
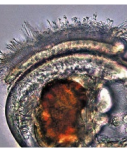


Agri-Gate

Latest news about MPI's Investment Programmes

Agriculture & Investment Services
Ministry for Primary Industries
Manatū Ahu Matua

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Steve's desk

Welcome to this edition of Agri-gate.

We're nearing the end of the year on a high, with the conclusion of a series of themed workshops held across the country. The workshops brought together key leaders in the food and fibres sector to identify large transformation programme ideas that could benefit from MPI's support and co-investment.

The workshops were a chance to show how our *Fit for a Better World – Accelerating our Economic Potential Roadmap,* developed in response to the impact of COVID-19, works in practice. The Roadmap aims to help grow New Zealand's economy and add value to the sector. This includes finding ways to lift export value by at least an extra $44 billion over the next ten years.

The lockdown earlier in the year saw us busier than ever, and it's exciting to see how far our Sustainable Food & Fibre Futures (SFF Futures) fund has come. From four approved projects around this time last year to 99 approved projects worth a total of $77.2 million, including a number of larger partnerships, we've truly hit our stride. What's even better, more than half of the projects we're funding haven't received any previous financial support from MPI.

We also opened a call for proposals for projects that will investigate regenerative farming practices. We're already seeing increasing interest from farmers and the wider community about regenerative farming practices. However, there's no agreed definition of what regenerative farming practices are – and definitions can vary dramatically.

Through this funding, we're looking to define what regenerative agriculture means from a New Zealand perspective, and develop a sound evidence base to test and confirm what works in our soils, climates, and farming systems. You can read more about our aims in this issue of Agri-gate.

We also introduce you to some of the projects and research we're funding.

Other stories

In this issue we also talk about:

- our partnership with NZ Algae Innovations Ltd to assess the viability of larger-scale production of spirulina
- Growers Leading Change, a new industry extension programme that will help arable farmers to lift sustainable farming practices, and boost their efficiency and profitability
- a co-investment project researching ways to protect the long-term sustainability of New Zealand horticulture, including how to enhance the performance of bumblebee hives using pheromones
- the eight projects we're funding through the Greenhouse Gas Inventory Research fund
- the winners of our 2020 Ahuwhenua Trophy Award for Excellence in Māori Horticulture
- a paper we funded to explore the challenges and opportunities with native forestry on Māori land
- a new report surveying the state of our biotech industry.

Merry Christmas, everyone!

Steve Penno
Director Investment Programmes

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NEXT

Steve Smith's column

Chair, Independent Advisory Panel, SFF Futures

This is a great time of the year for us as a panel to look back on some of the programmes funded over the last few years to see how they are faring in what has been a tumultuous year for anyone undertaking transformative ventures. Some significant programmes that have recently finished or close to finishing will leave long lasting impacts on the performance of parts of the food and fibres sector.

While the Transforming the Dairy Value Chain programme finished in 2018, the independent review of this programme showed an economic impact of almost $2 billion, and significant impacts on laying a platform for long term sustainability and improved environmental performance, building collaboration and collective innovation that didn't happen previously. It provided valuable insights and leadership on issues around rural mental health and culture change. This programme and the Red Meat Profit Partnership programme have realised significant changes in culture and collaboration that may in fact have greater long-term impacts than the direct economic benefits. These intangible, unmeasurable impacts are real and significant and often not observed as outcomes when the programmes were originally funded. That is the nature of these programmes and it is why we encourage them to evolve and change over their course.

Of current live programmes, the Sheep – Horizon Three programme, focused on creating a high value sheep milk industry for Aotearoa New Zealand, is one of our most exciting and inspirational programmes. The idea is by itself transformational, but for us as a panel we see this incredible programme, where exceptional governance, inspirational leadership, and a team of incredibly smart, committed, and excited young New Zealanders are driving the business and the programme in real time, fine tuning as they go. It is not only a great programme, but it is governed, led and managed by people who are entirely aligned and know their roles.

Another, Hāpi Brewing Success, with the purpose of building a customer-driven modern New Zealand hop industry, has very quickly seen the benefits of a new business model, even before the new science has played a role in new hop varieties.

Omega Lamb and Pioneering to Precision are other programmes close to finishing that have managed to chart their way through difficult waters and create some real benefits for our partners as well as the wider New Zealand ecosystem.

We look forward to seeing more of these truly transformational programmes across our table in 2021.

