

Agri-Gate

Ministry for Primary Industries
Manatū Ahu Matua



Latest news about MPI's Investment Programmes

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Steve's column



Welcome to our October edition of Agri-gate. I can't believe it's almost November.

It's been a busy couple of months across our investment programmes, with a number of launches and events marking significant milestones. These include:

- launching Sustainable Food & Fibre Futures (SFF Futures) on 26 October, which is now seeking applications for new programmes and projects;
- launching Hāpi – Brewing Success, our new hop and craft beer Primary Growth Partnership (PGP) programme, on 10 October;
- recently releasing our PGP Annual Report for the year ending 30 June 2018;
- announcing the results of this year's funding round for the Voluntary Bonding Scheme for Veterinarians on 3 October, which will give a financial boost to 30 graduate vets working with production animals in our regions;

- holding the funding round during October for the Hill Country Erosion Fund, which helps councils and landowners to assess and treat erosion-prone land across the country;
- celebrating the ten-year anniversary of the Sustainable Land Management and Climate Change (SLMACC) research programme on 10 September, and launching a new commemorative booklet.

We talk more about these in this edition of Agri-gate, along with an update on the Red Meat Profit Partnership, and the results of a Sustainable Farming Fund project aimed at understanding the underlying reasons for variations in onion crops and yields.

I'd like to introduce Eflamm Allain, our new Manager PGP here at the Ministry for Primary Industries (MPI). Eflamm initially joined MPI as an Investment Manager, leading our relationship for a number of PGP programmes. Eflamm has significant experience leading programmes and business development, in addition to innovation, research and development.

I'd also like to welcome Karen Adair, who joined MPI on secondment in September as Acting Deputy Director-General Sector Partnerships and Programmes. In this role she's responsible for the development, delivery, and strategic oversight of programmes and initiatives that promote innovation and sustainable economic growth. She's also responsible for providing advice on, and maintaining, MPI's relationship and commitments to Māori arising from the Treaty of Waitangi and Treaty settlement agreements. Karen is also the Senior Regional Official for the Wairarapa region.

October marks the last month of Martyn Dunne's tenure as Director-General of MPI, after celebrating more than 50 years in the public sector, including five of those with MPI. I'd like to acknowledge Martyn's significant contribution and the support he has provided to our team and our investment programmes including the PGP and the Sustainable Farming Fund.

I hope you enjoy this edition of Agri-gate.

Steve Penno
Director Investment Programmes





John Parker's column

Welcome to this edition of Agri-gate.

I'd like to welcome the new Hāpi – Brewing Success Primary Growth Partnership (PGP) programme. The Investment Advisory Panel (IAP) is pleased investment in this programme was approved – aside from the fact it involves hops and craft beer, it aims to deliver wider benefits across the hop growing and craft brewing industries and has a focus on the value chain.

It will seek to capture more of the value of New Zealand grown hops by selling directly to international craft brewers, as well as developing unique New Zealand craft beer based on the unique flavours of New Zealand-grown hops.

It will develop resources and tools for domestic and export success, expand New Zealand's hop growing regions and develop new premium hop varieties to encourage broader participation in the industry. This could see 835 new jobs, which will obviously help towards regional growth.

Hāpi – Brewing Success was one of the PGP programmes in the pipeline prior to the announcement of Sustainable Food & Fibre Futures (SFF Futures).

The IAP looks forward to monitoring the progress of this new programme.

The IAP has significant experience in a number of areas, including business, commerce, leadership, governance, and innovation. With the recent launch of SFF Futures, the IAP's role will expand. We will continue both our monitoring of PGP programmes and providing independent advice to the Ministry for Primary Industries (MPI) on current and future investment particularly those that are more complex, and carry higher risk and/or require significant investment. We will now also provide MPI with advice on the SFF Futures portfolio as a whole. For smaller SFF Futures programmes or projects, MPI will utilise specialist expertise in the areas that relate to the particular programme or project. This type of approach is based on previous, successful experience from the PGP and the Sustainable Farming Fund.

We look forward to continuing to work with current PGP programmes, and are excited about future programmes and projects through SFF Futures. If you have any ideas for new programmes or projects that will make a sustainable difference for our food and fibre industries, I encourage you to contact MPI.

