



Justine's Desk



This issue of our newsletter showcases our largest (by investment) programme: *Transforming the Dairy Value Chain*. This programme, jointly led by Fonterra and Dairy NZ, is an example of the value chain focus of many of the PGP

programmes – supporting innovation and productivity growth from grower/producer to processor to the market.

Some of the on-farm aspects of this programme were also showcased at a PGP media field trip in Canterbury this month (see the photos to the right). Four PGP programmes showed practical examples of their work, as well as provided an overview of the programme and its goals. Hon Nathan Guy also attended the field trip.

The New Vision for Pastoral Agriculture – seed and nutritional technology development programme, is developing innovative forages for New Zealand farms to help tackle climate change and mitigate the impact of droughts. The programme, led by PGG Wrightson Seeds and Grasslanz Technology, consists of five projects designed to develop a suite of innovations that improve productivity and animal health, while mitigating adverse environmental impacts. Specifically, media attendees were shown the improved

water use efficiency of new supplementary feed trials at a Lincoln University research farm.

The New Zealand Sheep Industry Transformation Programme (NZSTX) presented the design thinking and innovation behind the programme, including fibre marketing, meat and leather products, and production science achievements, followed by some sampling of the high-end SILERE alpine origin merino developed in the programme.

Media then visited two farms north of Christchurch:

- An IQ farm where the Farm Management System being developed by the FarmIQ programme was introduced and the farm owners discussed their use of the “breaking the cycle” strategy and how it is benefiting their farm.
- A farm in Kaiapoi that is involved in the effluent management project within the Transforming the Dairy Value Chain programme.

I'd like to thank those involved in the day. The media who attended found the day valuable, as did I.

As I mentioned in the February edition of Agri-gate, the mid-term progress review for the NZSTX programme started in the latter half of 2013 to provide an independent assessment of how the programme is tracking towards its goals, and an opinion on future performance and funding requirements. We will be releasing this report onto the MPI website shortly.

Justine Gilliland



DairyNZ's Tony Fransen talks about the “Effluent management – train the trainers project”



Hon Nathan Guy inspects brassica at the Ashley Dene Lincoln University Research Farm



Duncan Mackintosh talks about innovation on his White Rock Mains IQ Farm



Darren Wright from restaurant Chillingworth Road gets interviewed by Radio New Zealand

From the Chair

I was privileged to be able to attend the media field trip Justine mentioned in her column. I have to say I found it a very enervating, but interesting, day. To be able to see first hand the real progress being made on four PGP programmes was both exciting and gratifying. And in two instances I was able to chat to everyday farmers about the benefits that they are seeing behind the farm gate as a result of PGP investment. I also think the positive media interest in the whole PGP portfolio demonstrates its importance to New Zealand as a whole.

The Investment Advisory Panel (IAP) met in early March where we considered a number of matters including:

- a business plan from a particular co-investor group;
- a revised proposal following funding round 9;
- quarterly reports from three programmes; and
- a panel field trip planned for June in the Waikato.

The matters above I think are worth touching on further to demonstrate both the flexibility and robustness of the PGP acceptance process, as well as the value that the process itself can bring to our co-investors.

The business plan that we considered at our March meeting undoubtedly had a long gestation period. The IAP originally accepted a proposal from this group of co-investors in May 2012. At that time the IAP believed that the proposal put forward both met the criteria for PGP and, most importantly, had the ability to boost both productivity and profitability of this particular industry through significant

innovation. Since that point there had been various iterations of a business plan none of which – in the view of the panel – fully captured the original innovative proposal or really addressed how the proposal could be delivered.

Both MPI staff and IAP members met with the co-investors over this period to provide feedback, to assist their further development of a robust plan. It would be fair to say that during this time there was considerable frustration on the part of the co-investors. However, in presenting the revised business plan to us in March this year, the co-investors acknowledged that they were not ready to go 12 months earlier—they've said that the mere fact of having to grapple with the "how" to deliver on the idea they proposed had moved the industry forward enormously, and the collaboration across the supply chain has never been stronger.

The panel and I believe that such an outcome is in fact one of the spill over benefits of the PGP programme as a whole, and I encourage other potential co-investors to consider this in their thoughts around submitting a proposal.

The panel meets again at the beginning of April where we will be discussing both a number of matters around ensuring our processes are as efficient and robust as required, as well as continuing our monitoring of our ongoing programmes.

Joanna Perry



Programme Spotlight

Dairy goes digging for answers

Pizza just wouldn't be the same without melted mozzarella oozing over the top and stretching when you take a bite. But, what makes the cheese melt and stretch, and how does the structure of the cheese affect this?

