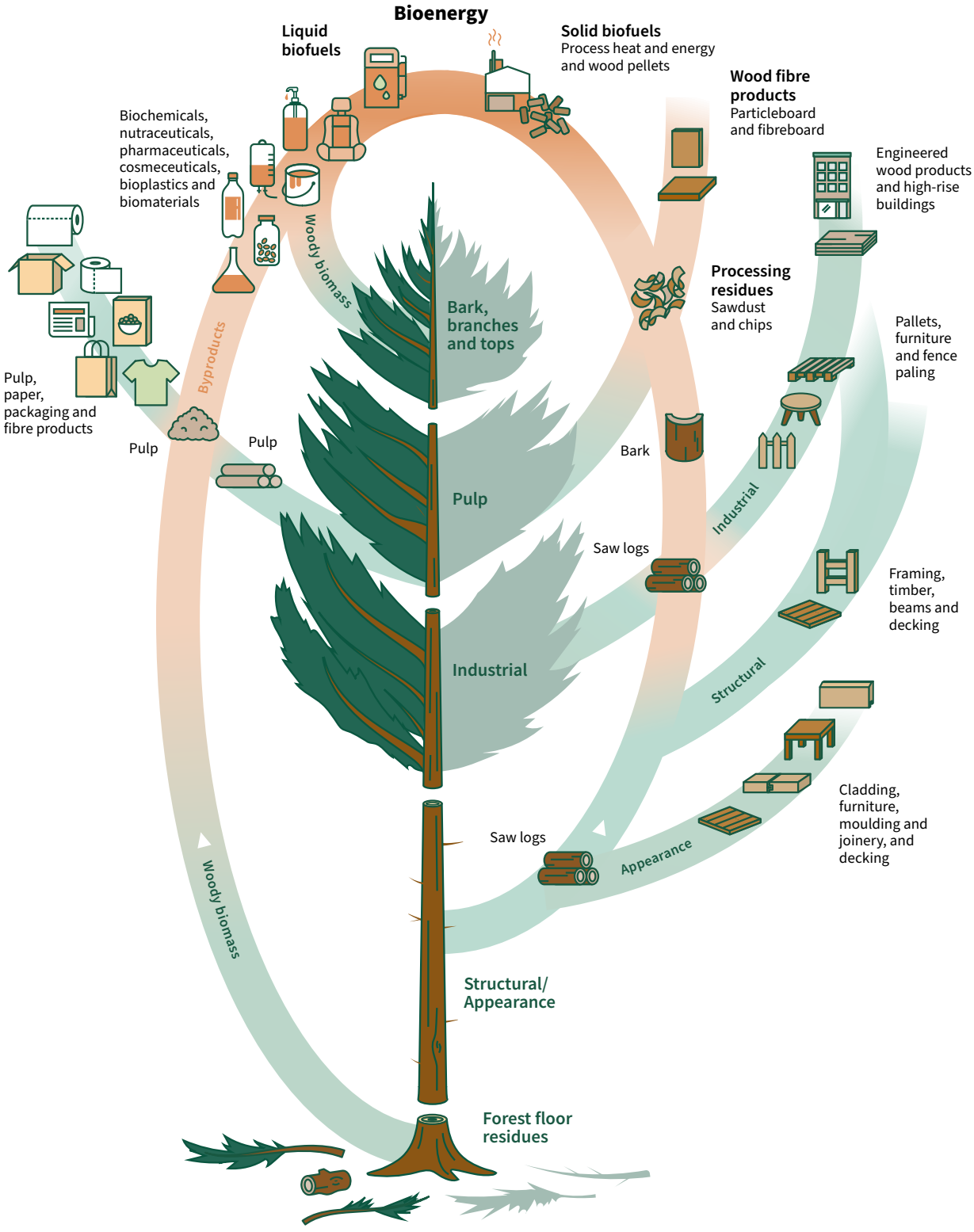
What has been achieved

- Developed by Agrecovery, the *Green-farms Product Stewardship Scheme* (GPSS) is an outcome of the farm plastics project co-design workstream and will implement a regulated accreditation process by 2024. The *GPSS* is expected to collect and treat the most voluminous farm plastics by 2026 and then add on other farm plastics over the following four years. The goal is to collect and treat most farm plastics by 2030.
- Fonterra has a *Sustainable Packaging Programme* that commits to a goal of 100 percent reusable, recyclable or compostable packaging by 2025, with zero solid waste sent to landfill. It is trialling alternative material options and looking at potential packaging redesigns. In the 12 months ending June 2022, 89 percent of Fonterra's packaging was considered recycle-ready on a total tonnage of packaging basis. Fonterra is forecasting it will achieve greater than 95 percent recycle-ready packaging by the end of 2025.
- In March 2023, the Ministry for the Environment released *Te rautaki para | Waste strategy*, which sets the direction and goals for New Zealand's waste management through to 2050. The next step of the strategy is to confirm the action and investment plan, which will govern planning and activity across central and local government. The Ministry will regularly assess and publicly report on progress against the strategy and the action and investment plan going forward.

Future Post, a company that recycles waste plastics to create agricultural products such as fence posts, has partnered with Sea Cleaners and Northland Waste in a pilot programme to reduce waste going to landfill. Future Post recycles domestic and commercial mixed-grade waste plastic, including "difficult to recycle" types 2, 4, 5, 6 and 7 of all colours, into 100 percent recycled, UV-stabilised post products. The aim is to recycle all type 2 and 5 waste plastics received from Sea Cleaners' recovery efforts and give it new life as 100 percent recycled fence post products. Future Posts are also used in a wide variety of applications, not just agriculture, including residential, council use, horticultural and marine. Future Post plan to open a second factory in Blenheim, which will assist recycling input and post output, in the South Island.

What is a circular economy?

In a circular economy, we design out waste and pollution, keep resources in use for as long as possible, then recover and regenerate products and materials at the end of their life cycle. Protecting and regenerating natural systems is key to a circular economy, as is delivering equitable and inclusive outcomes. Our forests, being a renewable resource, are a great example. They provide critical materials to support other sectors, such as building and construction. Woody biomass recovered from forests and wood processing provides a low-emissions energy, heat production solutions and new wood-based products such as biochemicals, bioplastics, textiles and biofuels.



Source: *Forestry and Wood Processing Industry Transformation Plan*, MPI

A vision for Regenerating Aotearoa

Practices that, in isolation or collectively, can achieve improved outcomes for our productive landscapes, rivers, coastal and marine environments, biodiversity and natural ecosystems, improve animal welfare, have potential to increase profitability and add value, promote health and wellbeing for humans, whilst ensuring we can grow and consume our food and fibre products sustainably, and meet goals of taiao, whenua ora, mauri ora, and te ao tūroa.

Vision statement developed by members of the MPI-facilitated Technical Advisory Group (TAG) for regenerative agriculture. The TAG is comprised of more than 25 representatives from Māori and the scientific, farming, farm advisory, and business sectors.

Regenerative agriculture may be an opportunity for New Zealand food and fibre producers to appeal to consumers, both domestically and internationally, who seek to understand the impact of their product purchases on the environment, animal welfare and social wellbeing.

Regenerative agriculture has close links to the principles of Te Taiao – a deep relationship of respect and reciprocity with the natural world, that will ensure the long-term viability of our food and fibre sector and wellbeing for future generations.

As of April 2023, the New Zealand Government has backed a portfolio of 15 regenerative agriculture research projects through MPI's Sustainable Food and Fibre Futures fund, in partnership with industry, with a combined investment of just over $59.1 million. These projects have their sights on delivering an evidence base on the effectiveness of regenerative farming practices that suit New Zealand's soils, climate and production systems.

Some of the practices New Zealand farmers are using will already be considered regenerative and they should be recognised for these efforts. The joint industry and government research projects will help to grow the evidence base on the effectiveness of applying other regenerative agriculture practices in New Zealand. The aim is to design systems that will meet our broad, long-term sustainability goals.

MPI has also funded peer-to-peer farmer learning on regenerative agriculture practices through the Quorum Sense network. This includes working with Māori farmers to explore how to implement regenerative farming practices alongside traditional Māori practices.

Soil carbon trial

A six-year trial in Hawke's Bay is researching the potential of regenerative farming practices to boost soil carbon in arable, vegetable and cropping systems. The *Carbon Positive – Regenerating Soil Carbon* project is led by Hawke's Bay Future Farming Charitable Trust in collaboration with science and operations partner LandWISE. It will help build an evidence base around the effectiveness of regenerative farming in typical intensive field cropping and arable systems. The $3 million project is co-funded by MPI's Sustainable Food and Fibre Futures fund and will be conducted at the LandWISE demonstration farm on the Heretaunga Plains. Researchers will be able to compare results from conventional farming, fully regenerative farming practices and a hybrid approach that incorporates a mixture of techniques.