Workshops to accelerate our economic potential

Twelve intensive workshops held with 115 food and fibres sector leaders are expected to lead to several multi-million-dollar partnerships with SFF Futures.

MPI's Investment Programmes directorate held themed workshops across the country, facilitated by ThinkPlace. Their purpose was to explore the challenges that the food and fibres sector need to address, and how MPI can assist.

Participants discussed key issues facing the sector across the value chain, and shared ideas about how these could be resolved.

"Participants were especially keen on talking about data, automation and how to add value from waste streams," says MPI Investment Programmes Principal Adviser Natasha Telles D'Costa, who led engagement at the workshops.

"We were thrilled with how actively engaged everyone was, and we can see potential for a lot of cross-sector partnerships. We also welcomed the input from a wide range of government agencies.

We'll be considering the key themes from the workshops early next year, and will be organising some follow-up workshops next year to shape up some new programmes to support through SFF Futures."

Workshop participants discuss key interventions that can accelerate opportunities for nutraceuticals across the food and fibre value chain.

A boost for spirulina farming

Spirulina farming could form the backbone of a new primary sector worth more than $100 million a year – thanks to a boost from SFF Futures.

SFF Futures and NZ Algae Innovations Ltd are co-investing more than half a million dollars to assess the viability of larger-scale production of the blue-green algae known as spirulina.

Spirulina is generally cultivated in ponds or natural lakes, harvested, and dried. NZ Algae Innovations Ltd currently operates the only spirulina farm in New Zealand, under the Tahi Spirulina brand. The farm is located in Himatangi, Manawatu and has a 400 square metre area dedicated to growing spirulina in purpose-built shallow ponds.

Spirulina can be grown using most land types, providing the opportunity to improve returns on marginal land. There is also potential for a spirulina sector in New Zealand to utilise waste streams from other primary industries as a source of nutrients for spirulina growth.

The two-year project involves scaling-up production to a pilot 6000 square metre production unit to test new growing and processing systems. It is also researching the benefits and opportunities of growing spirulina to support the next steps towards full commercial-scale production.

"We recognise that spirulina is grown around the world and there are far larger overseas producers than us at the moment – our challenge is to find that sustainable point of difference that would make our spirulina a uniquely New Zealand product," says Justin Hall, Director, NZ Algae Innovations Ltd.

"We want to understand what consumers are looking for, and whether taking spirulina in powder or capsule form is working for them. Our research so far has included looking at how to incorporate spirulina into a range of added value food products. We've already been experimenting with creating whole dried spirulina sprinkles, which taste nutty – a bit like nori [dried seaweed], with the intent of attracting new consumers."

The project aims to establish a new business model so modular production units can be replicated in potential growing regions across New Zealand. The climatic requirements of spirulina make it especially suitable for the growing regions of Nelson/Tasman, Hawke's Bay, Bay of Plenty, and Northland.

"... our challenge is to find that sustainable point of difference that would make our spirulina a uniquely New Zealand product."
Justin Hall, Director, NZ Algae Innovations Ltd

One of Tahi Spirulina's covered spirulina ponds.

"Market research shows consumers, particularly in the northern and western hemispheres, are increasingly looking to add more plant-based protein in their diet and spirulina fits that trend nicely," says Mr Hall.

The project seeks to build on the existing base of knowledge about spirulina production to grow a more nutritional product. It will explore ways of maintaining more nutrient content in spirulina by developing different harvest and processing methods using techniques from other industries.

By weight, spirulina comprises more than 60 percent protein. The product grown by Tahi Spirulina requires less than two litres of water per kilogram of protein produced and is grown in a contained environment. This means there is no risk of nutrient loss or waterway contamination.

"Spirulina has a very low carbon and water footprint, so it checks the sustainability box as well," says Mr Hall. "By creating a healthy product with a limited environmental footprint, a new spirulina sector for New Zealand has the potential to support both community and environmental wellbeing."

Watch our video about the project.

Spirulina production in progress.

Peer-to-peer knowledge exchange aims to lift sustainable farming practices

A new industry extension programme will help arable farmers to lift sustainable farming practices, and boost their efficiency and profitability.

Growers Leading Change is a three-year, $2.5 million project jointly funded by SFF Futures and the Foundation for Arable Research, the levy-funded research arm of the arable industry.

The Foundation's Project Manager Anna Heslop says Growers Leading Change will develop an extension framework for the arable industry. It will set up a network of facilitated farm discussion groups, trial and demonstration farms, and a mobile learning centre to enable the growers to work and learn from each other.

