

Agri- Gate

Ministry for Primary Industries
Manatū Ahu Matua



News from the Primary Growth Partnership

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Justine's Desk



Welcome to our September edition of Agri-gate.

In my July column I mentioned the work we're doing to better understand the "innovation pipeline" within the primary sector, and in particular to see if there are ways that it could be even more effective. The

innovation pipeline is where ideas with the potential to improve the performance of our primary sector are taken from generation and discovery right through to commercialisation. This work has been progressing well with a number of discussions and interviews with sector stakeholders, along with some other research. A picture is beginning to emerge that includes strong endorsement of the PGP approach, including our ongoing efforts to make this more flexible and responsive to the needs of co-investors.

This work is also reinforcing the importance of collaboration across the value chain in ensuring that innovation is truly effective, and the need for excellent relationships between industry and research providers. Interestingly there is also recognition of the need for skills and capability in areas such as commercialisation and marketing to go alongside the traditional research and development skills. We'll finish our

work in this area shortly and begin sharing the findings and next steps in more detail as we firm up and then implement any resulting changes or shifts.

Preparation is now well underway for our annual meeting and PGP Expo, which is being held in Wellington on 6 November. The annual meeting is an opportunity for all PGP programmes to come together and share ideas, knowledge and experience, and to make connections. It's also an opportunity for MPI to update the group on overall PGP matters and for other organisations to share initiatives that may be relevant to PGP programmes, such as the New Zealand Story. The Expo follows the annual meeting and provides a great opportunity for members of the business and wider community to see (and taste!) the innovations that are being enabled through PGP programmes. This year – for the first time – we're also including a special Innovation for Education part of the Expo, which will be an opportunity for local high school students to see first-hand the exciting opportunities a career in the primary industries affords – whether it's involving science, engineering, roles on-farm or orchards, product development, marketing and management, to name a few.

As you'll be able to tell, an enormous amount of time and effort is involved across the PGP. One aspect of the monitoring required for PGP programmes is for an independent progress review to be undertaken – this normally occurs after the

programme has reached its halfway mark, so that sufficient progress has been made to enable a review to take place.

The progress review of the Steepland Harvesting programme is nearing completion, and we're currently in the stage of commencing reviews for three other programmes. These reviews offer a valuable perspective to PGP programme co-investors – including MPI – on a programme's progress towards its intended outcomes, and any areas that may need added focus to support success. The first of these reviews – which was completed earlier this year and is available on the MPI website – has proved to be of real value to the New Zealand Sheep Industry Transformation (NZSTX) programme, especially as they head into the final year of the programme and plan for the transition towards embedding the programme outputs into business activities. The review found that is a worthwhile programme that has potential to substantially transform the sheep industry and improve economic outcomes in the sector.

Justine Gilliland
Director PGP

From the Chair



I thought I would build on Justine's comments about innovation. Overall the PGP programme is all about innovation – the PGP section of MPI's website clearly says that the PGP programmes are primarily business led and market driven innovation programmes that work across the primary industry value chain. Justine

also refers to the innovation pipeline work that MPI is doing.

So let us remind ourselves what do we mean by innovation – and more importantly how we commercialise innovation. It's a lovely word and actually makes us feel warm and fuzzy if we say we're innovative – however, innovation in itself is not a “desirable, needed” outcome in its own right – it's only when it's commercialised – i.e. someone makes some money or gains another benefit out of it – that it is truly an outcome worth having. The PGP is all about boosting productivity and profitability, and delivering long term economic growth and sustainability across the primary sector, from producer to consumer. In other words, the PGP is enabling those involved across the primary industry value chain to gain some form of benefit, and therefore it has a clear role in contributing to New Zealand's economy.

I don't profess to be an expert on innovation. However my attention was drawn recently to research undertaken by the Massachusetts Institute of Technology and other organisations which has led to far better understanding of the process of innovation. The key is that the successful commercialisation of innovation is seldom without challenge and can often be elusive. I thought it would be useful to share this point as it's important to keep at the back of our minds as we venture down the innovation pipeline.