Dairy co-operative Fonterra is on a mission to get the answers to these questions – down to the molecular level, as part of a project funded through the Transforming the Dairy Value Chain Primary Growth Partnership (PGP) programme. The plan is to use the learnings to help develop new cheese-making processes that provide further advantages for customers.

Farming industry body DairyNZ is leading projects addressing some key on-farm questions too, as part of the PGP programme, like why ryegrasses are not persisting in pastures and how to minimise farmer fatigue and stress.



Dairy goes digging for answers continued

Innovation for a strong future

The dairy industry is well-established as a powerhouse in the New Zealand economy. It has to keep innovating, increasing its knowledge base and developing future talent so it will continue to be competitive in international markets, provide jobs and opportunities in New Zealand, and grow sustainably.

Overall, the Dairy PGP programme is building resilience along the value chain to provide a strong platform for the future.

The seven-year, \$170 million programme addresses a wide range of challenges and opportunities, from assessing new farm automation technologies to managing dairy effluent; from developing ultraheat-treated whipping creams to coming up with a method for detecting adulteration of milk.

The PGP programme is enabling the dairy industry to tackle riskier projects and to go after bigger challenges earlier than would be possible through business-as-usual funding.



Food structure design

The Mozzarella investigation is part of the food structure design workstream, and it's a good example of how the PGP projects will stand the industry in good stead for the future. Already, good progress has been made in developing advanced processes for manufacturing natural cheese that is ready for consumption immediately after it's made, instead of waiting several weeks for it to mature.

This work is being driven as a partnership between experts at the Fonterra Research and Development Centre, and a new research team, led by Professor Peter Munro in the newly established role of Fonterra Chair of Food Material Science. The capability includes five post-doctoral Research Fellows, two Research Officer, seven PhD scholarships, three Masters studentships, two student internships and a visiting researcher. They are blending food science, technology and engineering with the traditionally non-food discipline of materials science. Recently an expert panel, with members from Switzerland, United States, Australia and New Zealand, reviewed the food structure programme and gave a strong endorsement of the work.

Interestingly, kiwifruit company ZESPRI is involved in this work, because food structure is as important to the consumer's sensory experience of kiwifruit as when they eat a dairy product, and there are strong synergies in the tools and techniques that can be used to measure and model structure for both products.

Similarly, capability is being built for the other two themes that Fonterra is leading and promising results are starting to come through. These include a first-generation system to detect and deter the industrial chemical adulteration of milk, which is undergoing commercial evaluation.

Five themes

The Transforming the Dairy Value Chain PGP programme is being led by DairyNZ and Fonterra. It features contributions by dairy company Synlait, Livestock Improvement Corporation (LIC), New Zealand Young Farmers, training organisation Agricultural Services Ltd, corporate farmer Landcorp Farming and kiwifruit company ZESPRI.

There are five programme themes, the first two being pre-farm gate focused and the remainder post-farm gate focused:

1. On-farm innovation and research
– led by DairyNZ
2. Building capability for a sustainable future
– led by DairyNZ
3. World leadership in food structure design
– led by Fonterra
4. World leadership in processing and food quality management – led by Fonterra
5. Robust human nutrition and health benefits
– led by Fonterra

Research is also being undertaken to get a better understanding of dairy for human nutrition, including investigating the digestibility of dairy protein and its quality for human diets.

Helping farmers grow

DairyNZ, too, is investigating some of the fundamentals of dairy production to build resilience into New Zealand farming systems, through the two pre-farm gate themes in the programme.

One project is investigating persistence of ryegrass – a mainstay of dairy cattle feed in New Zealand. Farmers have been saying

Dairy goes digging for answers continued

for some time they are frustrated about poor pasture persistence. Sometimes the cause is obvious, like a major pest strike or a serious drought, but often the yield decline is more gradual – and it's costly. At the moment there is not enough evidence to show what's going on – highlighting a significant knowledge gap.

The PGP project comprises a survey of ryegrass in existing dairy farm pastures, a new laboratory collection of ryegrass plants, trials to show how ryegrass plants respond to stress, and genetic testing. The results will also be used to help develop a breeding-worth type of scale for persistence that will be used in the new DairyNZ Forage Value Index. Early research results are already being passed to plant breeders and are helping farmers with their pasture management.

Supporting sustainable growth

Technology transfer to help dairy farmers manage production within environmental limits is another PGP programme focus. The Train the Trainer project is working with rural professionals to achieve a step change in the way knowledge and technology is delivered to farmers.

One project has developed training, certification and monitoring systems for nutrient management to ensure high-standard and nationally consistent advice is being provided to farmers.