John Parker
Chair, Investment Advisory Panel

MPI publishes PGP Annual Report for 2017/18

The Primary Growth Partnership (PGP) Annual Report for the year ending 30 June 2018 is now available on the Ministry for Primary Industries (MPI) website. It provides a good snapshot of achievements by current PGP programmes during the year, along with comment from the Minister of Agriculture Hon Damien O'Connor,

MPI Director-General Martyn Dunne and Investment Advisory Panel Chair John Parker.

The PGP Annual Report is available at mpi.govt.nz/pgp



Reports published for two completed PGP programmes

Two completed Primary Growth Partnership (PGP) programmes – Steepland Harvesting and Transforming the Dairy Value Chain – have produced reports that include information such as their achievements, delivery of spillover benefits and progress towards their outcomes.

The **Steepland Harvesting PGP programme** improved forest harvesting productivity and worker safety by developing and commercialising a range of new harvesting technologies in the tree felling and extraction phase of steep country harvesting operations.



The Steepland Harvesting PGP programme developed a range of innovations to keep forest workers safer, including the ClimbMAX steep slope harvester.

The **Transforming the Dairy Value Chain PGP programme** has enabled ongoing transformation of the dairy sector to deliver economic, social and environmental benefits through game-changing innovation and research from the farm to consumers.

Copies of Steepland Harvesting's Post-programme Report and Transforming the Dairy Value Chain's Final Report are available on the PGP programme pages of the MPI website at mpi.govt.nz/pgp



Fonterra received an Innovation Award at the New Zealand Innovation Awards 2016 for its research in infant nutrition – research enabled by the Transforming the Dairy Value Chain PGP programme.



Hāpi – Brewing Success aims to create a sustainable point of difference for New Zealand grown hops and craft beer.

New programme to brew unique hops and craft beer from New Zealand

A new joint craft beer and hop breeding programme launched on 10 October aims to develop unique super-premium hops for exceptional craft brewers and uniquely New Zealand craft beer for top tier markets.

Hāpi Research Ltd has partnered with the Ministry for Primary Industries (MPI) to deliver Hāpi – Brewing Success, a \$13.25 million, seven-year Primary Growth Partnership (PGP) programme.

Hāpi Research Ltd is a joint venture between Garage Project, a leading Wellington craft brewer, and Freestyle Farms, a leading Nelson hop farm. Whilst the programme was initiated by Garage Project and Freestyle Farms, it will grow as more like-minded businesses and research partners join the industry-wide efforts.

“Our programme will pursue research to enhance and differentiate super-premium hop and craft beer markets and boost growth of both industries,” says Freestyle Farms Director David Dunbar. “By collaborating across industries we’ll accelerate development of unique Kiwi hops, promote uniquely New Zealand craft beer and open up new areas to hop growing.”

Hop growing will be supported by research on new precision agriculture practices and processing methods, and licensing for the hops will be limited to New Zealand growers.

Tom Greally, Chief Executive Officer for Garage Project, says the programme intends to support entry into new markets for New Zealand craft brewers and enable new grower and brewer business models.

“We want to create a sustainable point of difference for New Zealand grown hops and craft beer,” says Mr Greally. “Through the programme, we want to understand the unique chemical compounds of our hops that produce New Zealand flavours, and how to best accentuate them in finished beer.”



Garage Project Co-Founder Jos Ruffell adds, “Our aspiration is to develop the resources and tools for domestic and export success along the lines of what our wine industry has achieved – elevating New Zealand craft beer to a sustainable global brand that commands premium pricing across all markets.”

MPI Director-General Martyn Dunne says “The Hāpi – Brewing Success PGP programme will create a cross-industry research and development programme that’s commercially viable, sustainable in the long-term, with strong commercialisation pathways driven by the market.

“The collaborative efforts will strongly support development of high-value, premium products from regional businesses.

“The Hāpi – Brewing Success PGP programme will help growers and brewers to explore new possibilities for our hop growing and craft beer industries.”



Tom Greally, Chief Executive Officer for Garage Project, speaking at the launch of Hāpi – Brewing Success.