Here are some further thoughts from Gordon Brunner, former Chief Technology Officer of Proctor and Gamble:

“Innovation is all about making things that people want to buy. It is not about patents or new technical developments – it is about marrying ‘what is needed’ with ‘what is possible’.

It is about the products and services you offer, and their acceptance by end users.”

It is incumbent on each PGP programme to think about this – whether we're talking about developing merino lamb for a top end Shanghai restaurant or developing a fertiliser product for our local beef farmer. Are we marrying what is needed with what is possible?

Brunner identified three significant success factors

1. Stay close to your customers:

- Involve research and development people intimately with customers.
- Find new uses for your products.
- Know that customers cannot always articulate their desires.
- Be persistent and strive for credibility.

2. Compete with leading edge technology:

- Identify superior technology.
- Apply sound science to understand your product.
- Use the best talent and intellectual horsepower.

3. Create a supportive environment for innovation:

- Demand that innovation happens.
- Create an environment in which good ideas flourish.

This is food for thought for all of us.

Joanna Perry
Chair, Investment Advisory Panel

Programme Spotlight

Introducing FoodPlus: Generating more value from the beef carcass

FoodPlus is about developing new and innovative uses for the parts of the red meat carcass that currently generate less value, says ANZCO's Food and Solutions CEO Rennie Davidson.

The programme is a 50-50 partnership between ANZCO Foods and the Ministry for Primary Industries' Primary Growth Partnership. The programme runs for seven years and started in November 2012.



“ANZCO is focusing on developing new innovative foods, ingredients and healthcare products. It's about improving the value to the carcass to secure a more viable future for the meat industry and maximising important food and revenue opportunities.

“Some of the things we're looking at are meals, protein supplements, stocks, broths, extracts, seasoning oils, and medical and surgical products,” says Rennie.

In the first year of the programme ANZCO researched the variability of raw material and identified product opportunities in food, ingredients and healthcare and increased its understanding of each of these areas. In the second year ANZCO has had a number of successes and has started commercialising some

products, such as bio-tissues and concentrated liquid beef stock.

ANZCO is working with a number of specialist companies to develop products that meet market demand.

“As well as adding value to a commodity product, the programme is also increasing collaboration between industry and research organisations and will help build the primary sector's reputation as a responsive, innovative and market-led industry,” says Rennie.

At this early stage of the programme, ANZCO has around ten people directly employed in FoodPlus projects. Many of the roles are a direct result of the PGP programme and wouldn't have existed otherwise. Others in the business also support various aspects of the programme, and external expertise is sourced as required.

ANZCO's also seeing increasing interest from those outside the programme, such as potential customers.

About ANZCO Foods

ANZCO Foods is one of New Zealand's largest exporters.

It procures and processes prime New Zealand beef and lamb, designs and creates sophisticated food and healthcare solutions and markets its products to more than 80 countries.

The FoodPlus programme is managed by ANZCO's Food & Solutions business which is responsible for designing and creating sophisticated food and healthcare solutions.

Innovation Centre

ANZCO Foods has opened a food innovation facility to support the FoodPlus programme.

The ANZCO Innovation Centre, at Lincoln University's state of the art food and science facility is a great fit for us, says ANZCO Innovation Manager Jonathan Cox. “The space was already at a food grade level, so all we needed to do was buy equipment which let us get underway more quickly than building a new facility from scratch. The additional equipment and experience already at Lincoln also helps us be more responsive to our customer needs.

“As well as mixing with a wide range of food and beverage specialists, working in an existing purpose-built facility gives us flexibility in the early stages of FoodPlus, while we identify what our longer-term needs might be.

“We've also been able to provide summer work for students, giving us a flexible workforce and providing valuable experience for the students. And we're located close to ANZCO's marketing team allowing us to regularly liaise with key customers,” says Jonathan.



