Ministry for Primary Industries
Manatū Ahu Matua

Primary Growth Partnership

Smart ideas, smart action, smart results

November 2017

GROWING AND PROTECTING

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Front cover photo of the flying sheep courtesy of the Red Meat Profit Partnership.

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Contents

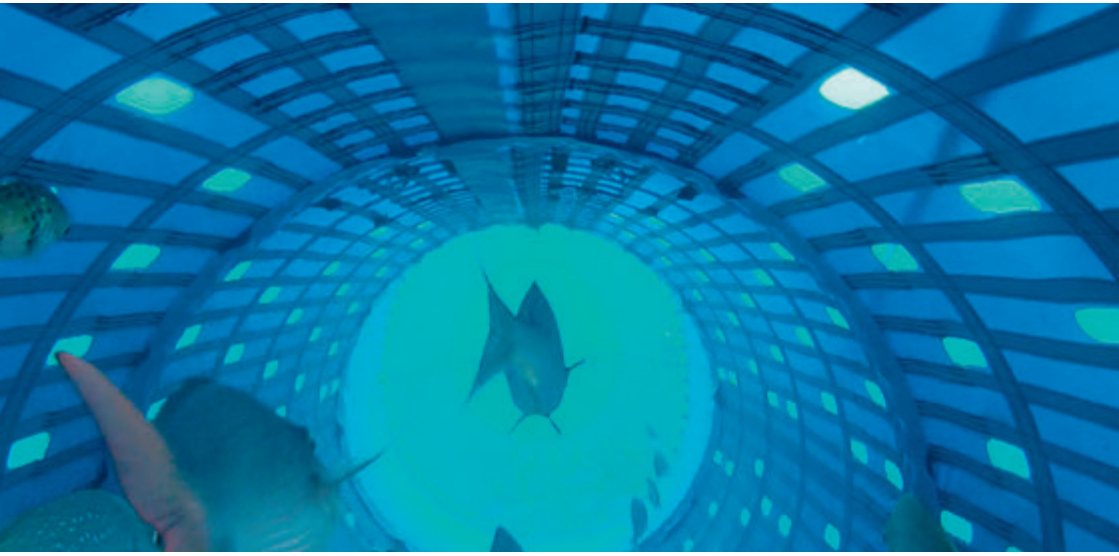
Business-led, market-driven primary industry innovation

The primary industries are the engine room of New Zealand's economy, contributing more than $38 billion to our exports annually. Innovation is the key to growing this contribution and ensuring our food and fibre industries are sustainable in the long term.

The Primary Growth Partnership (PGP) is the Ministry for Primary Industries' (MPI's) flagship investment programme. It enables partnerships between MPI and New Zealand's food, beverage, fibre, agri-tech and other primary industries. The aim is growing New Zealand through boosting value, productivity, profitability and sustainability across our primary industries.

Investing in PGP programmes provides the opportunity for the primary industries to carry out ambitious, and often high risk, innovation programmes that will deliver significant long-term growth. The investment and risk would be too high for an organisation to bear on its own. Due to the partnership aspect and involvement by both MPI and industry, there's a greater opportunity for success.

PGP programmes continue to deliver real and tangible benefits for New Zealand's primary industries.



The revolutionary new net developed by the Precision Seafood Harvesting Primary Growth Partnership programme that lets fishers catch the fish they want, and return the ones they don't with a much greater chance of surviving.

Economic Growth

More than 60 organisations are involved across the PGP programme portfolio, and everyone involved with the PGP is committed to New Zealand's long-term, sustainable prosperity.

MPI and industry have to date committed more than $750 million over the life of the over 20 PGP programmes currently in the portfolio. This is in addition to a significant amount of time, expertise, knowledge and effort.

PGP programmes span New Zealand's food, beverage, fibre, agri-tech and other primary industries. The PGP is accelerating change and the combined, collaborative effort is making a difference to our economy.

The PGP is independently estimated to contribute around $6.4 billion to New Zealand's GDP from 2025. This represents an estimated 32:1 return on government's investment.

Cutting-edge innovation

PGP programmes must push the envelope in terms of innovation, rather than simply improving what New Zealand organisations already do. They must stretch thinking and look for newer and better ways of achieving outcomes for the environment, the economy and society.

PGP programmes are delivering value-added products and services, cutting-edge science, research and development, and new technology. What's more, they're building capacity, capability and resilience throughout the primary industries; they're helping to protect our environment; they're creating jobs; and they're keeping people safe.