Jos Ruffell, Garage Project Co-Founder, introduces Hāpi – Brewing Success.



Martyn Dunne, Director-General at MPI, talks about the government’s investment in Hāpi – Brewing Success.

Hāpi – Brewing Success at a glance

Hāpi Research Ltd is contributing \$7.95 million (60 percent) and MPI is contributing \$5.3 million (40 percent) over the term of the Hāpi – Brewing Success Primary Growth Partnership (PGP) programme.

If successful, the programme expects hop revenue to grow to \$132 million per annum by 2027, which is \$89 million higher than the revenue forecasted without the programme. In addition, the programme expects craft beer revenue to grow to \$98.5 million per annum by 2027, which is \$82 million higher than the revenue forecasted without the programme. The growth in both hop and craft beer would be driven by exports.

The co-investors expect 835 new jobs to be created across the hop growing and craft brewing industries if the economic goals are achieved. A key aspect of the programme is that the intellectual property and expertise it develops will be retained in New Zealand.

The programme has five interrelated projects:

- **Project 1: Hop Breeding.** This project is a mixture of classical breeding methods combined with new molecular techniques to improve the speed and efficiency of the programme. The primary goal is to commercialise three new premium varieties and support the release of three royalty-free varieties.
- **Project 2: Precision Farming and Hop Processing.** Research on optimal growing, harvesting and processing strategies to deliver
- **Project 3: Hop Varietal Market Development.** Creation of new licensing models for premium hop varieties with new and existing growers, combined with developing quality standards for hop processing to deliver quality and consistency into markets that supports premium pricing.
- **Project 4: Uniquely New Zealand Craft Beer.** This project aims to create a unique, category-defining New Zealand craft beer by understanding and maximising the unique New Zealand flavours achievable through New Zealand grown hops.
- **Project 5: Combined Hop and Craft Beer Industry Growth.** Creating opportunities to enhance and connect the New Zealand industry participants to markets. Market development efforts including events connecting New Zealand craft brewers to international distributors and New Zealand growers to international craft brewers.

unique flavours and aromas from the field to the glass. This work stream will also explore the impacts of regional terroir on flavour and aromas.

Hop growing: Hāpi – Brewing Success aims to open up different areas of New Zealand for hop growing.

Red Meat Profit Partnership on course to deliver real change

Thousands of farmers and rural professionals are benefiting from initiatives developed or supported by the Red Meat Profit Partnership (RMPP).

The seven-year Primary Growth Partnership programme, funded by the Ministry for Primary Industries (MPI), Beef + Lamb New Zealand, meat processors and banks, is helping farmers increase the productivity and profitability of their businesses. With two years still to run, it's on track to finish within budget, and deliver meaningful change for New Zealand's red meat industry.

The programme's flagship project is the RMPP Action Network, a new farm improvement model centred on farmer Action Groups now being rolled out nationally. RMPP Action Network is based on behavioural research into high-performing farmers' success and how farmers make decisions to improve practices. After extensive trials the RMPP Action Network was adopted. Trials of the model revealed that between 80–90 percent of the 75 participating fast-tracked or adopted entirely new practices each year over the three years it ran. From the first year of the trial, 75 percent connected with experts which otherwise wouldn't have happened.



RMPP Action Network – North Otago Business Action Group.

RMPP is targeting over 2550 farm businesses (300 Action Groups) for its RMPP Action Network. There are currently 950 farmers involved in 150 regionally-spread Action Groups. These are farmer-led and supported by trained facilitators who guide the groups and help identify advisors and experts who can share new knowledge and ideas needed to achieve their goals.

Each Action Group is eligible for kick-start funding of \$4000 per farm business, which is pooled for the group to pay for a facilitator and expert advice. Facilitators include Fraser McKenzie, Director of Oamaru-based chartered accountants McKenzie & Co and a specialist in farm accounting.

“The RMPP Action Network is revolutionary in its approach,” says Mr McKenzie. “It is backed by the theory and the practice of active learning – it works.”