Our regenerative future

Ngāi Tahu Farming, in partnership with Ngāi Tūāhuriri, has received $8 million in funding through the Sustainable Food and Fibre Futures fund for a seven-year project to study the science behind regenerative farming practices. The $11.58 million project will compare side-by-side dairy farms in Canterbury with the same stock ratio to assess the environmental impacts of their practices.

Researchers will analyse an array of metrics including water-use efficiency, root zone nitrate leaching, changes in soil carbon and nitrogen stocks, nitrous oxide and methane emissions, worker wellbeing, task diversity and productivity, benchmarking and evaluation, assurance standards and consumer trends. The data from the study will broaden our knowledge base by allowing for detailed comparative analysis.

Whenua Haumanu

Whenua Haumanu – the most comprehensive study ever undertaken of New Zealand's pastoral systems – hopes to validate the use of regenerative farming practices from field to fork. Led by Massey University's School of Agriculture and Environment, the study involving several research sites aims to provide evidence for farmers to make informed decisions on adopting regenerative farming practices. Discovering sound evidence for what works with our soils, climates and farming systems will help farmers transition to a more sustainable future. Research partners include AgResearch, Lincoln University and Dairy Trust Taranaki. Guidance will also be provided by an advisory group comprised of industry, iwi, investment and consumer groups. The $26.1 million programme is being co-funded with $17.6 million from MPI's Sustainable Food and Fibre Futures fund.

Whakaurutia | Inclusivity

Target: Employing 10 percent more New Zealanders in the food and fibre sector by 2030.

Throughout New Zealand, 360,000 people work in the food and fibre sector. In some regional communities, food and fibre businesses employ over a quarter of the workforce. However, demographic changes, overall competition for jobs and the growth in food and fibre businesses have meant that employers have faced labour shortages in almost all parts of the sector.

The last few years have seen bottlenecks in supply chains due to geopolitical tensions and an uneven recovery from the pandemic, high inflation, increased costs of living and risks of a global debt crisis – compounded by global labour shortages.

The food and fibre sector faces rapid shifts in consumer demands, technology, regulation, competition, and community expectations – all of which have impacts on workforce needs and skills requirements.

There is a strong focus on attracting more workers to the sector, on upskilling and growing our people and on initiatives to retain those already in the sector.

To achieve our aspirations for sector transformation and thriving rural communities, we need a more productive and highly remunerated food and fibre workforce. It may require innovation and change to ensure that we attract and retain the right people to build on our progress to date.

Addressing these issues requires long-term commitment and focus. Regulatory and policy settings on immigration and wage rates play a role, as do worker conditions, rosters, health and safety environments, and social and cultural support. It will take a combined and consistent effort.

The good news is that work is under way. The MPI *Primary Sector Workforce Programme*'s goal to place at least 10,000 people into primary sector roles by 2024 had been well surpassed by December 2022. It has also supported more than 100 programmes to boost the food and fibre sector workforce.

The *Opportunity Grows Here* attraction campaign, which was launched in July 2020 to connect people to primary sector job opportunities and link others to training providers and programmes, has supported 16,200 New Zealanders into jobs.

In December 2022, MPI launched *Food and Fibre Workforce Insights: Mana Tangata* to enhance joint understanding and knowledge of the food and fibre workforce through data and insights. The Muka Tangata: People, Food and Fibre Workforce Development Council is working to ensure that food and fibre industries can access the skills they require to meet their current and future needs.

Food and fibre sector groups have developed workforce strategies to address labour needs, including New Zealand Winegrower's *Fit for a Better Wine World: Assuring a sustainable workforce for New Zealand's grape and wine industry plan*, DairyNZ's *Great Futures in Dairying Plan*, and the *Forestry and Wood Processing Workforce Action Plan*.

A review of the settings for the Recognised Seasonal Employer (RSE) scheme by MBIE, with the support from MPI, is progressing. The review is being undertaken to ensure the scheme continues to be fit for purpose for our sector. In addition, the government lifted the cap on RSE workers from 16,000 to 19,000 for the 2022/23 year.

1 in 7

New Zealand workers are employed in the food and fibre sector

Opportunity grows here

Opportunity Grows Here is an attraction campaign to get New Zealanders into jobs and to consider long-term careers in the food and fibre sector. The campaign, developed in partnership with the sector, was launched in July 2020. It brings information about training, careers and job listings within the food and fibre sector into one place.

16,200

New Zealanders placed into food and fibre sector jobs, since July 2020, based on collective efforts across industry and government

Over

1,300,000

website page views

Forestry scholarships

Ngā Karahipi Uru Rākau scholarships, led by Te Uru Rākau, provide another pathway into the industry and offer access to tertiary study for New Zealanders interested in professional forestry degree programmes. The scholarships aim to encourage Māori or those who identify as female to take up careers in forestry and help transform Aotearoa New Zealand's future.

Seven applicants were announced in December 2022 to join the programme. To date, more than 30 students throughout New Zealand have received scholarships since 2018. These students are an important part of the future forestry workforce delivering for the climate, the environment, our communities, and our economy.

Closing the gap

Women in Wine NZ is a sector initiative aiming to enable women to reach their full potential and step up into leadership roles through mentoring and networking. It gathers statistics to identify challenges that may exist for women working in the wine industry and encourages businesses to assess their diversity and inclusion culture.

Research commissioned by *Women in Wine NZ* in 2022 to assess the gender pay gap in the wine industry found that, in 2021, the overall median average gap for base salary in all roles was 7.8 percent. *Women in Wine NZ* has called on sector organisations to regularly check their payrolls and benefit packages, to make changes where necessary and for larger businesses to report on gender pay gap performance.

Dairy workforce expos

People on farm are the number one priority for most dairy businesses. DairyNZ and the Dairy Women's Network have hit the road in a partnership to promote dairy workforce development throughout Aotearoa New Zealand. People Expo events provide dairy farmers with an opportunity to hear from experts on economic and workforce trends, technology adoption and how to find and keep great employees. Recent People Expos in Canterbury, Southland, Taranaki and Waikato have enabled farmers to challenge the status quo in their businesses with fresh perspectives and alternative solutions. The People Expos work to complement DairyNZ's *GoDairy* campaign connecting New Zealanders with farm assistant vacancies across the country.

On Farm Support

MPI's On Farm Support team is focused on supporting farmers and growers to take an integrated approach to farm planning, tackling environmental challenges, adapting to change and connecting farmers and growers to existing services.

On Farm Support services work throughout the country to ensure that farmers and growers have the information and support that they require to innovate and thrive. The team provides on-the-ground assistance to help farmers and growers navigate requirements around climate, water and the environment.

MPI expects to grow the On Farm Support regional service to around 90 advisers nationwide over time. They provide up-to-date information, highlight integrated farm planning and connect farmers and growers with:

- assistance with preparing for and responding to adverse events;
- help with improving on farm biosecurity resilience;
- help with how best to integrate riparian and tree planting;
- links to locally run catchment groups and expertise.

On Farm Support provides a clear understanding of available funding and support options, including the Sustainable Food and Fibre Futures fund and the *Emissions Reduction Plan*. It also highlights access to tools and resources such as AgMatters as well as innovations in emissions-reducing technology developed through the Centre for Climate Action on Agricultural Emissions.

Cyclone Gabrielle caused unprecedented flooding and damage across parts of the North Island in February 2023 and is one of the biggest challenges faced by our farmers and growers in recent times. MPI's On Farm Support advisers have been on the ground in affected regions to provide aid and assistance to rural communities as they begin to chart the recovery process.

The successes of Aotearoa New Zealand's food systems are built on strong relationships between scientists, advisers and farmers.

Importantly, MPI's On Farm Support team will act as a conduit within the sector and understand that farmers and growers know their land and businesses best. On Farm Support will act to bring insights back into MPI to help inform future operations and feed into policy development.

Rural wellbeing

Why this matters

People are at the heart of every food and fibre business. Over the past decade, wellbeing has moved up agendas across all areas of government and civil society, a trend that has only been magnified by the recent global pandemic.

The very nature of working in the food and fibre sector means there are ups and downs from the weather conditions, the market and interest rates, that are beyond any individual's control.