Student Nicola Wei with ANZCO Managing Director Mark Clarkson at the Innovation Centre

Bovogen researches, manufactures and supplies highly purified animal proteins, enzymes and animal serum products to the global pharmaceutical, diagnostics and life science communities. It sources raw materials from only Australian or New Zealand export abattoirs, US Department of Agriculture and EU approved establishments or donor animal herds. Complete traceability of animal by-product origin with manufacturing under strict Good Manufacturing Practice (GMP) conditions enables Bovogen's products to meet the highest quality standards.

"Bovogen has a core range of products that services customers in diagnostics, vaccine manufacture and biotechnology. Originally, Bovogen's core customer base was North America and Australia and we're increasing the focus in Asia, Europe and USA," says Steve.

<http://bovogen.com>

Bio-tissues

The first product commercialised under the bio-tissues part of FoodPlus is being used in medical devices in North America.

Bio-tissues from recovered animal parts are being used in surgical and medical applications including heart valves, stent covers, surgical devices and dural patches.

"The first stage of this project involved developing expertise around harvesting pre-processing and transporting sensitive tissues, to meet customer expectations. Getting fresh tissue to North American customers within 72 hours of it being harvested in New Zealand is very involved," says Steve Cartwright, Business Development Manager.

"We're not the first people to supply these types of bio-tissue products but it's new for a meat company to be doing it on this scale. It's the first stage of a much larger programme."

Stocks and extracts

A concentrated liquid beef stock is the first product to be commercialised from the stocks, broths and extracts part of the FoodPlus programme.

While researching international demand for this part of the programme we found an extract plant for sale in Australia which we bought and moved to Taranaki, says Mike North, Project Manager. (The plant is used to support FoodPlus but the investment was from outside the PGP.)

"The plant enabled us to fast-track this part of the programme. We still have to go through all the stages of product development but it's made it easier and we can get better engagement with customers if we can provide a sample and say it was developed on machines that will enable us to produce it at the scale required."

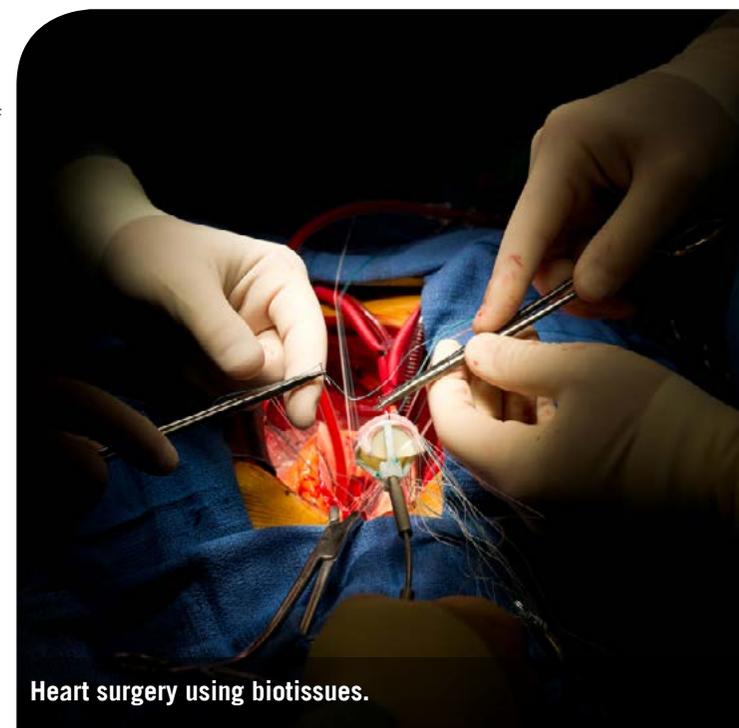
"Through the programme we're working directly with customer groups to identify and meet previously unrecognised needs. At the Innovation Centre we create new food products to put in front of customers and get feedback on everything from the packaging to cooking times as well as the actual food product itself. Then, hopefully, it's a matter of making the required tweaks and we're ready to start production in earnest. This approach increases the speed and effectiveness of our solutions."