Governance and monitoring

MPI manages and oversees the PGP with advice and guidance provided by an independent Investment Advisory Panel (IAP), made up of primary industry and business experts.

The PGP has strong governance processes in place to give confidence and assurance in PGP investment and ensure programmes have the best possible opportunity for success. For example, each PGP programme is governed by a Programme Steering Group, which includes at least two MPI representatives, and most have an independent chairperson. Reporting, independent reviews and other measures also contribute to strong governance for PGP programmes and the PGP as a whole.

Application process

The PGP process is designed to encourage new ideas from industry, and specifically from businesses. You can submit new PGP programme proposals at any time.

Industry co-investors must contribute at least 60 percent of the investment, with MPI contributing 40 percent[1].

The minimum amount that industry co-investors need to contribute is $500,000 (excluding GST) over the life of the programme (up to seven years). This means that the total value of a programme must be at least $833,333 over the life of the programme (i.e. a minimum of $500,000 from the industry and $333,333 from MPI).

When applying for investment, please tell us:

- Your story
- Your vision
- The opportunity you're targeting, or the challenges you're trying to overcome for your industry
- Your plan to achieve this
- Who and which parts of the value chain will play a role
- How your programme will benefit New Zealand
- Compelling reasons why government should invest.

[1]PGP programmes approved before 1 December 2015 were eligible for up to 50 percent MPI funding.

A proposal for a new PGP programme is assessed by MPI and the IAP. If it meets the criteria for investment, you'll then need to develop a business case.

MPI's decision to co-invest in a new PGP programme is based on our assessment of the business case and advice from the IAP.

Before drafting a proposal, we encourage you to contact us to discuss your proposal and whether it's likely to be eligible for PGP investment. Our team can provide feedback and guidance on proposals prior to submission to the IAP.

Get in touch

If you have good, workable ideas that will address a specific primary industry challenge or opportunity, or if PGP investment will achieve greater benefits within shorter timeframes than would have otherwise been possible, email **pgp@mpi.govt.nz**.

More information

For more information about the PGP, visit MPI's website at **www.mpi.govt.nz/pgp** or scan the QR code.

CLEARVIEW INNOVATIONS

Adding nitrogen and phosphate to pasture is a vital part of maintaining the productivity and competitiveness of New Zealand farming systems. The cost to farmers of applying these nutrients is a significant part of their annual budget and these costs are increasing. Leaching (or run-off) of nitrogen (N) and phosphorus (P) from farms has the potential to enter waterways.

This PGP programme is developing a range of products and services to improve nitrogen and phosphorous use and efficiency on farms to improve productivity and reduce losses of nutrients into waterways. It will help farmers adopt these new products and services through a best-practice extension programme, which aims to improve on-farm management and reduce environmental footprints while increasing efficiency. There will also be improvements in water quality in intensively farmed areas.

Examples of achievements

- N-Guru™ is a decision support model that more accurately predicts pasture responses to nitrogen. Backed by extensive research, N-Guru™ has been designed in conjunction with AgResearch to improve the efficiency of nitrogen use on New Zealand pastoral farms.
- SpreadSmart™ is technology installed into topdressing planes allowing pilots to focus on flying the aircraft while ensuring the fertiliser is applied at the optimum rate, in the right place – avoiding environmentally sensitive areas – and improving returns to farmers. SpreadSmart™ is now commercially available to North Island farmers through Ballance's aerial top dressing business Super Air.
- MitAgator™ develops risks maps for individual farms that identify areas where loss of phosphorous, nitrogen, and sediment and bacterial contaminants are more likely to occur. This tool can be used to assess and prioritise mitigation actions tailored to the individual's situation. MitAgator™ is in the build phase and is expected to be available commercially in 2018.

KEY FACTS:

Programme start: October 2011

Length: 7 years

PGP funding: $9.75 million

Industry funding: $9.75 million

Commercial partner: Ballance Agri-Nutrients Ltd

Estimated potential economic benefits to NZ:
The latest independent projections estimate the programme will deliver $55 million per annum in economic benefits by 2025

FOODPLUS

Currently, a significant proportion of the red meat carcases are used for lower value products. This means that the New Zealand industry, from farmers to meat companies, is confined to commodity products which are not sustainable in the long-term.

This PGP programme is generating more value from the red meat carcase by developing new and innovative uses for different parts of the animal focusing on food (for example, adding functionality and value to raw food materials); ingredients (for example, stock, broths and protein supplements); and health care products (for example, developing medical and surgical products from low value parts of animal carcases).