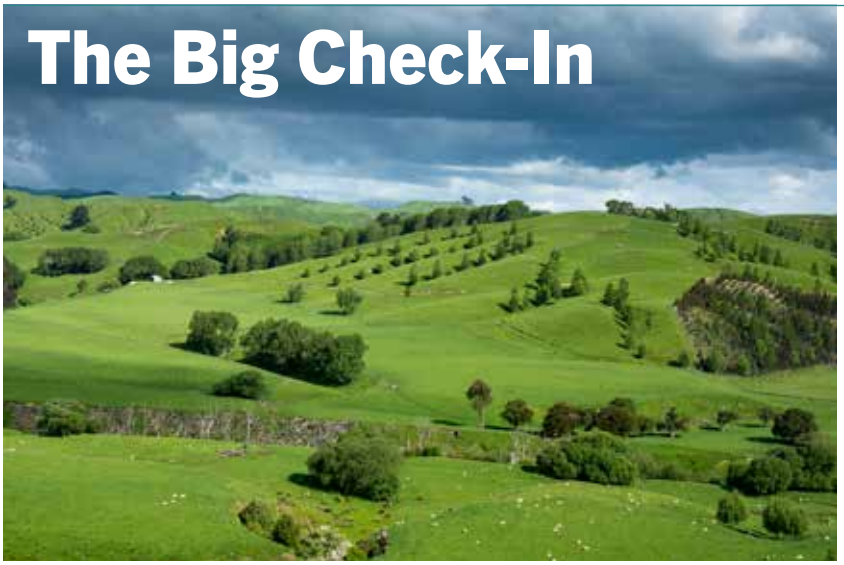
The remote locations, seasonal peaks and physical nature of the work can sometimes mean that our people are faced with specific health, safety and wellbeing challenges.

The goal is to achieve a rural and regional New Zealand that adapts and thrives in a constantly changing world.

There are a number of positive and proactive initiatives across government, non-government, private sector and sector-good bodies that focus on health, safety and wellbeing such as ***Farm without Harm***, *Safetree*, *OpenSeas*, *Farmstrong*, Rural Support Trust, *FirstMate* and *Rural Community Hubs*.

What has been achieved

- Funding of $35.4 million was announced in Budget 2023, to support the safety and wellbeing of farmers and growers and their stock in areas affected by Cyclone Gabrielle. It will support access to expert advice, attend to urgent maintenance needs and help enable delivery of essential supplies to meet health and safety requirements. Included is support for the operation of rural community hubs, helping them to better respond to challenges and build resilience.
- A *Rural Health Strategy* by Ministry of Health is under development to be released in Q3 2023. This is the first time that Aotearoa New Zealand will have a *Rural Health Strategy*. It will set the direction and priorities for improving the health of those in rural communities.
- The *Rural Community Hubs* programme was set up by MPI to provide support and seed funding to help establish 32 hubs throughout rural and coastal New Zealand. The hubs have taken a community-led development approach, with communities owning and driving their own solutions.
- MPI has provided grants to help improve the mental wellbeing of rural people by complementing existing services. As part of the wider community-led development approach, this sat alongside the *Rural Community Hubs* programme. It also complemented the work of Rural Support Trusts, which help local people to work together to respond to the challenges they face.



Cyclone Gabrielle and other extreme weather events have had a devastating effect on food and fibre sectors in many regions of the North Island in 2023. *The Big Check-In* – a first-of-its kind interactive online event – sought to bring relief and support to farmers, growers, fishers and rural people doing it tough. Hosted by Te Radar, it was an opportunity to check in with whānau and friends and to pick up wellbeing advice from experts and industry peers. Speakers with direct experience of the impacts of disasters and resilience expertise provided practical tools and tips and shared wellbeing resources. The *Big Check-In* was backed by the Rural Support Trust, Agri-Women's Development Trust, HortNZ, Vegetables NZ, Summerfruit NZ, NZ Winegrowers, Beef + Lamb NZ, DairyNZ, First Mate and MPI.

Our Resilient Farming Business, an online programme to help farmers adapt and prepare for change, has been developed by the Agri-Women's Development Trust with backing from the Ministry for Primary Industries. The programme focuses on financial and personal resilience and business planning and is intended to support farm businesses to work through the implications of proposed capital expenditure. The aim of *Our Resilient Farming Business* is to increase understanding of how farmers can respond to unexpected changes, set out an action plan to build business resilience and provide practical tools for farmers to use in "what if" scenario planning.

Grow Home Safe is an initiative to provide leadership and develop capability in health, safety and wellbeing for the horticulture and viticulture industries. With initial funding from ACC through an Injury Prevention Grant, the *Grow Home Safe* project follows four key steps: Understand > Intervene > Support > Lead. The horticulture and viticulture sector is diverse and complex, with participants ranging from large corporates through to family operations. *Grow Home Safe* aims to develop new, evidence-based approaches to reduce harm and enable people to thrive throughout the horticulture and viticulture industry. By better understanding why harm occurs, *Grow Home Safe* aims to provide growers with industry-specific information to base their risk management and business decisions on.

The *FarmSalus* tool was developed as part of the *Hill Country Futures Programme* and is aimed at helping understand and monitor the human component of farming. *FarmSalus* is a set of resources to help farmers, catchment groups, and rural professionals measure and monitor farm success through the lens of farmer health and wellbeing. It shows how keeping interconnected strands of farm systems in balance can build resilience: the farm business, the farm environment, the farmer's own health, and the farmer's support networks. *FarmSalus* was created after consultation with hill country farmers, rural professionals, academics and industry leaders. The $8.1 million *Hill Country Futures* programme is co-funded by Beef + Lamb New Zealand, MBIE, RAGT New Zealand, and PGG Wrightson Seeds.

Connected communities

Why this matters

Good connectivity in rural areas is important for productivity and innovation, social connection, community building, health and safety, environmental management and education. As we look to the future, the right mix of connectivity technologies will help the food and fibre sector with reliable coverage and performance.

New Zealand ranks highly internationally for the proportion of the population with access to fibre broadband services and the speed of our internet. However, fibre coverage is expensive and inflexible and has not always been the best or most practicable way of meeting the diverse needs of rural areas. Investment in wireless and satellite systems will be necessary to advance connectivity options for remote areas.

Good connectivity provides opportunities for agritech technologies, digital farm data management, robotics, automation and mechanisation.

Cyclone Gabrielle highlighted the importance of resilient digital connectivity, electricity and transportation infrastructure, and the dependencies of the former on the latter. New Zealand is fortunate to have a largely renewable-based electricity system. Climate change will deliver more frequent and extreme weather events that will have impacts on the reliability of New Zealand's electricity supply. Further investment is necessary to maintain and strengthen connectivity technology to improve the performance, reliability and coverage of the network in rural areas.

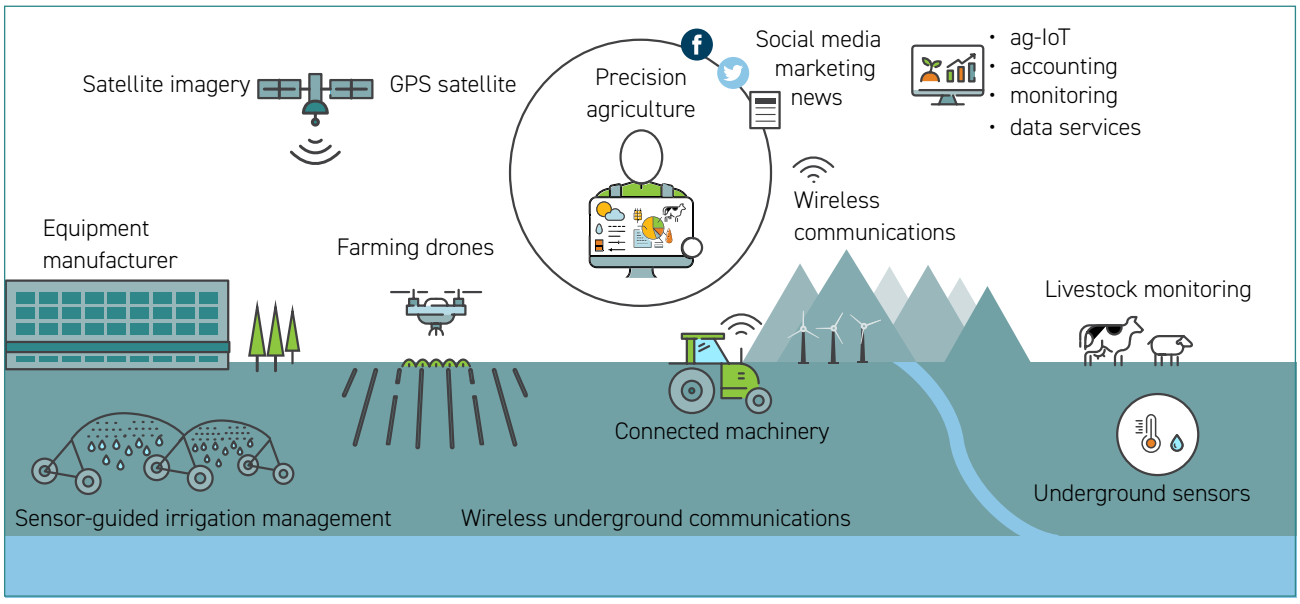
What has been achieved

Lifting Connectivity in Aotearoa New Zealand was released by MBIE in December 2022 to help implement the *Digital Strategy for Aotearoa*. The first actions to implement *Lifting Connectivity in Aotearoa New Zealand* are under way.

