

Agri-Gate

Ministry for Primary Industries
Manatū Ahu Matua



News from the Primary Growth Partnership

ISSUE 17 | MAY 2015

Michael's Desk



Having spent a few weeks now in the PGP Director's chair, it's great to be on board for my first column for Agri-gate.

While I'm relatively new to the PGP 'family', it's clear to me already that those involved with the PGP work incredibly hard and are passionate about their work. The PGP is a fantastic example of innovation in the primary sector and how collaboration between

industry and government can boost the productivity of our primary industries.

In fact, the PGP is regarded internationally as an example of the kind of innovation and success that is possible when government works together with industry.

While we often think of a brand as being a commercial product or company, the PGP itself is a brand, and we need to treat it as such. That means thinking about the values which are important for the PGP, and that help guide the work we do across the PGP and of course, partners' experience with the brand and how we can simplify some of the administration.

For me, I associate the PGP with innovation, talented people, and energy and commitment to new and interesting ideas. For example, this month the New Zealand Sheep Industry Transformation programme announced that through genetic

testing and selective breeding, researchers are now close to breeding footrot resistant fine-wool sheep. Footrot is estimated to cost the fine wool sector up to \$10 million each year in lost productivity and treatment, so this a significant breakthrough.

I also associate PGP with sustainability. Part of my background is in business environmental sustainability and the PGP is a natural fit with this. An important part of this will be looking at how we measure progress towards environmental benefits and how we continue to tell this story. This builds a pathway into furthering our understanding around the hot topic of social license to operate.

We're seeing environmental benefits from PGP programmes in a number of ways. For example, part of the Transforming the Dairy Value Chain programme is about helping farmers control effluent and improve water use management and the Clearview Innovations programme has delivered N-Guru™, a software tool that enables farmers to tailor application rates to areas which are likely to produce the highest pasture response.

The Pioneering to Precision programme, profiled in this issue of Agri-gate, is helping protect the environment through more precise and efficient use of fertiliser and improving hill country sheep and beef farming productivity.

Protecting and enhancing our environment is an important part of the future of our primary industries, especially as we look towards ensuring its longevity for future generations. While we often talk about New Zealand being a small player on the world stage, our size and ability to innovate and commercialise must be our

competitive advantage. Our natural resources and primary sector products are highly valued, and it's great to be a part of the PGP – an important contributor to New Zealand's future.

On another note, MPI is proud to be sponsoring the NZ Food Awards again this year. The Awards provide local food and beverage producers with the opportunity to highlight the success of their products and businesses. Many of you in PGP have interesting programmes and initiatives in this area and I encourage anyone who is interested to enter this year's award.

At MPI we are always keen to acknowledge and celebrate innovation in food, which is why this year we are sponsoring the New Cultivars/Primary Producers Award category. This category is open to all food and beverage growers and manufacturers who add value to products through the introduction of new varieties and cultivars or through processing to produce by-products from existing food products or ingredients (e.g. extraction of oils, nutrients, flavouring etc).

Entries for the competition close on Friday July 10. For more information, please visit www.foodawards.co.nz.

Lastly, I'd like to welcome Passion2Profit, a programme with Deer Industry New Zealand, into the fold. The contract was signed last week for this programme, which will be a huge milestone for New Zealand's venison industry. Joanna talks a bit more about this in her column.

Michael Jamieson
Acting Director PGP

From the Chair



My column this month really is going to be short and sweet. I'm going to allow you to focus on the introductory words from our new Acting Director, Michael Jamieson.

Michael has taken on the role of PGP Director while Justine is on maternity leave. Michael has so far attended two IAP meetings and there is no doubt in my mind that he will continue the strong leadership and inspiration for the programme that Justine had.

It is always great to hear perceptions about our PGP brand and story from a fresh perspective. His reflections are a gentle reminder to us of how important the PGP brand and outcome is to New Zealand's future.

I'd also like to welcome our new PGP programme, Passion2Profit. The contract was signed last week for this \$16 million, seven-year programme with Deer Industry New Zealand. It will help the deer industry position farm-raised venison as a luxury red meat sold year-round in new markets and support uptake of new technology and on-farm practices by producers.

This programme is another example of how, through PGP innovation, we're making the most of New Zealand's reputation as a producer of premium products.

Joanna Perry
Chair, Investment Advisory Panel

Programme Spotlight

Pioneering to Precision

As global demand for high quality protein continues to increase, New Zealand's beef and sheep farming sectors find themselves under pressure from dairying as each compete for land and primary sector investment.



An Aerowork Cresco aircraft which will carry the automated hopper door technology, offering improved differential fertiliser application capability

In the current environment, hill country farm returns can be marginal and volatile. While fertiliser is vital for pasture productivity, care has to be taken to maximise returns while managing the impact on the environment.