“There is a lot of enthusiasm among the farmers who are already taking part. They can see the benefits of having a structured approach. The funding through RMPP until June 2020 is significant in getting the groups off the ground, engaging facilitators and bringing in subject matter experts. It gives us time to establish this way of working, as business as usual.”

RMPP is training rural professionals and farmers in facilitation skills critical to getting the most out of the RMPP



Action Groups. Over 300 participants have been trained so far.

RMPP is also upskilling farmers with resources and tools such as the online Knowledge Hub found on Beef + Lamb New Zealand's website, which hosts a range of interactive learning modules and KPIs so farmers can benchmark their performance.

Other RMPP initiatives are encouraging young New Zealanders to consider careers in the red meat sector. Since 2013, RMPP has fully funded almost 1350 women who have undertaken Agri-Women's Development Trust's Understanding Your Farm Business (UYFB) and Wāhine Māia, Wāhine Whenua (WMWW) programmes. Women return to their farming business with fresh eyes, participate

more fully in decision-making and communicate strongly with their farming partners to help create positive change. A further 700 women are projected to participate in the programmes in 2019.

RMPP has developed the electronic Animal Status Declaration (eASD) with OSPRI. This technology makes filling out ASDs much faster and easier for farmers. Once a farmer has completed their first eASD, all that information is prefilled for future ones – adding efficiency and eliminating the risk of mistakes.

eASD is now being piloted countrywide. It is already available for suppliers at processing plants (12 plants) for meat industry partners, Silver Fern Farms Alliance Group (5), Greenlea Premier Meats (2) and for ANZCO, Blue

Sky and Progressive (one each) – plus three non-RMPP partner deer plants.

In conjunction with processing partners and the deer industry, RMPP is rolling out the New Zealand Farm Assurance Programme (NZFAP). This streamlines the farm audit process for farmers, helping ensure everyone is working to the same baseline standard. Fifteen companies are now using NZFAP, which supports Beef + Lamb New Zealand's Taste Pure Native Origin Brand.

Standards are now being developed to cover environmental, animal welfare, biosecurity and people wellness to build on the NZFAP as the Sustainability and Ethical New Zealand Farm Assurance Programme (SENFAP).



Understanding your Farm Business (UYFB) graduates, Hastings.



Enhancing the profitability and value of Class 1 New Zealand onions

The New Zealand onion industry embarked on a research programme just over three years ago to understand the underlying reasons why onion crops and yields varied.

This variability affects bulb quality and, as a downstream consequence, affects the value of Class 1 onions for export. Being an industry that focuses 80 percent of its production on exports, the variability of yield and quality of onion crops is an issue affecting future growth potential of the industry.

Onions New Zealand, the grower representative organisation, partnered with Plant & Food Research and LandWise Farms Ltd in this Sustainable Farming Fund project to identify the causes and measure onion variability in the field.

“Our programme had a two-pronged approach,” says Sally

Anderson, Research Innovation & Extension Manager for Onions New Zealand.

“The first is to develop sensor technologies to measure and map this in-field variability early in the developmental stage of an onion crop. The second involves understanding the underlying causes of this variability and combine this with the sensor information to define ‘Management Action Zones (MAZ)’ based on the degree of field variation observed.”

A tractor mounted smartphone camera captured ground images and image analysis software was used to process these images to measure the “green index” of onion plants. Measurement of onion crops at the three-leaf developmental stage was found to be the most predictive of future potential yields. Once a map of the onion canopy cover was developed, areas with different yields could be predicted.

Variable areas were identified, monitored and managed over three years of field trials.

“For our research, New Zealand onion crops grown under optimal conditions were found to have a baseline coefficient of variation of 38 percent for bulb size,” says Sally.

“The bulk of the variability – 61 percent – was due to growth rate differences between individual plants. The balance of the variability – 39 percent – was split – 31 percent was due to the differences in the rates of onion seedling emergence and 8 percent because of differences in the space available for the plants to grow.

“This highlights the fact that plant management at sowing and in the early phase of crop growth is key for ensuring the onion crop is as uniform as possible. Soil compaction, waterlogging and inadequate irrigation were identified as key

management factors causing more variability in crops.”