- Rural Capacity Upgrade Programme: More than $100 million is being used to improve broadband speed and capacity in the most congested rural areas of New Zealand. More than 69,000 rural households and businesses are expected to benefit from upgrades to mobile towers and fibre and wireless infrastructure.
- *Remote Users Scheme*: $15 million has been allocated to a new scheme to extend coverage and offer innovative options for households in hard-to-reach areas.
- As at March 2023, 427 mobile towers had been delivered by the Rural Connectivity Group (RCG). The RCG is a joint venture between Spark, One NZ, and 2degrees established to build the Rural Broadband Initiative 2 (RBI2) extension.
- The Government has signed an agreement with mobile operators where in return for allocation of the 3.5 GHz spectrum, work to provide 5G to around 55 rural and regional towns will be accelerated. The mobile operators will also contribute $72 million for further works to improve rural digital connectivity.

Complementing government investments, New Zealand telecommunications companies have signed deals with satellite providers to improve mobile coverage for rural and remote communities.

- One NZ, formerly Vodafone NZ, signed an agreement with US firm SpaceX to use its Starlink satellites to provide cell coverage across New Zealand from late 2024.
- 2degrees and Spark have both announced trials with satellite provider Lynk, with the aim of providing mobile connectivity everywhere in New Zealand.



Mobile app efficiency

Mānuka Health beekeepers and land managers can now use web maps on their mobile devices to capture and edit data out in the field. Mānuka Health New Zealand, one of our largest mānuka honey producers, has taken its beekeeping operations to new levels of efficiency by using a mobile geographic information system (GIS) app. This innovative way of working enables Mānuka Health to produce efficiencies in honey production, optimising hive placements and strengthening its traceability agility. With Wi-Fi coverage, the beekeepers can press the hot sync button in the app and the most recent information syncs automatically. The GIS app works even when the beekeepers are disconnected from the internet, enabling them to integrate their data seamlessly.

On-farm sensor technology

Connectivity is making farming more efficient by providing immediate actionable data from water and soil sensor technology. Water-Insight's Wireless Soil Moisture Logger is drilled into the ground to provide immediate actionable data on whether or not to irrigate, as it can prove near real-time monitoring. This type of water and soil sensor technology allows the farmer to observe moisture at both root and drainage levels. Understanding soil conditions and other environmental factors allows farmers to conserve resources and reduce their impact on the environment. Sensor technology provides greater decision-making capability and better management of our natural resources.

ANZCO device donations

As part of a digital accessibility initiative by Quadrent, ANZCO Foods, one of New Zealand's largest exporters, is donating 200 laptops each year to rural schools. This will give rural children access to devices, support their online learning and give new life to retired devices that would have otherwise gone to landfill. New Zealand creates around 100,000 tonnes of e-waste each year, but these devices will be securely wiped and environmentally repurposed, recycled or redistributed after they are retired from use by ANZCO. This initiative is giving our rural kids the opportunity to learn digital skills and competencies.

Water resilience

Why this matters

Climate change is impacting Aotearoa New Zealand's weather systems, with the country now more prone to floods and droughts.

Insecure or inaccessible water supply puts the health and resilience of households, communities and farming businesses at risk. Rural and Māori communities are often most directly at risk due to the lack of reliable water infrastructure in parts of New Zealand's regions. It also limits the ability for land to be sustainably developed for productive horticulture and agriculture.

It is crucial to improve and expand the use of innovative technologies to monitor, measure, capture and manage our precious water in an effective and sustainable manner through a strategic approach and increased investment.

Building water resilience now will help support communities and businesses to manage the shocks and stresses of our changing weather system in the future, while also helping to protect the environment.

It can also aid the development of previously unproductive land, including whenua Māori, for horticulture and agriculture, helping rural areas to lock in sustainable long-term productivity and jobs and overall better economic outcomes for their communities.

Many regions show potential for sustainable primary sector growth based on water availability and security, particularly Northland, Bay of Plenty, Hawke's Bay and Otago. The Government's *Water Availability and Security Sensitivity Analysis* in 2021 found that, in the absence of new storage development, the current irrigated area in New Zealand will decline.

What has been achieved

- $135.55 million has been provided by Kānoa – Regional Economic Development & Investment Unit in community water storage schemes in regions across New Zealand that face significant water challenges.
- Kānoa have also invested in research and monitoring of water availability in Northland, Gisborne, Otago and Southland. The research, carried out by Aqua Intel Aotearoa, involves 3D mapping of aquifers to gain a better understanding of the availability of groundwater. As 80 percent of surface water is sourced from groundwater, this is an essential part of understanding how much water is sustainable available in the regions.
- Aqua Intel Aotearoa is also undertaking research on surface water, including monitoring of surface water flows, storing water in wetlands and the potential for sustainably harvesting high flows from waterways for use during low flow periods. The research into harvesting high flows from Northland and Gisborne rivers looks at storing water for use at a later time. This water can be used to augment the flow in rivers during low flow periods, to replace low flow takes or to make more water available for community and productive purposes. The research will inform Northland and Gisborne allocation policies as they are developed in the next few years.

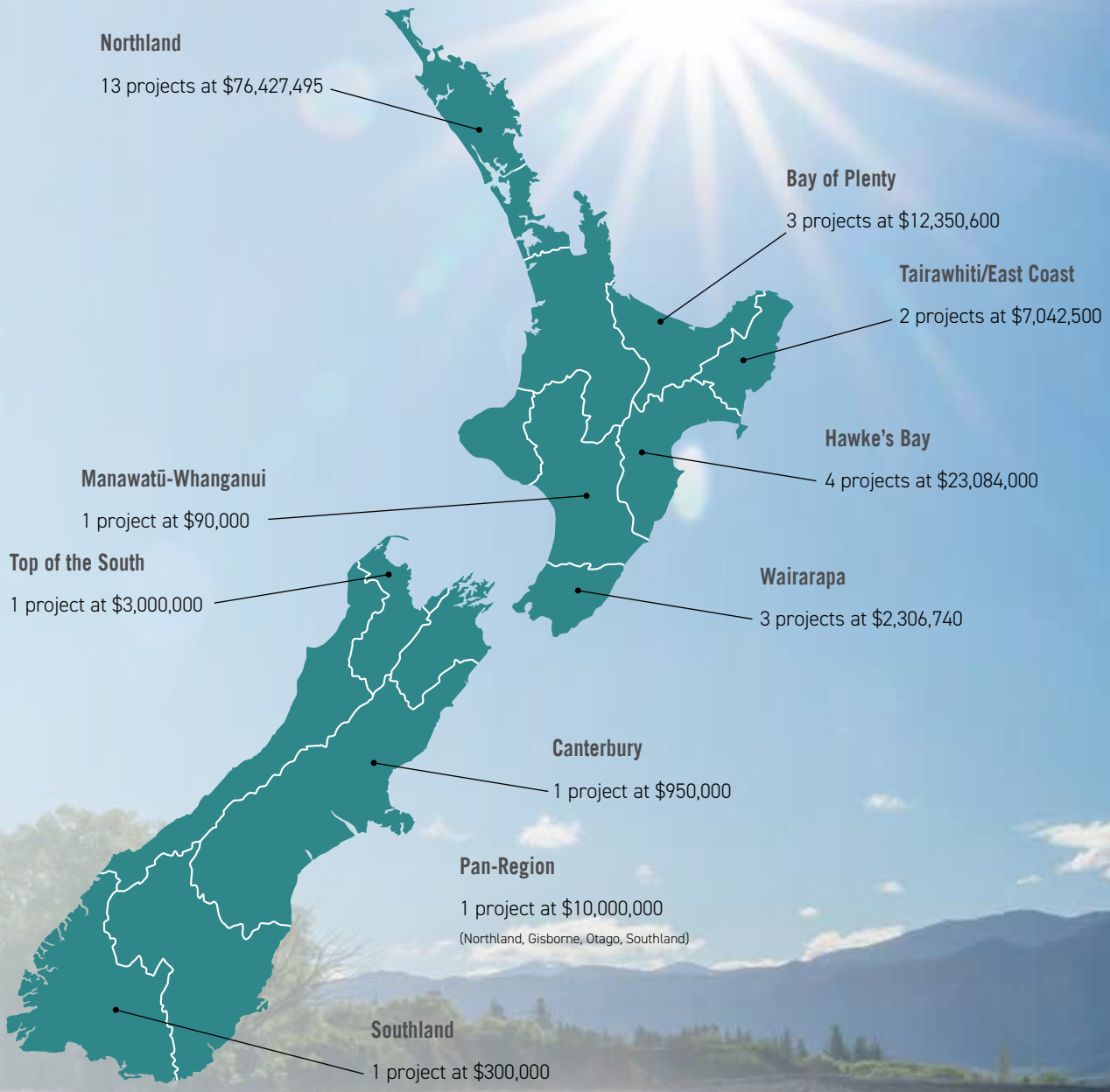
Next steps

- The initiatives underway are progressing the dominant water issues identified by stakeholders in these priority regions. They are increasing water availability through increased water capacity, improved regulatory certainty and an improved understanding of options for storing water in the future. Building off this initial progress, to achieve sustainable and resilient water access across New Zealand in the future will require continued investment in monitoring, data and water infrastructure.