Similarly, another project has been working to ensure all dairy farms have a fit-for-purpose effluent system and an effective effluent management plan. This includes arranging accreditation for designers of effluent collection and storage facilities and systems to apply effluent to land, and a warrant of fitness scheme for technicians auditing dairy farm effluent systems.

The Upper Waikato is a large catchment with around 700 dairy farmers, and a project co-funded by DairyNZ and the Waikato River Authority is applying outcomes from the PGP programme there. Advisors are using skills and information developed through the PGP project to help each farmer in the catchment develop a Sustainable Milk Plan. This outlines actions that will improve the farm's environmental performance.

Farmer wellbeing and better business

On the social side, an interesting method called Developmental Work Research, developed in Finland, is being used to find out the underlying causes of dairy farmer fatigue and stress. The research team is helping dairy farmers organise their own thoughts about what's happening and then working with them to come up with solutions. This work is most advanced in Canterbury, where it's now in the third phase and trialling a possible solution.



The Canterbury participants identified that there has been an increasing divergence between the goals of dairy farm employers and their workers, and they have developed a model of fairness and caring called "Decent Dairying".

Farm business structures, too, are the focus of PGP projects, such as one that's developing a range of resources to guide governance and supervisory management of large herd businesses, and promoting them through networks, new courses and workshops.

The Transforming the Dairy Value Chain PGP programme leaders are confident that the combined result of all of the work will be an industry that will be significantly better placed to grow sustainably and continue to provide high-quality dairy foods for the world.

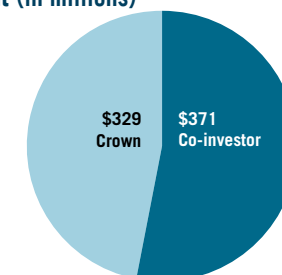


Overview of Primary Growth Partnership Investment

For 17 Announced Programmes as at 28 February 2014

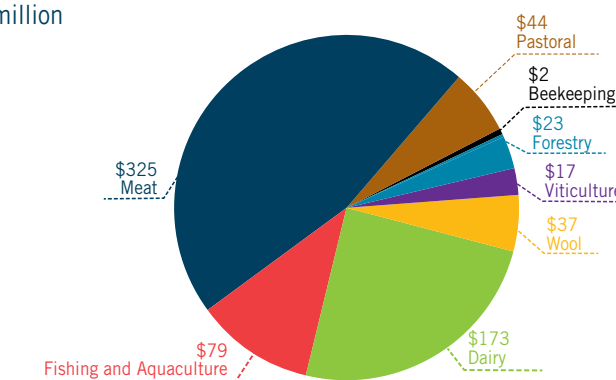
Sector	Programme Name and Co-investor	Total investment \$ million	Sector total \$ million	Estimated benefits \$ billion
Wool	NZ Merino	37	37	0.25
	NZ Sheep Industry Transformation			
Dairy	Transforming the Dairy Value Chain	170		2.7
	Dairy NZ/Fonterra			
	New Dairy Products and Value Chains	3	173	0.0086
	Whai Hua Limited Partnership			
Fishing & Aquaculture	Shellfish – The Next Generation	26		0.081
	Shellfish Production and Technology NZ (SPATnz)			
	Precision Seafood Harvesting	53	79	0.0436
	Precision Seafood Harvesting (PSH)			
Meat	FoodPlus – Redefining Meat Horizons	87		0.63
	ANZCO			
	Marbled Grass-fed Beef	23		0.08
	Grass-fed Wagyu Ltd			
	Red Meat Profit Partnership	64		0.194
	Red Meat Profit Partnership (RMPP)			
	Integrated Value Chain for Red Meat	151	325	1.1
	FarmIQ			
Pastoral	A New Vision for Pastoral Agriculture	15		0.2
	PGG Wrightson Seeds			
	ClearView Innovations	20		0.348
	Ballance AgriNutrients			
	Precision Application of Fertiliser in Hill Country	10	44	0.12
	Ravensdown Fertiliser Co-op Ltd			
BeeKeeping	High Performance Manuka Plantations	2	2	0.925
	Manuka Research Partnership (NZ) Ltd (MRPL)			
Forestry	Innovative Steep-land Tree Harvesting	7		0.1
	Future Forests Research (FFR)			
	Use of Fumigants for Log and Wood Product Exports	3		–
	Stakeholders in Methyl Bromide Reduction (STIMBR)			
	From Stump to Pump Phase 1 (feasibility study)	14	23	–
	Norske Skog Tasman Ltd (NSTL)/Z Energy			
Viticulture	Lifestyle Wines New Zealand Winegrowers	17	17	0.29
Total			700	7.07

Crown/co-investor investment (in millions)



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

Total \$700 million



Total benefits by sector (in billions) per annum by 2025

Total \$7 billion