"Arable growers, like other New Zealand farmers, are facing ever increasing market, consumer, and regulatory demands," says Ms Heslop.

"While some growers are well set up to embrace these changes, many others have stalled and aren't sure where to go or who to trust for advice. Growers Leading Change will provide those growers with access to appropriate, independent information and support.

Anna Heslop, project manager at the Foundation for Arable Research.

"A lack of confidence, rather than a lack of knowledge, often slows grower adoption of new ideas and technologies. Our programme will provide a way for growers to identify the key issues that they feel they need support on, and encourage growers to share information and ideas with each other."

The programme will also run workshops, field days, and other events aimed at upskilling arable farmers and their advisors in a range of agronomic, environmental and financial good management practices.

New research aims to increase longevity of bumblebee hives

New research backed by MPI could help bumblebee hives to live longer and be more efficient.

The project is researching ways to protect the long-term sustainability of New Zealand horticulture, including how to enhance the performance of bumblebee hives using pheromones. This could mean better pollination for growers, leading to higher yields and better quality produce.

MPI is contributing $160,000 towards the $400,000 project through SFF Futures.

Dr Gunjan Gera of Gourmet Waiuku Limited is leading the project, supported by consultant Dr Jo Stephens.

Dr Gera says bumblebees are often used for pollination in berryfruit crops, glasshouses, and other covered crop areas as the bees tend to travel only about 200 metres from their hives and don't mind enclosed spaces, whereas honeybees prefer to fly to flowers further afield.

"In the field, the queen bumblebee of a commercial hive lives for approximately 8–10 weeks and the hive winds down once the queen dies," says Dr Gera.

"With fewer worker bees, the hives can appear less active when compared to honeybees and there can be variation in vigour and productiveness.

"Our project will study various factors and compounds in conjugation with the bumblebee queens to see if we can extend the life of a hive to at least 12–18 weeks. If this works, we have a way of complementing nature, using a pheromone substitute."

"The technology is in its infancy overseas and commercial companies using it haven't yet released much information," says Dr Jo Stephens.

"We're hoping to lead the way in New Zealand, but it will involve a good deal of trial and error given the limited progress globally in this area."

Dr Stephens explains that bumblebees were introduced to New Zealand from the United Kingdom by the early pioneers, so there is limited genetic diversity. Although commercial breeders incorporate new genetic diversity from the wild occasionally, the gene pool is limited.

"Another important part of the research will be screening bumblebees for diseases, including those associated with inbreeding.

"We'll be looking at the levels of inbreeding in New Zealand populations to see if this is a major concern, and whether we need to consider the possibility of importing bumblebee genetics.

As well as the bumblebee research, the project will also look at developing technology to rear Limonicus predatory mites. This mite is effective in controlling thrips, whiteflies, and other mites in greenhouses and protected culture systems. While it occurs naturally in New Zealand, it is currently only reared overseas and is re-imported for New Zealand growers.

"This is expensive, time-consuming, and there's always the risk of supply shortages," says Dr Gera.

"If we can successfully rear these mites for commercial production and release them in New Zealand it will be far more cost-effective to control pests."

Lead researcher Dr Gunjan Gera.

Greenhouse Gas Inventory Research fund recipients announced

Eight projects ranging from testing the purity of agricultural lime and dolomite to improving methods to determine monthly dairy cattle populations are receiving backing from MPI's Greenhouse Gas Inventory Research (GHGIR) fund.

The GHGIR fund supports research that underpins the global Greenhouse Gas Inventory. New Zealand reports annually on our national estimated greenhouse gas emissions to the United Nations Framework Convention on Climate Change as part of our commitment under the Kyoto Protocol.

MPI manages the Agriculture Greenhouse Gas Inventory, which estimates agricultural emissions in New Zealand. MPI is also responsible for estimating future emissions from forestry, land-use change and agriculture, and advising on forest carbon accounting rules. The GHGIR fund is a key tool MPI uses to meet these responsibilities.

"The greenhouse gases reported for agriculture in New Zealand are mostly methane and nitrous oxide," says MPI Investment Programmes Director Steve Penno.

"Agriculture and forestry have a major influence on New Zealand's greenhouse gas profile. Emissions from the agricultural sector make up nearly half of New Zealand's gross emissions, and carbon sequestration from forestry offsets 30 percent of gross emissions.

"The research we're funding through the GHGIR fund will inform policy decisions, improve the accuracy of our inventory, and help our agriculture and forestry sectors to manage their greenhouse gas emissions."