NIWA drought prediction tool

The *National Institute of Water and Atmospheric Research* (NIWA) and MPI have developed a drought forecasting tool that allows farmers to see dry spells up to a month in advance. The tool uses innovative climate modelling, the latest in machine learning and other data-driven techniques to help farmers and growers better prepare for periods of dryness and drought. It combines forecasts of rainfall, soil moisture, and rates of evaporation from the soil to provide district-level predictions at a much higher spatial resolution than previously available. Testing by user groups was carried out during the summer of 2022/23, with a final product expected to be released in time for summer 2023/24.

Overview of water investments funded through MBIE-Kānoa



Source: MBIE - Kānoa Water Storage and Management sector report dated 6 June 2023

Food accessibility

Why this matters

The *Fit for a Better World* vision document noted the importance of meeting our sustainable growth goals whilst also feeding our own people in Aotearoa New Zealand. Food security is increasingly a focus across the world. Sustainable Development Goal (SDG) target 2.1 commits countries to end hunger and ensure access by all people to safe, nutritious and sufficient food all year round. SDG target 12.3 commits countries to halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses by 2030.

New Zealand is currently ranked 14th out of 113 countries for food security on the *Global Food Security Index*. The issue of food accessibility, affordability and food waste, however, is not spread evenly across the population. The causes are part of a series of nested problems relating to societal factors such as incomes, eating habits, the food system, climate change, as well as geopolitical tensions affecting supply chains.

Globally, an estimated one-third of all the food we produce is lost or wasted between farm and fork each year. Redistributing good quality, surplus food to those who need it and ensuring fairness for producer and consumer in the value chain, can have a positive impact on food security.

New Zealand is rich in resources and culture – connecting people through our food to the land and ocean is important for both consumer and producer, building connection and community resilience.

Food accessibility is a complex problem that requires multiple actions across the supply chain.

What has been achieved

- The *Aotearoa Circle Mana Kai National Food Roadmap* was launched at Fieldays in November 2022. It is focused on helping to shape and enhance the future of the New Zealand food system. The Roadmap highlights strengths and challenges in the New Zealand food system and identifies potential solutions and priority actions. The implementation plan will be released in late 2023.
- In October 2022, Fair Food, Auckland's original food rescue charity, was recognised for rescuing 11,500 tonnes of food at risk of going to waste in 2021 by distributing it to people in the community, including those experiencing food insecurity. Fair Food typically shares around 35,000 meals worth of fresh food every week through a network of 50 local organisations, including women's refuges, mental health agencies, refugee centres, teen parenting support groups and budgeting services. There's a waitlist for its services, and most of its existing charities could take more kai. Supermarkets, manufacturers and growers donate more than a tonne of surplus kai a day. With the help of its 200 volunteers each month, it provides nourishment to thousands of people every week.
- The Office of the Prime Minister's Chief Science Advisor published its second report in the food waste series in October 2022, *Food rescue in 2022: Where to from here?* The report outlines the context in which food rescue occurs in New Zealand – where surplus food and food insecurity coexist. It identifies key ingredients that underpin the success of the rescue sector and makes a series of recommendations under the timeframes of the next 12 months, by 2025 and by 2030. Subsequent reports in the series will focus on further solutions to combat food waste in New Zealand across the food system.

THE BIG FEED

One day - Rural NZ - Feeding NZ

In December 2022, *The Big Feed*, a rural telethon to help hungry New Zealand families, ran for more than 12 hours as a live event on social media. It featured farmers from around the country, celebrity guests, entertainment and discussion panels. The telethon exceeded its target, raising 1,200,000 meals. *The Big Feed* was hosted by Meat the Need – a three-year-old charity organisation founded and led by New Zealand farmers and supported by business. Its aim is to provide food banks and community organisations with donated premium mince and milk.

KickStart Breakfast is a joint initiative involving Fonterra, Sanitarium and the Ministry of Social Development to provide healthy breakfasts to Kiwi kids at school. The programme aims to boost student wellbeing by providing access to nutritious food and positive social interactions to help fuel their learning. The only national breakfast programme of its kind, *KickStart* Breakfast currently serves more than 180,000 breakfasts each school week across New Zealand through breakfast clubs involving students, school staff and community volunteers. *KickStart Breakfast* has served more than 55 million breakfasts since the programme began in 2009 and is part of Fonterra's *Doing Good Together* strategy to contribute to the success of New Zealand communities.

The Kai Ora Fund

The Kai Ora Fund is a partnership between government, local councils and community organisations to help develop food accessibility projects across Northland. The fund's community grants support innovative projects that address food security, benefit the wider community and encourage employment and economic development in the region. An annual application process distributes grants of up to $5,000 to help ensure accessible, affordable and safe food supplies for communities. The projects are used for educational purposes to promote sustainability and kaitiakitanga and to produce kai for members of the community. Funded projects have included Te Toa Whenua food forest in the Waipoua Forest, the Pehiaweri Marae māra kai and orchard outside Whangārei, and Kaingaroa Forest School's hugelkultur garden.

Kai Commitment

The *Kai Commitment* is an agreement between leading food sector businesses designed to reduce food waste and related emissions across the food supply chain. It is an initiative of the New Zealand Food Waste Champions 12.3 Trust, a charitable organisation that exists to accelerate progress towards the UN Sustainable Development Goal 12.3 target to halve food waste per capita by 2030 in Aotearoa New Zealand. *Kai Commitment* is funded through signatory fees and establishment support from the Ministry for the Environment. Signatories include Countdown, Goodman Fielder, Fonterra, Silver Fern Farms, Foodstuffs NZ and Nestlé.

Tracking progress across initiatives

A snapshot of work under way

Whaihua | Productivity: work under way

Programme

Water availability and security	A *Sensitivity Analysis Technical Report* was published by MPI. A strategic approach to improve water availability and security for the food and fibre sector is under development.
Accelerate aquaculture	Resource Management Act reforms underway to develop an effective open ocean aquaculture management framework.
	The *Accelerate Aquaculture Investment Roadmap* was finalised in December 2021 and is being implemented.
	Open ocean aquaculture opportunities are being explored by Māori with Government.
	An agreed plan for spatial planning for open ocean aquaculture in Te Waipounamu is under development.
Horticulture development	The *Aotearoa Horticulture Action Plan* was finalised in Feb 2023, and the investment and action plan is being developed for implementation.
	Concept design is underway for the new Plant Health Lab in Auckland, the facility is expected to be operational by 2029, and will increase capacity to safely import new plant varieties and species.
	The seven-year *Sauvignon Blanc Grapevine improvement Programme* (2021-28), run by Bragato Research Institute, has produced 6,000 new variants of Sauvignon Blanc.
Research, science, innovation and mātauranga māori	The *Biological Emissions Reduction Science and Mātauranga Plan* was published in May 2023, co-designed by sector, science, iwi/Māori, and government.
	Development and consultation of the *Food and Beverage Industry Transformation Plan* was completed and to be finalised in Q3 2023.
	The *Agritech Industry Transformation Plan* was refreshed and consulted on, the final revised ITP to be released Q3 2023.
	New Zealand participation and networks in the Global Research Alliance (GRA) to accelerate GHG mitigation options and capability continued to be leveraged, including supporting GRA participation in the *Pathway to Dairy Net Zero* partnership and providing technical expertise through the New Zealand Agricultural Greenhouse Gas Research Centre.

New product development and revitalising the strong wool sector

The *Wool Impact Action Plan* has been confirmed and implementation has begun. This includes:

- creating a portfolio of attributes and benefits of wool that can be used by brands and manufacturers;.
- opening new channels to market with a New Zealand strong wool focus;
- scoping how a New Zealand wool innovation hub might look and operate;
- developing a strong wool price indicator to provide greater price transparency;
- supporting work to ensure the supply of compliant woolpacks.