Blood products

Buying into an established company has put FoodPlus' blood products project well ahead of schedule.

ANZCO's 50 percent share in Bovogen supports FoodPlus but was made outside of the PGP programme.

Melbourne-based Bovogen had existing experience in blood-based biotech product developments and good market understanding, says Steve Cartwright, Business Development Manager. "Bovogen was already making the products we were aspiring to by year seven of the programme. Developing this important strategic alliance so early in the programme enabled us to get straight into the business and to start looking out further towards 2025."



Heart surgery using biotissues.

The beef stock is a natural product and is sold as an ingredient to customers, in 20kg boxes.

“We’re focusing on export markets for the speciality product and it’s currently being used in Korea as a flavour for noodles and a soup base. The way people cook and eat is changing. The base for a traditional Korean soup takes 12 hours to make. Our stock is being used instead,” says Mike.

The product can be used for anything that has stock in it including sauces, gravy, pies and flavouring.

“Outside our PGP programme, we have a distributor for the stock in Korea and we’re also working with ANZCO’s existing off-shore offices to identify opportunities in the USA, Canada, South East Asia, the UK and Europe. And in New Zealand we’re working with other ANZCO food manufacturing businesses on possible uses for the stock,” Mike says.



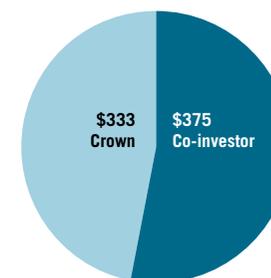
ANZCO concentration equipment.

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	37	37	250
Dairy	Transforming the Dairy Value Chain Dairy NZ/Fonterra	170		2700
	New Dairy Products and Value Chains Whai Hua Limited Partnership	3	173	8.6
Fishing & Aquaculture	Shellfish – The Next Generation Shellfish Production and Technology NZ (SPATnz)	26		81
	Precision Seafood Harvesting Precision Seafood Harvesting (PSH)	53	79	43.6
Meat	FoodPlus – Redefining Meat Horizons ANZCO	87		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	325	1100
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
Beekeeping	High Performance Manuka Plantations Manuka Research Partnership (NZ) Ltd (MRPL)	2	2	925
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)	3		–
	From Stump to Pump Phase 1 (feasibility study) Norske Skog Tasman Ltd (NSTL)/Z Energy	14	23	–
Viticulture	Lifestyle Wines New Zealand Winegrowers	17	17	285
Horticulture	NZ Avocados Go Global Avocado Industry Council	8	8	110
Total			708	

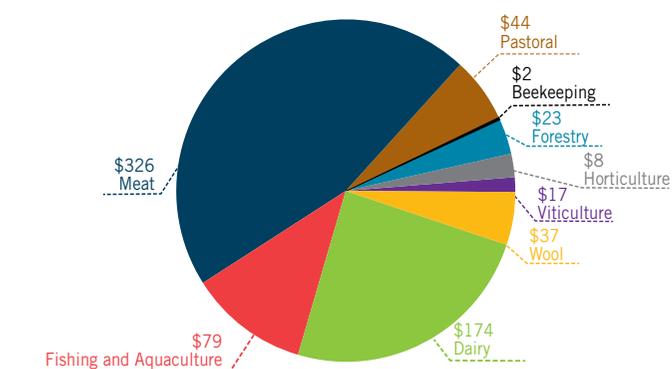
As at 31 August 2014, there were 17 programmes underway and one completed.

Crown/co-investor committed investment (in millions)



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

Total \$708 million



Total government funding paid to programmes as at 31 August 2014 is \$118.4 million.