Examples of achievements

- FoodPlus has enabled a transformational shift for ANZCO Foods Ltd, implementing a consumer-centric approach with greater structure to intelligence and new product development.
- To the end of June 2017, the FoodPlus programme had commercialised 22 new products, from broths and slow cooked food products through to food ingredients and bio-tissues.
- This programme has enabled the creation of twelve new jobs following the recent introduction of a plant at Taranaki Bio Extracts (TBE). The new plant and associated products are creating exciting opportunities and enabling TBE to attract people to Taranaki from outside the region.

KEY FACTS:

Programme start: November 2012

Length: 7 years

PGP funding: $29.10 million

Industry funding: $29.10 million

Commercial partner: ANZCO Foods Ltd

Estimated potential economic benefits to NZ: Approximately $200 million increase in GDP per annum by 2025

HIGH PERFORMANCE MĀNUKA PLANTATIONS

Demand for mānuka honey and products is continuing to grow, however, the local industry is constrained by supply issues, including the unpredictability of honey yield and quality across growing regions, mānuka blocks and seasons.

This PGP programme focuses on moving mānuka honey production for medical use from wild harvest to science-based farming of mānuka plantations. Combining improved genetics with optimum husbandry practices could enable significant productivity gains for New Zealand's mānuka honey industry.

Examples of achievements

- Mānuka Farming New Zealand (the commercial arm of Mānuka Research Partnership (NZ) Limited (MRPL)) is providing a commercial consultancy to land owners wishing to plant mānuka for medical grade honey which includes expertise from beekeepers and forestry and financial experts.
- An eco-sourcing service is being developed and trialled by Mānuka Farming New Zealand to complement the existing high performing mānuka cultivar range.
- A decision support tool for plantation mānuka has been developed and is being tested.
- Based on learnings from 400 hectares of trial plantations across 14 sites, the programme has provided information and know-how on matching of mānuka plants to site, establishing mānuka plantations, weed and pest control, and producing nectar with significantly higher levels of anti-bacterial potential than wild local mānuka.
- Good progress is being made in optimising apiary management for mānuka plantations to achieve good yields and quality for medical-grade mānuka honey.

KEY FACTS:

Programme start: March 2011

Length: 7 years

PGP funding: $1.40 million

Industry funding: $1.58 million

Commercial partner: Mānuka Research Partnership (NZ) Limited (MRPL)

Estimated potential economic benefits to NZ: Lifting the mānuka honey industry by an additional $1.125 billion per year by 2028

LIGHTER WINES (formerly Lifestyle wines)

This programme aims to service the rapidly growing market for lower calorie and lower alcohol wines with high quality, naturally-produced options.

This PGP programme is the largest research and development effort ever undertaken by New Zealand's wine industry. It is designed to position New Zealand as number one in the world for high quality, lower alcohol and lower calorie wines. It will use natural and sustainable viticultural techniques and native yeasts unique to New Zealand, giving New Zealand wineries a point of difference to existing processing methods and other products on the market.

Examples of achievements

- Vineyard, winery and sensory research has supported an improvement in the quality of lighter wines being developed by the wineries involved in the programme. This has led to a number of these wines receiving medals at awards, with some awarded in open categories against full-strength wines.
- Market research and monitoring of export markets continues to show significant and growing consumer demand for lighter wines in a number of markets.

KEY FACTS:

Programme start: March 2014

Length: 7 years

PGP funding: $8.13 million

Industry funding: $8.84 million

Commercial partner: NZ Winegrowers and 18 contributing wineries

Estimated potential economic benefits to NZ: $285 million per annum by the end of 2023

MARBLED GRASS-FED BEEF

Much of New Zealand's beef is lean and destined for use in burgers and small goods. Internationally, high-quality beef is predominantly produced from cattle housed in feedlots and fed corn and other grains. Consumer demand provides an opportunity for grass-fed, free-range, high-quality beef to be positioned in niche markets.

This PGP programme is identifying the best genetics for creating high-value, premium-priced marbled grass-fed beef. It is developing an integrated value chain for high-value, marbled beef that is internationally recognised for its superior eating qualities. New Zealand beef will become prized globally as a high-quality, "centre of the plate" meat, much like the position New Zealand lamb already commands.

Examples of achievements

- More than 300 farmers are now involved in the First Light Wagyu programme, including dairy farmers, calf rearers, growers and finishers.
- The supply of Wagyu calves from the beef and dairy industries continue to grow, with dairy x Wagyu calves expected to make up over 80 percent of calves born in 2017. Animals are achieving good marbling results on a grass-fed system with year-round supply of animals for processing.
- The on-farm and market development work is delivering calf and price premiums to farmers, with sustained premiums achieved over the prime beef schedule.
- In November 2016, First Light launched its retail range into New Zealand supermarkets and demand continues to be strong in the local market.