The key to improving hill country soils is to accurately measure their nutrient status, identify their appropriate fertility target based on potential productivity and then controlled application of the appropriate fertiliser. The tradition of aerial spreading of one rate of fertiliser on hill country has remained largely unchanged for some 60

years, and automated spreading technology has only been tried in limited situations. Meat production faces strong competition from dairying conversions for land in flat and easy-rolling country, however improving productive use of hill country land will provide opportunities for New Zealand beef and sheep farmers.

The Pioneering to Precision – Application of Fertiliser in Hill Country Primary Growth Partnership (PGP) programme, is a partnership between Ravensdown and MPI that has the goal of transforming farming returns by enabling hill country farmers to grow more grass, without increasing the environmental impact.

The Pioneering to Precision PGP programme aims to improve the precision of aerial fertiliser spreading.

“We're delighted with the early wins from the programme and looking forward to rolling out the newly-developed technologies as they become available,” says Ravensdown Technical Development Manager, Michael White.

“If the programme is successful, the detailed nutrient needs of the farm will be able to be identified remotely and the right amount and form of fertiliser applied precisely for maximum pasture and stock growth using differential-rate application technology.”

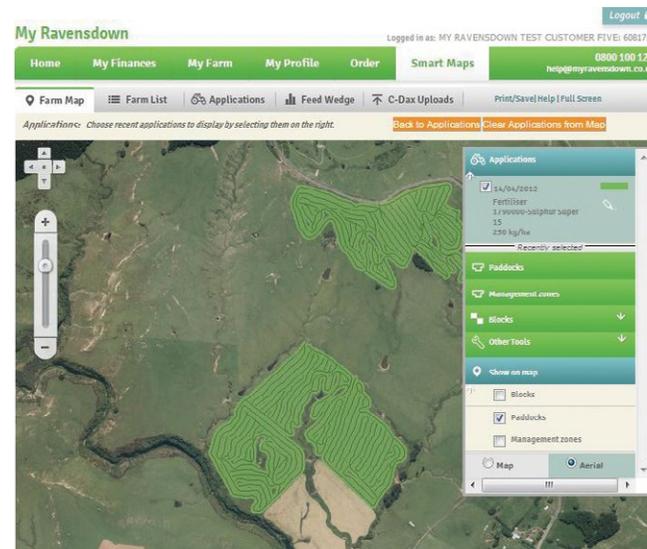
At the same time, the programme will increase the environmental sustainability of hill country farming by minimising fertiliser application near waterways, wetlands and riparian zones, and critical source areas in the landscape such as eroding hillsides. Accurate placement of fertiliser in the right amounts will decrease the risk of nutrient enriched sediment entering waterways.

The programme comprises four stages:

1. The development of remote sensing technology to establish pasture nutrient requirements. This involves the use of hyperspectral sensors (cameras) from the air.
2. Establishing links between remote sensing data and soil nutrient status. This involves extensive soil and pasture testing on eight research farms and then correlating this information with the remote sensing data.
3. In a related project, Ravensdown is developing a differential rate aerial spreading technology. This has two components, with the first relating to differential-rate, fertiliser spreading hopper gates that have been linked to control software, and the second relating to the use of the aircraft's GPS system to make sure the appropriate amount of fertiliser is applied to the right location. A key part of this process is integration with Ravensdown's award winning Smart Maps interactive farm management tool, which allows farmers to make spatial management decisions based on accurate data.
4. The rolling out of the technology and dissemination of the learning associated with the Pioneering to Precision programme to farmers as it becomes available. The development of a network of focus farms is key to this.

For this programme, Ravensdown has partnered with Massey University's Precision Agriculture Group who are leading the research into remote sensing capability and AgResearch, New Zealand's largest Crown Research Institute who are ensuring

a robust dataset is collected and adoption of these technologies as they are developed.



The Ravensdown Smart Maps application, with the paddock boundaries critical to the accurate placement of fertiliser clearly visible

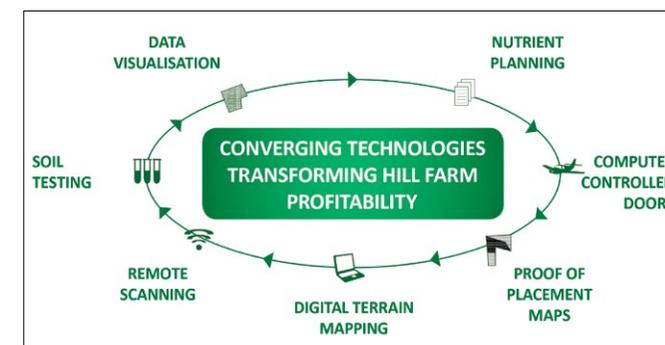
Assessing nutrient status remotely requires technology that can scan the nutrient status of pasture at altitude and at speed. Fortunately, recent advances in remote sensing and imaging mean that the potential for sensing these parameters from the air has advanced considerably.

New imaging technology has the capability to measure whole farm environments with unprecedented accuracy. However, measuring soil nutrients in such a complex environment requires a large number of factors to be taken into account. It can only be overcome by collecting large sets of data to calibrate the technology and this is what the first phase of the Pioneering to Precision PGP programme is about.