Capital and funding

The *Fit for a Better World* cross-agency investment acceleration team (FIAT) between MPI, NZTE and MBIE has been formed and focuses on attracting investment for companies though coordination of activities.

Since the launch of a successful *Investment Ready* pilot in 2022, a partnership between MPI and The Factory, the programme continues to equip primary sector businesses with the knowledge and skills necessary to secure growth or expansion capital. Five selected businesses have successfully completed the pilot programme.

Some key government funding initiatives include MPI's Sustainable Food and Fibre Futures fund, MBIE's Kānoa-Regional Economic Development and Investment Unit, EECA's Government Investment in Decarbonising Industry (GIDI) Fund, and Callaghan Innovation investments.

New bodies to drive transformation

The *Rautaki mo te Taurikura – Embracing change for prosperity for the Māori food and fibre sector* was published in December 2022 by MPI in partnership with Ngā Pouwhiro Taimatua.

Te Puna Whakaaronui – the food and fibre sector think tank published three reports in 2022-23:

- *WELL_NZ: Alternative Protein 2022*
- *WELL_NZ: Reframing New Zealand's food sector opportunities*
- *WELL_NZ: Modern genetic technology*

Over the next 18 months reports will consider an overview of emerging technologies, food and fibre sector innovation and ecosystem performance, medicinal plant opportunities, and benefits New Zealand can capture from value chains.

Market access and development	Negotiations for preferential or equal market access conditions continues, including access for new products, claims, and technologies into new and existing markets.
	Improvements to electronic certification and developing e-commerce opportunities.
	Beef + Lamb NZ and the Meat Industry Association completed the fourth stage of their *Pasture Raised Advantage* research project, with results continuing to be published in 2023.
	New Zealand Winegrowers continued global campaigns and capability building, including *Pour yourself a glass of NZ*.
International trade	• Ministerial trade visits were made to Australia, US, UK, Japan, India, Indonesia and Cambodia. • The WTO Director General visited NZ November 2022. • UK-NZ FTA entered into force May 2023. • UK joined the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) March 2023. • Upgrade to the free trade agreement with the Association of South East Asian Nations and Australia (ASEAN) achieved November 2022. • EU-NZ FTA negotiations concluded 1 July 2022, once signed then legal processes to bring FTA into force begin.
	NZTE is continuing the success of in-market digital accelerators. Working across Australia, UK, China, Singapore, South Korea and USA to accelerate the participation and optimise performance of New Zealand exporters selling online overseas. Continuing to activate strategic partnerships with leading online shopping platforms, while also building confidence and capability of exporters to compete and drive sustainable, international digital commerce strategies. In market activation has been supported with an investment in core capability. Partnering MyNZTE with DigitalBoost.co.nz (MBIE) to build specific resources and tools to lift the readiness of New Zealand businesses in understanding what it takes to successfully export online overseas.
Flexible regulatory systems	Regulatory work continued on export legislation and review of the Biosecurity Act
	Priority Animal Welfare codes for dairy, deer, pigs, rodeo and sheep and beef cattle are being strengthened, to be issued by Q4 2023.
Māori agribusiness	On-going monitoring, evaluation, capability development and support for MPI's programme to support Māori agribusiness performance (MABx programme works currently with 23 clusters).

Kauneke Tauwhiro | Sustainability: work under way

Programme

Transform the forestry sector	Initiatives in the *Forestry and Wood Processing Industry Transformation Plan* (launched November 2022) include working in partnership on the development of a *National Māori Forestry Strategy*, conducting forest diversification research; supporting establishment of a Masters of Wood Processing degree; analysis of biofuels and the circular bioeconomy, and establishment of the Timber Design Centre.
	An industry-led steering group will be established by July 2023 and will set the strategic priorities for ongoing ITP investment.
	In March 2023 the Government announced a review of the NZ Emissions Trading Scheme to assess if changes are needed to provide a stronger incentive for businesses to transition away from fossil fuels while also supporting greenhouse gas removals.
Supporting more tree planting	The *Trees for Schools* project plan has been approved by Te Uru Rākau – New Zealand Forest Service. 50,000 trees will be planted, monitored and cared for across New Zealand by 30 June 2025.
	A Spatial Planning Bill is being progressed through the legislative process.
	The Forestry Advisory Service will be fully established by Q3 2023.
Regenerative farming and establishment of Te Taiao	The two-year *soil microbiome in regenerative agriculture* project commenced in May 2023. This is a national project, with MPI partnering with Auckland University of Technology.
	The six-year *Carbon Positive – Regenerating soil carbon in soils used for intensive field cropping* project commenced in December 2022 in Hawke's Bay, led by Hawke's Bay Future Farming Charitable Trust.
	The seven-year *Whenua Haumanu: Nurturing the land through exploring pastoral farming project* commenced in September 2022, led by Massey University in Manawatū and Canterbury.
	The two-year *Accelerated scale-up of an Atkins Ranch Savory Institute Producer Group* project commenced in July 2022 across the North Island, led by Atkins Ranch.
	The seven-year *Te Whenua Hou Te Whenua Whitiora* (*The New Land, The New Horizons*) project commenced in August 2022 in Canterbury, with MPI partnering with Ngāi Tahu Farming Limited and Ngāi Tūāhuriri.
	The three-year *Regenerative management systems for New Zealand vegetable production project* commenced in June 2022 in Gisborne. The project is a partnership between Countdown, LeaderBrand and Plant & Food Research.

	The seven-year *Diverse pastures and relevance to New Zealand dairy farming project* commenced in February 2022 in Taranaki, with MPI partnering with Dairy Trust Taranaki and DairyNZ.
	The *Taiao Ora Tangata Ora* (TOTO) Business Case and Investment Memorandum is under development.
Low-emissions farming	As at the end of 2022, 81 percent of relevant farms know their annual total on-farm greenhouse gas emissions.
	The two-year *pilot development of marine farming systems for Asparagopsis* project commenced in July 2022 in Northland, with MPI partnering with CH4 Aotearoa.
	The Climate Action Centre for Agricultural Emissions was launched to support farmers to reduce agricultural emissions through R&D investment. A key part of this is the Centre for Climate Action Joint Venture between Government and industry partners to help accelerate product development for solutions to reduce agricultural emissions.
	The *Biological Emissions Reduction Science and Mātauranga Plan* was released in April 2023. The Plan complements the work of He Waka Eke Noa, the Primary Sector Climate Action Partnership, and a range of other climate change initiatives.
	Fonterra and Nestlé commenced a five-year project to help reduce on-farm emissions, with co-partner Dairy Trust Taranaki. The project will examine all aspects of farm operations to reduce carbon, with the aim of cutting emissions by 30 percent by mid-2027, and a 10-year ambition of reaching net zero carbon emissions.
	The Aotearoa Circle released the *Agri-Sector Climate Change Scenarios and Roadmap* in June 2023. An implementation group is to follow.
	Zespri released a *Climate Change – Risks and Opportunities* assessment for Zespri and the kiwifruit industry in October 2022.
Freshwater and productive land	Freshwater farm plan pilot projects ran in late 2022 in Southland, Waikato and Gisborne to test the freshwater farm plan process at a catchment level, run as joint projects between the relevant regional council, iwi, hapū, rūnanga, MfE, and MPI.
	Freshwater farm planning regulations to come into effect in 2023.
	Freshwater Farm Plan system roll out will commence in 2023, with completion by 2025.

	The *National Policy Statement for Highly Productive Land* came into effect from 17 October 2022, providing guidance for Councils.
	In November 2022 the Government announced funding of $14 million towards 37 projects that will simplify planning and reduce paperwork for farmers and growers, through the integrated farm planning fund.
	Support to strengthen the rural advisory sector by MPI, including funding the training of farm advisers; an internship pilot to provide primary sector advisory experience; and investment in initiatives to support the uptake of integrated farm planning.
	DairyNZ's *Wetland Practitioner Guide* released in May 2022.
	A Lighter Touch entered the third year of its seven-year programme. The programme brings together the plant-based food sector (including wine, horticulture, arable) to change its approach to crop production. Eight projects were completed in 2022, with a further fifteen underway.
	The *Farming with Native Biodiversity project* is in its second year of the two-year project (including the Living Water Partnership of Fonterra and DOC, MPI, NZ Landcare Trust, and Silver Fern Farms). The project helps on-farm advisors grow their understanding of biodiversity, with a view to further building biodiversity objectives into Farm Environment Plans. An online learning platform was released in May 2023.
	DeerNZ has a project (2022-24) funded through MPI to engage with existing groups of deer farmers and more widely to build awareness of the *Integrated Farm Plan*, apply specific modules and build confidence in farm plans.
	The University of Waikato in partnership with AgriSea, a Paeroa based seaweed innovation company, have received funding from the Ministry for Primary Industries towards a pilot project to grow sea lettuce on land.
Business resilience	The Agri-Women's Development Trust's *Know Your Mindset. Do What Matters* and *Our Resilient Farming Business* programmes are funded by MPI to assist with training farmers, growers and other rural people to manage pressure and adapt to change. Both programmes ran online and in-person sessions in April and May 2023.
	The Farm Business Advice Support Fund, managed by Rural Support Trusts, is on-track to have supported 100 farm businesses by June 2023.