The two work streams converged with the development of SmartFarm, a web-based decision support tool that processes the captured image data with crop modelling to identify MAZs where the plant populations were below target or plant growth was below expectations. The MAZs were field tested over two years of commercial scale field trials with good results, which

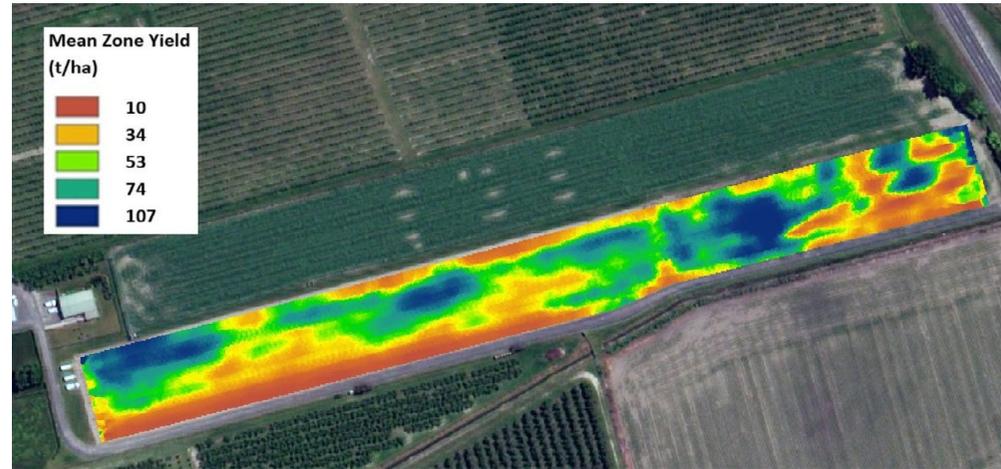
demonstrates the value for growers.

James Kuperus, Business Manager for Onions New Zealand, says “from this project the industry now has a tool that can help onion growers make early management decisions to improve their quality and their yields”.

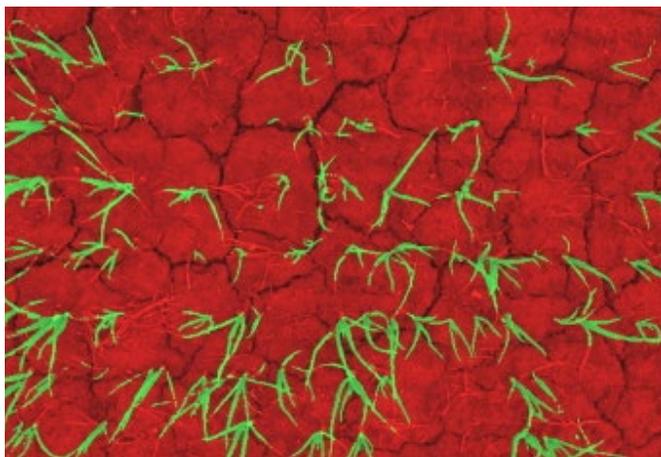
“The MAZs can identify areas in the field that might need additional fertiliser, improved drainage or irrigation,” says

James. “Having a tool that estimates yields means growers can provide exporters and distributors predictions of what their expected volumes will be.

“These advances would not have been possible without the collaborative research efforts of Plant & Food Research and LandWise, and the support of the Sustainable Farming Fund.”



Potential Yield Map. This is generated from canopy cover map created from CoverMap data and relationships between canopy cover and yield used in the online tool at www.smartfarm.nz (Image courtesy of Dan Bloomer, LandWise).



A smartphone camera picture (top) and the subsequent processed image identifying green pixels (bottom) enables percentage ground cover to be determined (Images courtesy of Dan Bloomer, LandWise).

LOGIN REGISTER

Crop Variability Assessment Tool

This tool has been created in collaboration between **Onions New Zealand, Plant & Food Research** and **LandWise Inc.** and has been designed around the concept of Management Action Zones with the intention of assisting growers to identify and map the variability within their onion crop.

Management Action Zones identify areas that are performing differently within a crop and separate the influences of population, growth and natural variability.