MPI invited applications on a range of research priorities, but applicants were also able to propose new and original research topics.

"We're excited by the breadth of project applications we received," says Mr Penno. "The projects we've selected aim to deliver robust research with practical outcomes."

The GHGIR fund has annual funding of $1.7 million and was run as a funding round for the first time this year.

Investigating regenerative farming practices

MPI is calling for proposals for projects that will research regenerative farming practices.

Co-investment funding for successful proposals is available through SFF Futures. The fund aims to have projects under way by mid-2021.

While there's increasing interest from farmers and the wider community about regenerative agricultural practices, definitions for regenerative agriculture can vary dramatically. MPI is looking to define what regenerative agriculture means from a New Zealand perspective, and develop a sound evidence base to test and confirm what works in our soils, climates, and farming systems.

MPI's Chief Science Adviser, Dr John Roche, says that broadly speaking, MPI sees regenerative farming as a set of practices that, in isolation or collectively, may result in improved outcomes for our productive land, freshwater and marine environments, our climate, our animals, and for the people that grow and consume our food and fibre products.

"Regenerative agriculture is not a 'one-size-fits-all' activity with prescribed inputs and outputs," says Dr Roche. "And the farmers I've spoken with do not want it defined so tightly.

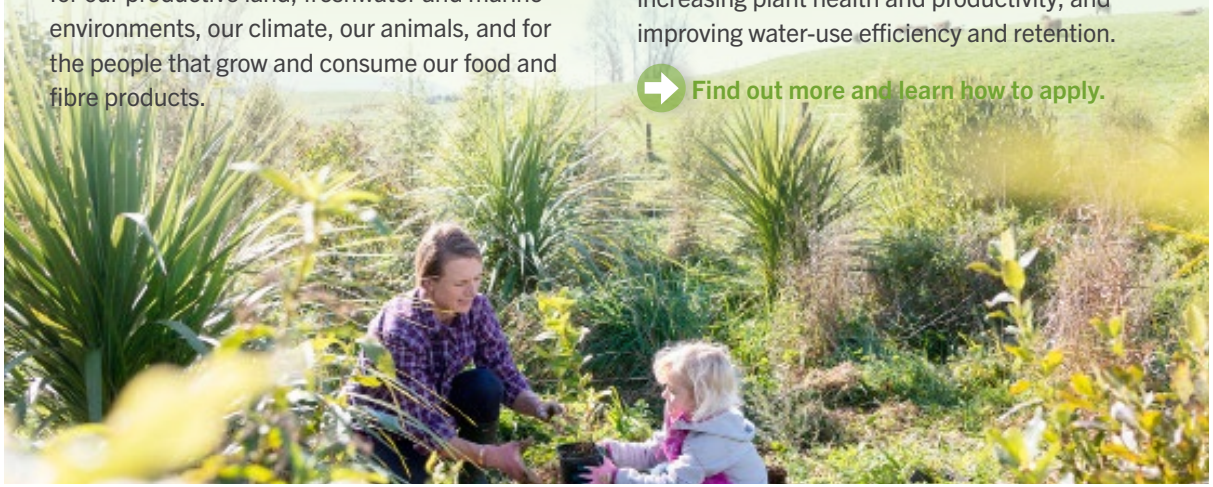
"Some of the practices New Zealand farmers are already using could be considered regenerative. By determining which farming practices have a positive impact on environmental sustainability and human health and wellbeing in the New Zealand context, we'll be able to confidently share these regenerative practices widely with farmers.

"Regenerative agriculture also has the potential to help our food and fibres sector to produce higher value products with even stronger environmental credentials.

"An important part of these projects will be turning the findings into practical information for farmers, to help them adopt methods that are shown to work."

Potential outcomes could include increasing the resilience of our production systems to climate impacts, reducing their environmental footprint, increasing plant health and productivity, and improving water-use efficiency and retention.

Find out more and learn how to apply.



Celebrating 87 years of excellence in Māori agribusiness

On 20 November, MPI celebrated the finalists and winners of the 2020 Ahuwhenua Trophy Award for Excellence in Māori Horticulture.

MPI is proud to be a long-time supporter of the prestigious Ahuwhenua Trophy. These annual awards have a distinguished 87-year history, established by Lord Bledisloe and Sir Apirana Ngata to showcase and celebrate excellence in Māori agribusiness. They highlight the significant role Māori play in New Zealand's primary industries. Horticulture was the focus this year.