Better data and decision support tools	A centralised database of farm system and environmental data for around 1,600 farms and orchards across NZ allowing for farm-level policy impact analysis and performance benchmarking within and between sectors will be completed in 2023 by MPI.
	In November 2022 the Trust Alliance NZ received support from MPI to create a digital wallet for farmers and growers, to improve the efficiency of sharing their verified farm information.
	The Foundation for Arable Research, with support from MPI, are leading a project (2022-24) to develop the ability to incorporate integrated farm planning capability and data capture for arable farmers.
	DairyNZ's *Step Change* programme is underway, focusing on building farmer knowledge of their environmental footprint and benchmarking profitability and sustainability metrics continued.
Fishing sector transition	A draft of the *Fisheries Industry Transformation Plan* was released for public consultation in April 2023 is underway.
	By 2024 up to 300 commercial fishing vessels will have on-board cameras installed. These cameras will provide independently verified data, helping confirm the accuracy of catch reporting, and enabling more confident and proactive decision-making in fisheries management.
	The three-year *Pāua biomass trial* project commenced in July 2022, in West Coast, Marlborough and Tasman, in partnership with PauaMAC 7.
	The three-year *Unrealised potential* project for seafood commenced in July 2022 nationwide, building on the outcomes of the Precision Seafood Harvesting Primary Growth Partnership programme.
	The six-year *Project Nautilus: Next gen-aquaculture* programme commenced in May 2022 in the South Island, in partnership with Mount Cook Alpine Salmon Ltd.
	The three-year *Breeding for thermotolerant King Salmon in Aotearoa* project commenced in September 2022 in Nelson/Marlborough, in partnership with The New Zealand King Salmon Co.
	The two-year *Gravity fishing* project commenced in April 2022 in Southland and Wairarapa, in partnership with Gravity Fishing Limited.

Whakaurutia | Inclusivity: work under way

Programme

New Zealanders in jobs

In Q1 2023 MPI published a skills and employment dataset (workforceinsights.govt.nz).

The *Opportunity Grows Here* attraction campaign has continued with the industry, though advertising, a dedicated website and events, to attract New Zealanders to consider primary sector careers. Since July 2020 the website has delivered over 1.3 million page views.

Sector Workforce plans are underway:

- The DairyNZ *Great Futures in Dairying Plan* initiatives, including the *Go Dairy* Recruitment Campaign, and People Expos held in March 2023 with the Dairy Women's Network.
- In December 2022 New Zealand Winegrowers released *Fit for a Better Wine World – a Sustainable Workforce Development Plan*.
- The *Aotearoa Horticulture Action Plan* (launched March 2023), the *Forestry and Wood Processing Workforce Industry Transformation Plan* (launched Nov 2022), the *Agritech Industry Transformation Plan* (second phase under consultation), and the *Fisheries Industry Transformation Plan* (draft launched April 2023), all include major elements on retaining, attracting and growing their workforce.
- Beef+Lamb NZ's *Growing Future Farmers* initiative, and their *Generation Next* Programme have continued to equip youth with business and technical skills to succeed on sheep and beef farms.

Muka Tangata's *Initial Food and Fibre Sector Workforce Development Plan* released August 2022 focused on vocational education and training. Further work to continue for specific sector plans and implementation.

MBIE's Regional Skills Leadership Groups continued in 15 areas across Aotearoa to meet regularly and engage widely with their community to bring together local intelligence and to develop an agreed understanding of the local labour market.

Safe and healthy food

An emerging risks system, and readiness and response function established in New Zealand Food Safety to proactively identify emerging food related risks and hazards.

Seafood NZ and MPI worked with the Cawthron Institute-led *Seafood Safety Research Programme* to focus research priorities on seafood sector food safety needs.

New Zealand Food Safety continued targeted information campaigns that focus on food safety issues for producers and consumers.

Connect rural New Zealanders	The *Rural Broadband Initiative* (phase 2) continued to be rolled out, reaching 93 percent of target in March 2023.
	Construction started in March 2023 on New Zealand's first uplink centre for the Southern Positioning Augmentation Network (SouthPAN) in Southland. A partnership between LINZ and Geoscience Australia under the Australia New Zealand Science, Research and Innovation Cooperation Agreement, it will augment satellite positioning services to improve the accuracy and reliability of existing global navigation satellite systems.
	The *Remote Users Scheme* was established in Q4 2022 with a grant system to assist those living in rural and remote parts of the country who cannot currently connect. Construction of infrastructure expected to start in late 2023.
Thriving rural communities	32 Rural Community hubs have been supported since the first Hub was funded in December 2019.
	In collaboration with the sector and supported by MPI, a draft *Food and Fibre Wellbeing Strategy and Action Plan* has been developed.
	HortNZ has run *Grow Home Safe* to enhance safety and wellbeing in horticulture.
	New Zealand Winegrower's *Go You!* initiative continues to support industry workers to stay mentally and physically fit.
	SaferFarms released *Farm Without Harm,* a sector-wide health, safety and wellbeing strategy. Several events were held, including *Making Good Calls for Kids on Farms.*
	FirstMate New Zealand supports the health and wellbeing of people across the commercial seafood sector, including the 0800 ADRIFT support line.
	The Ministry of Health is developing the *Rural Health Strategy* to set the direction and priorities for improving the health of those in rural communities, including building a flexible and adaptable rural health workforce to meet the broad health needs of rural communities. This is expected to be released in Q3 2023.
	MPI's Office for Rural Communities released *Rural Proofing: Guidance for Policymakers* in March 2023.

Whaihua | Productivity

Target: Adding $44 billion in export earnings over the next decade through a focus on creating value.

Progress Indicators	Baseline (2019)	Current (latest available figure)	Goal
By 2030, add $44 billion in cumulative export earnings above Fit for a Better World's 2020 baseline. (Stats NZ, MPI)	$0	$12.6 billion (2023)	$44.0 billion
(which equates to) by 2030, increase annual export revenue to $67 billion (Stats NZ, MPI)	$46.3 billion	$56.2 billion (2023)	$67.0 billion
Increase export revenue from processed food and fibre and co-, by-, and bio-products*. (Stats NZ, MPI)	$6.4 billion	$7.5 billion (2022)	–
Increase export revenue from the Māori food and fibre sector (Stats NZ)	*Tatauranga umanga Māori – Statistics on Māori businesses* (StatsNZ 2021) and *Te Matapaeroa – Insights into Māori business* (Te Puni Kōkiri 2020) have provided new data on Māori businesses, including select amounts on Māori food and fibre sector exports, but some gaps remain. Work is underway to improve this dataset. MPI's *Rautaki mo te Taurikura: Embracing change for prosperity* plan includes a commitment to develop a strategy to guide the creation of data on Māori participation in the sector.		

*Co-products and by-products are secondary products generated during the manufacturing of a principal product that may otherwise be considered waste or not fit for human consumption. Bio-products are materials, chemicals and energy derived from renewable biological resources.

Kauneke Tauwhiro | Sustainability

Target: Reducing biogenic methane emissions to 24-47 percent below 2017 levels by 2050 and 10 percent below by 2030. Plus, restoring New Zealand's freshwater environments to a healthy state within a generation.

Progress Indicators	Baseline	Current (latest available figure)	Goal
Reduce agricultural biogenic methane emissions to 10% below 2017 levels by 2030. (Ministry for the Environment)	29,606.54 Kt CO_2-e (2017)	-0.53% 29,449.68 Kt CO_2-e (2021)	-10% 26,645.89 Kt CO_2-e (2030)
100% of farms have a written plan in place to measure and manage GHG emissions by 1 January 2025. (He Waka Eke Noa Partnership)	21% (Jan 2022)	42% (Dec 2022)	100% (1 January 2025)
Reduce coal consumption in Agriculture, Forestry, and Fishing (in alignment to the phasing out of coal-fired boilers by 2037) (MBIE)	89,907 tonnes (2019)	-20.7% 71,286 tonnes (2022)	–
Restore New Zealand's freshwater environments to a healthy state within a generation.	As outlined in the Ministry for the Environment's *Our freshwater 2023* report, there continue to be challenges in monitoring and data collection of our freshwater quality. This is being addressed through a programme of work.		