The programme currently has eight hill country research farms geographically spread throughout New Zealand and has had some early success in demonstrating the accuracy of the remote sensing technology for establishing the nutrient status of plant material.

To date nearly 10 000 pasture and soil samples have been collected and analysed. The next stage of this part of the programme is to link the results to soil nutrient status.

By the end of 2019 approximately 20 000 samples will have been collected and analysed for correlation with the remote sensing images to get an accurate prediction of soil nutrient status. If successful this will allow accurate farm soil fertility maps to be developed that will be used to enable precision aerial application of fertiliser.



The converging technologies which make up the Pioneering to Precision programme

In a related Ravensdown project, the aerial application technologies are being refined and to date, have been installed in one aircraft operating in the central North Island. The technology has performed well in calibration application trials and proved its reliability and accuracy in a differential fertiliser application applied to an extensive hill country property in early 2015.

In 2016 the first of seven farms forming a focus farm network will be incorporated into the programme. These farms will be used to demonstrate the use and benefits of precision fertiliser application in hill country as the technology is developed.

The programme will also provide a number of spill over benefits. For example, the remote sensing technology, if successful in hill country fertiliser management, will have applications in a range of other sectors including lowland dairy farming and forestry.

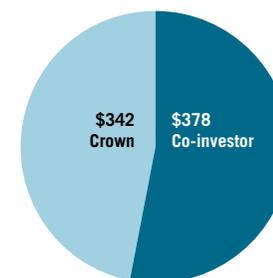
Overview of Primary Growth Partnership Investment

Sector	Programme Name and Co-investor	Total Crown and co-investor investment \$ million	Sector total \$ million	Estimated benefits \$ million (per annum)
Wool	NZ Sheep Industry Transformation (NZSTX) NZ Merino	30	\$30	250
Dairy	Transforming the Dairy Value Chain Dairy NZ/Fonterra	170		2700
	New Dairy Products and Value Chains Whai Hua Limited Partnership	3	\$174	9
Fishing & Aquaculture	Shellfish – The Next Generation Shellfish Production and Technology NZ (SPATnz)	26		81
	Precision Seafood Harvesting Precision Seafood Harvesting (PSH)	48	\$74	44
Meat	FoodPlus – Redefining Meat Horizons ANZCO	77		630
	Marbled Grass-fed Beef Grass-fed Wagyu Ltd	23		80
	Red Meat Profit Partnership Red Meat Profit Partnership (RMPP)	64		194
	Integrated Value Chain for Red Meat FarmIQ	151		1100
	Targeting New Wealth with High Health	25		TBA
	NZ Deer Industry Passion2Profit	15	\$356	TBA
Pastoral	A New Vision for Pastoral Agriculture PGG Wrightson Seeds	15		200
	ClearView Innovations Ballance AgriNutrients	20		348
	Precision Application of Fertiliser in Hill Country Ravensdown Fertiliser Co-op Ltd	10	\$44	120
Bee Keeping	High Performance Manuka Plantations Manuka Research Partnership (NZ) Ltd (MRPL)	3	\$3	1200
Forestry	Innovative Steep-land Tree Harvesting Future Forests Research (FFR)	7		100
	Use of Fumigants for Log and Wood Product Exports Stakeholders in Methyl Bromide Reduction (STIMBR)	2.6 (actual cost)		TBA
	From Stump to Pump Phase 1 (feasibility study) Norske Skog Tasman Ltd (NSTL)/Z Energy	3.6 (actual cost)	\$13	TBA
Viticulture	Lifestyle Wines New Zealand Winegrowers	17	\$17	285
Horticulture	NZ Avocados Go Global Avocado Industry Council	9	\$9	210
Total			\$720	

Please note that the figures in this table have been rounded. Therefore the total Crown and co-investor investment for each sector may differ to the sum of the individual programmes.

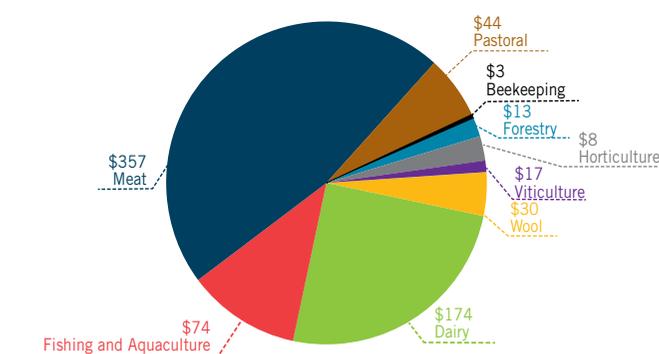
As at 30 April 2015, there were 16 programmes underway, two pending and two completed.

Crown/co-investor committed investment (in millions)



Crown/co-investor committed investment by sector (in millions)

Total \$720 million



Total government funding paid to programmes as at 31 March 2015 was \$141.6 million.