MPI is committed to supporting the primary sectors, including Māori, to maximise the benefits from the sustainable use of their primary sector assets.

Read about the winners.

Learn about MPI's Māori agribusiness programmes.

Minister for Agriculture Damien O'Connor, Kingi Smiler, Chairman of the Ahuwhenua Trophy Management Committee, and MPI staff congratulate the winners of the Ahuwhenua Trophy.

We congratulate the whānau, trustees and kaimahi of Te Kaha 15B Hineora Orchard – inaugural winners of the Haumietiketike Trophy. Hineora Orchard has its origins in the original Te Kaha Papakāinga block in the Eastern Bay of Plenty. It comprises 11.5 hectares of kiwifruit and a commercial pack-house facility. Due to the success of this current joint venture, the operation will return to 100% Trust ownership by 2023. Pictured is Norm Carter, Chairman of Hineora Orchard.

We also congratulate 26-year-old Maatutaera Akonga (pictured), winner of the Ahuwhenua Young Māori Grower Award. Maatutaera is of Ngāi Tahu, Ngāti Porou and Ngāti Kahungunu descent, and is a senior leading hand at Lewellyn Horticulture based in Hastings.

Exploring challenges and opportunities of native forestry on Māori land

High costs and restrictive governance are just some of the roadblocks that deter Māori landowners from establishing native forestry on their land. A new research paper by Motu Economic and Public Policy Research, funded by MPI through the Sustainable Land Management and Climate Change programme, explores the decision-making processes of Māori landowners.

The paper looks at the extent to which land-use decision-making processes such as funding programmes and afforestation incentives from the New Zealand Emissions Trading Scheme enable them to progress native forest aspirations for their whenua.

"Kaitiakitanga is very important to Māori landowners but we have found multiple challenges hindering their ability to establish native forestry on their land. All are complex and show the need to carefully facilitate the decision-making process," says Pia Pohatu, one of the authors of the paper.

"Key challenges relate to the high cost and need for proven methods to successfully establish native forest, Māori landowners' readiness to diversify, and clarity around the role and advantage that entering the ETS could play.

"Although support and incentive programmes are available, they fall well short of the true cost in establishing native forest and require a 10–15 year timeframe before contractual liability like pest management requirements can be proven/met," says Ms Pohatu.

"Access to expertise and information is essential although Māori landowners are also needing ways to evaluate benefits and costs of their decisions beyond economic or monetary measures."

The paper found that few Māori landowners successfully applied or were eligible for central and local government funding programmes and schemes. Challenges that hindered progress at every stage of the land-use decision-making process included restrictive governance, limited access to resources, finance and untimeliness.

There aren't many successful examples of native forestry for carbon yet, particularly for retired or regenerated native forest.

"Many of the Māori landowners we interviewed were concerned that native forestry for carbon isn't yet proven," says Ms Pohatu.

"Uncertainty around the eligibility of their lands and the lower income to be gained (when compared to exotic species) is not significant enough to drive a decision to diversify or expand their land use.

"These considerations have contributed to the low uptake of native afforestation and the registration of eligible native forests in the NZ ETS."

The paper has revealed numerous opportunities for better support, communication and more finely-tuned policy to enable Māori land decision-makers to realise their native afforestation ambitions going forward.

The Motu Working Paper "Challenges and opportunities with native forestry on Māori land" is authored by Pia Pohatu, Sophie O'Brien and Leo Mercer.

Read the paper.

New report surveys state of our biotech industry

A new national biotech survey report, developed with support from SFF Futures, says New Zealand is positioned well in the world, ranking fourth for innovation potential in biotechnology.

The landmark BiotechNZ study analysed the state of biotechnology and its impact and benefits for the New Zealand economy and society. The report is the first biotech ecosystem map for New Zealand and is a comprehensive study into the state and future opportunities for biotech.

It highlights the importance of biotech and how it can contribute to New Zealand's economic growth and diversification, as well as its ability to help make New Zealand cleaner, healthier and more prosperous.

Growing global demand for biotechnology has led to the development of a global market that is expected to be worth $US729 billion by 2025.