MAZ (Management Action Zone)	Growth within potential	Growth below potential
Population within expected	MAZ 1 No management change needed	MAZ 3 Revise management (tactical management)
Population below expected	MAZ 2 Increase population (strategic management)	MAZ 4 Increase population & growth (revise tactical & strategic management)

By providing an estimation of yield and an understanding of the causes of the variability, such as low population and/or low growth rate, at an early stage, it is hoped that the grower will be able to make more informed decisions on how to manage the crop during the season, and into the future, to maximise profitability.

The SmartFarm tool assesses onion crop variability. This web-based decision support tool processes the captured image data with crop modelling to identify the onion Management Action Zone.

MPI partners with councils to address erosion issues

During October the Ministry for Primary Industries (MPI) held its funding round inviting applications for investment through the Hill Country Erosion (HCE) Fund, for projects to be delivered between July 2019 and June 2023.

The HCE Fund helps councils and landowners to assess and treat erosion-prone land throughout the country. Erosion and its effects – lost soil, nutrients and production, damage to trees, houses, infrastructure, and waterways – in hill country areas alone are estimated to cost New Zealand's economy \$250 million to \$300 million a year.

As a result of this latest funding round, around \$34 million will be provided to regional councils and unitary authorities to improve areas damaged or susceptible to erosion. Funding decisions are expected by Christmas.

Further information about the HCE Fund is available at mpi.govt.nz/hce



An example of hillside erosion in the Horizons/Manawatu region.

Sustainable Land Management and Climate Change research programme

On 5 September, MPI celebrated the ten-year anniversary of its Sustainable Land Management and Climate Change (SLMACC) research programme with Minister of Agriculture, Hon Damien O'Connor, Minister for Climate Change, Hon James Shaw, Minister for the Environment, Hon David Parker, and guests.

"SLMACC has invested \$50 million towards around 150 research projects that have grown our understanding of climate change and how to tackle it," says Neil Williams, Manager Sustainable Resource & Programme Coordination at MPI.

Minister O'Connor also launched a commemorative booklet, **Investing in Tomorrow**, that showcases a number of SLMACC research projects.



From left, Minister for the Environment, Hon David Parker, Minister of Agriculture, Hon Damien O'Connor, Head of Te Uru Rākau, Julie Collins, and Minister for Climate Change, Hon James Shaw.

Voluntary Bonding Scheme for Veterinarians

Thirty graduate vets will receive a financial boost to help develop their careers through the Voluntary Bonding Scheme for Veterinarians.

Vets perform a crucial role in the success of our primary industries and our wider economy, but attracting and retaining these vets in our regions is challenging.

The Voluntary Bonding Scheme for Veterinarians is designed to support and boost the number of graduate vets in our regions who are working with production animals such as cows, sheep and horses.

This year's successful applicants will receive \$55,000 each over five years – a total of \$1.65 million.

Successful applicants in this year's application round are from a number of regions throughout New Zealand.



Sustainable Food & Fibre Futures opens for business

The Ministry for Primary Industries' Sustainable Food & Fibre Futures (SFF Futures) programme is now open for business. It invests in innovation to grow New Zealand's food and fibre sectors, and make a measurable and sustainable difference to our country.

SFF Futures aims to create more value from the food and fibre industries in a way that sustains the natural resources we depend upon for future generations. It incorporates the best of the Primary Growth Partnership (PGP) and the Sustainable Farming Fund.

Proposed programmes or projects could develop new products and services, create more jobs and skills and capability, encourage collaboration and greater information sharing, and boost health and safety.

Contact us at funding@mpi.govt.nz if you have new projects or programmes that will:

- solve a problem or pursue an opportunity in New Zealand's agriculture, fisheries, forestry or associated sectors;
- involve applied research only (not fundamental research), or the extension of knowledge to farmers, growers or fishers.

Programmes or projects may run for up to seven years and there's no minimum or maximum funding amount, subject to available funds (around \$40 million per annum). The amount of co-investment MPI offers ranges from 40 percent to 80 percent, depending on the type of programme or project, its size and the reach of its anticipated benefits.

For more information, including investment criteria, check out mpi.govt.nz/funding

SFF Futures aims to create more value from New Zealand's food and fibre industries in a way that cares for our natural resources.