Whakaurutia | Inclusivity

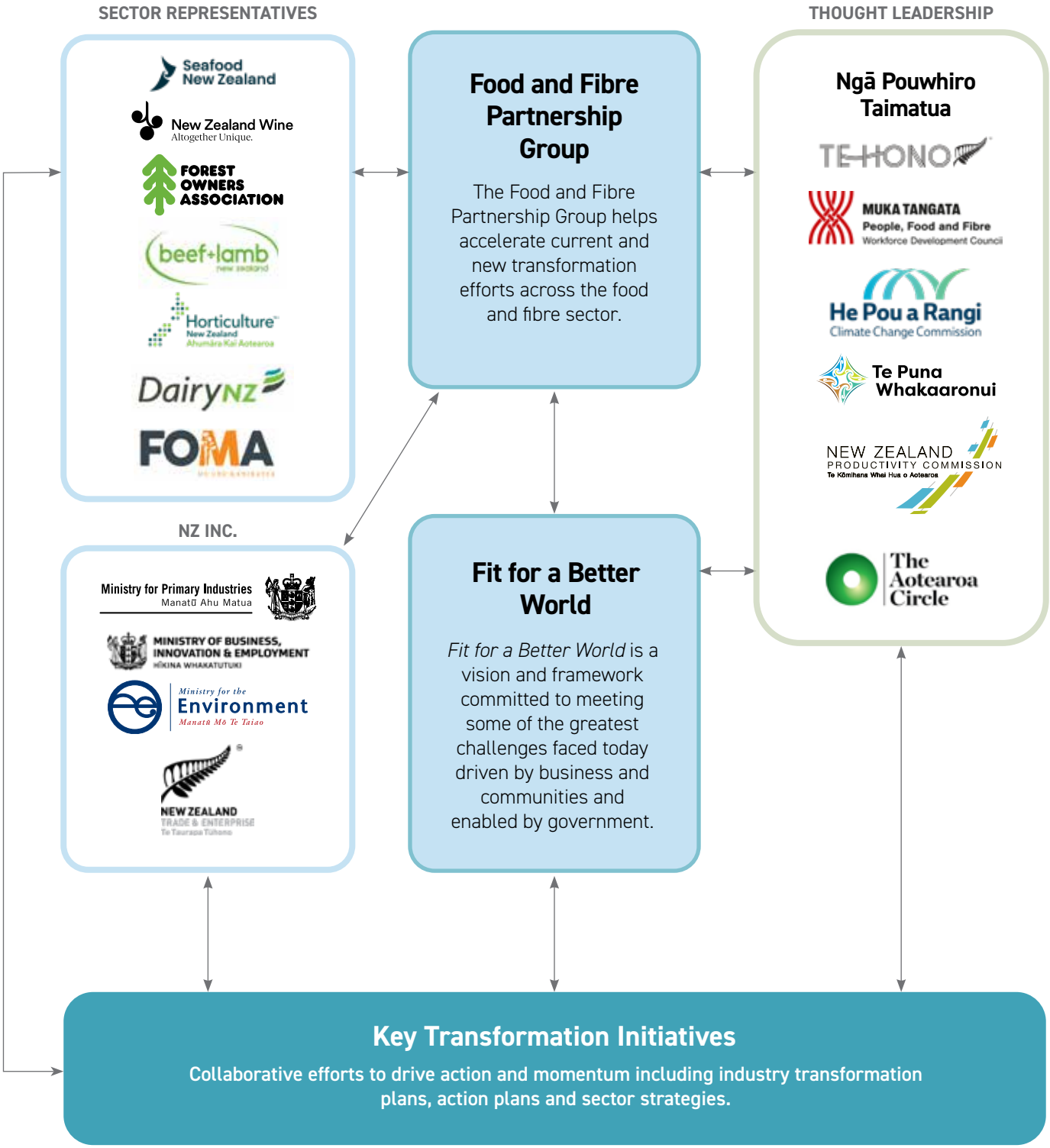
Target: Employing 10 percent more New Zealanders by 2030.

Progress Indicators	Baseline (2019)	Current (latest available figure)	Goal
10,000 more New Zealanders in the food and fibre workforce over the next four years. (Ministry for Social Development; course providers)	0	+16,200 (2023)	+10,000 (2024)
By 2030, increase the food and fibre workforce by 10%. (Stats NZ, MPI)	356,682	+0.7% 359,182 (2020)	+10% 392,350 (2030)
Increase in the proportion of women in the food and fibre workforce. (Muka Tangata)	34%	33% (2021)	–
Increase in the proportion of Māori in the food and fibre workforce. (Muka Tangata)	16%	21% (2021)	–
Increase in the proportion of other ethnic minorities in the food and fibre workforce. (Muka Tangata)	Asian: 9% Pasifika: 5% MELAA*: 2% Other: 1%	Asian: 13% Pasifika: 7% MELAA: 2% Other: 1% (2021)	–

MELAA: Middle Eastern, Latin American, and African

The Fit for a Better World ecosystem

Across the food and fibre sector, business and government, key transformation initiatives are addressing the sector's challenges and opportunities. Together, these add up to drive delivery of our *Fit for a Better World* ambitions, informed by thought leadership from a range of organisations.



Key transformation initiatives

Forestry and Wood Processing ITP	Aims to process more logs and residues on shore to reduce our emissions and increase our production of value-added wood products. Priority areas: • Create foundations for a transformed sector. • Grow forests and supply wood for the future. • Modernise and expand domestic wood processing. • Develop sustainable markets for high-value wood products.
Agritech ITP (refresh draft)	Aims to accelerate growth of the agritech sector's contribution to the economy, reaching $8 billion by 2030. Focus areas: • Business capability services are provided consistently and well. • Build skills for diversity and growth. • Enable a smart innovation ecosystem. • Increase Māori interests and participation. • Build a supporting and patient investment environment.
Food and Beverage ITP (draft)	Aims to support the food and beverage sector to increase exports and capture greater value by enhancing our traditional foods and scaling up our emerging foods. Transformation Areas: • Orienting the sector towards consumers and the market • Increasing investment in innovation and attracting capital for growth • Building capability to innovate, commercialise, and improve productive capacity • Regulatory settings enable food innovation
Aotearoa Horticulture Action Plan	• Aims to double the farmgate value of horticultural production from $6 billion to $12 billion by 2035, in a way that improves prosperity for our people and protects our environment. Outcome areas: • Grow sustainably. • Optimise value. • Māori are strong in horticulture. • Underpinned by science and knowledge. • Nurture people.
Centre for Climate Action on Agricultural Emissions	• The Centre will accelerate the research, development, and commercialisation of tools and technology to reduce emissions through two key components. It includes a joint venture with sector businesses to accelerate the development of tools to reduce methane emissions.

Fisheries ITP (Draft)	Aims to build on industry strengths and seize new opportunities, while reducing environmental impact. Priority areas: • Strengthen environmental performance. • Improve productivity and profitability. • Support people and communities.
Advanced Manufacturing ITP	Aims to drive the growth and transformation of the manufacturing sector, including food and fibre. Priority areas: • Increase investment in advanced technologies. • Create a leading sustainable circular net-zero emissions sector. • Enhance global connectivity and opportunities.
Accelerating Aquaculture Strategy	Aims to accelerate the growth of aquaculture, realising $3 billion in revenue by as soon as 2030. Focus areas: • Maximise the value of existing aquaculture. • Open-ocean salmon aquaculture. • New opportunities including seaweeds and new species. • Underpinning the sector's success.
Accelerator Programme	Delivering plans in key areas of research, science, and innovation critical for supporting delivery of *Fit for a Better World*. Plans: • *Biological Emissions Reduction Science and Mātauranga Plan*. • Diversified Protein. • Enabling People through Change. • Te Ao Māori Rōpū.
Sector Workforce Plans	Long-term strategies and action plans developed with key stakeholders to provide a clear picture of the challenges and opportunities faced by each sector. Including: • *Great Futures in Dairying*. • NZWine *Sustainable Workforce Development Plan*. • *Muka Tangata Workforce Development Plan*. • MBIE Regional Skills Leadership Groups.
Rautaki mo te Taurikura – Embracing Change for Prosperity	The Manatū Ahu Matua plan, in partnership with Ngā Pouwhiro Taimatua, for supporting the Māori food and fibre sector to prosper. Focused on: • Mahi tahi: partnering with others for better services and policies. • Pūtea penapena: investing in development and generating demand. • Te waihanga: building services to meet the aspirations of Māori.

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