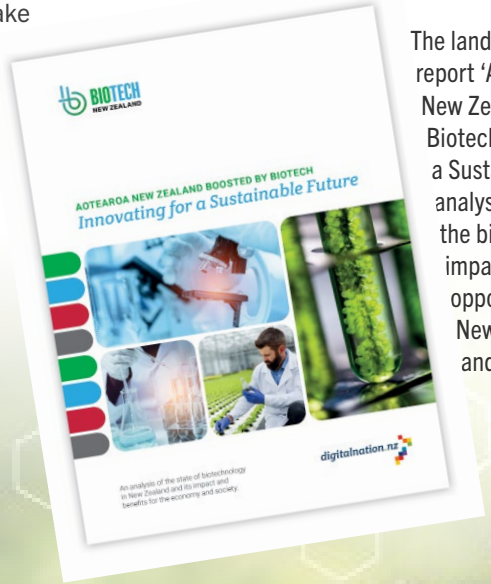
New Zealand's small but vibrant biotech sector is small but growing, including 211 companies and annual revenues of $2.7 billion. Nearly half of the sector, 45 percent, is based in regional New Zealand.

BiotechNZ executive director Zahra Champion says they want to create a healthy, clean and prosperous New Zealand, boosted by biotechnology.

"We are aware the global challenges will not be solved by a single technology and will require collaboration to ensure greater sustainability and climate compatibility.

"We are taking a practical and evidence-based approach so we can harness the opportunities and address key issues".

Read the report.



The landmark BiotechNZ report 'Aotearoa New Zealand Boosted by Biotech – Innovation for a Sustainable Future' analysed the state of the biotech sector, its impact, benefits and opportunity for the New Zealand economy and society.

Bonding Scheme supports 32 graduate vets

Vets are a vital part of any rural community. One way MPI is encouraging more vets to work in rural areas is through our Voluntary Bonding Scheme for Veterinarians.

The scheme supports vets working in rural practices that focus on looking after production animals. This year another 32 graduate vets in 11 regions are receiving a financial boost from the scheme of $55,000 each over five years.

New changes to the scheme mean graduates can now return to work part-time in an eligible vet practice after taking parental leave, and may remain in the scheme if they start their own eligible business.

The scheme has been running for 11 years.

Stacy Merchant, one of the successful Vet Bonding Scheme recipients, is now working at Ruapehu Veterinary Services.

New report assesses Taranaki's land and climate

Venture Taranaki has released an assessment of Taranaki's land and climate, which provides an overview of the region's growing capability, and the opportunity to help meet long-term goals of building diversity, value, sustainability, and market and supply-chain resilience.

The Taranaki Land and Climate Assessment is part of Venture Taranaki's Branching Out initiative. MPI is contributing $594,800 through SFF Futures to this collaborative exercise to investigate, explore, package, and potentially pilot new commercial opportunities for the Taranaki region. These opportunities could add wealth for Taranaki's economy and help the region's food and fibre sector become more diverse, resilient, innovative and in-demand.

A key finding is that there are around 207,000 hectares of land potentially suitable for generic horticulture within the boundaries of the Taranaki Regional Council.

The eight mainstream crops covered in the assessment include apples, kiwifruit, avocados, blueberries, hops, hemp and CBD cannabis, hazelnuts and walnuts, potatoes, and wine grapes.

"The assessment also highlighted key findings regarding each crop covered," Venture Taranaki Chief Executive Justine Gilliland explains.

"For example, the extra winter chill makes Stratford an ideal location for apples, whereas the entire region is suitable for walnuts excluding Stratford. Avocados are temperature sensitive, however, export could be considered by landowners in New Plymouth, Urenui and Ōaonui, as they meet the required mean temperature.

"Foundational to investigating Taranaki's untapped potential in horticulture is to assess and understand the accessibility and quality of the climatic land and soil data available for the region."

The assessment compares Taranaki's differing climates, and focuses on data on topography, soil attributes, water, and potential land use. It looks at the viability of some key New Zealand crops that could be commercially grown.

"Successfully leveraging the opportunities that horticulture presents is about much more than soil, seeds and climate, or simply growing things," says Anne Probert, Venture Taranaki General Manager Regional Strategy and Sectors.

"Success will be achieved as much by these factors as by people, knowledge transfer, and the emergence of new chains, processing, and products to deliver these growing opportunities to market.

"Taranaki has proven over decades that it has all these components in spades and can adapt to continue to meet market demands over time."

Branching Out is funded by Taranaki's three district councils and the Ministry for Primary Industries' SFF Futures fund, with significant in-kind support from Venture Taranaki, Massey University, Crown Research Institutes, and primary sector/food and fibre industry enterprises. Plant & Food Research conducted the assessment.

Read the Taranaki Land and Climate Assessment.