KEY FACTS:

Programme start: August 2012

Length: 7 years

PGP funding: $11.05 million

Industry funding: $12.30 million

Commercial partners: Firstlight Foods Ltd, Brownrigg Agriculture Group Ltd

Estimated potential economic benefits to NZ: $95 million per year by 2025

NEW ZEALAND AVOCADOS GO GLOBAL

The avocado industry's biggest challenge is low and irregular bearing of fruit. This programme's vision is to equip the avocado industry with the tools to triple productivity to 12 tonnes per hectare and quadruple industry returns to $280 million by 2023. Another challenge is New Zealand's reliance on a single export market – Australia.

This PGP programme aims to transform New Zealand's avocado industry into an efficient, well-informed, and highly capable industry, supplying premium health food to a number of high-value markets domestically and internationally. It will deliver best practice across the value chain, transferred through a network of innovation leaders, rural professionals and growers to achieve widespread adoption, driven by examples of success.

Examples of achievements

- In 2016/17 New Zealand's avocado industry achieved its best season ever, reaching a record breaking industry value of over $200 million from 7.9 million trays – well on track to delivering the programme's 2023 targets. Industry yields are the highest on record with industry Orchard Gate Returns also increasing by 60 percent compared to the previous season.
- New Zealand's avocado industry has an increasing number of high-performing orchards with surveys showing that 70 percent of growers have changed orchard practises over the past two years as a result of new information. These practice changes are based on industry 'best practice' and new research being shared in systematic ways. The national average yield has increased accordingly by 55 percent since the programme started.

KEY FACTS:

Programme start: June 2014

Length: 5 years

PGP funding: $4.28 million

Industry funding: $4.28 million

Commercial partner: Avocado Industry Council

Estimated potential economic benefits to NZ: Equipping the industry with the tools to triple productivity to 12 tonnes per hectare and quadruple industry returns to $280 million per annum by 2023

PASSION2PROFIT

New Zealand's venison industry very much relies on markets where demand is seasonal, and not in sync with our venison supply. On farm, there is a need to integrate new technologies and processes into farming practices to improve productivity and better respond to market demands.

This PGP programme brings together producers, processors and marketers – who together represent 95 percent of the industry. It is growing and capturing the full value available to New Zealand, by working to position New Zealand venison as a premium non-seasonal meat in new markets. Participants will also help producers deliver what consumers demand, and when they want it, by adopting new systems and technologies.

Examples of achievements

- Trials in non-seasonal markets are improving the alignment of the production of New Zealand venison with consumer demand to increase the volume of chilled product sold. This is delivering premiums of approximately $3,000 per tonne over frozen product.
- A single standard for farm quality assurance for deer farming, which has been integrated into the Red Meat Profit Partnership Farm Assurance Programme, was implemented and is a requirement to supply deer for the Cervena™ programme.
- A number of practice change initiatives being undertaken are supporting and enabling improvements on-farm to increase productivity, profitability, animal welfare and environmental stewardship.

KEY FACTS:

Programme start: June 2015

Length: 7 years

PGP funding: $7.39 million

Industry funding: $7.99 million

Commercial partners: Deer Industry New Zealand, New Zealand Deer Farmers Association, Alliance Group, Duncan New Zealand Ltd, Firstlight Foods, Mountain River Venison and Silver Fern Farms

Estimated potential economic benefits to NZ:
The programme aims to deliver economic benefits of up to $56 million a year in additional industry revenue by 2022

PIONEERING TO PRECISION

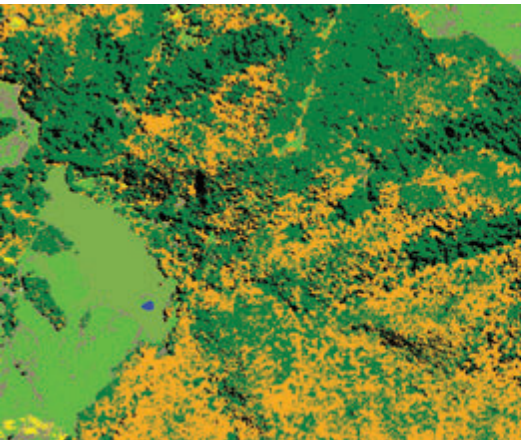
Currently, fertiliser is applied to hill country farms using top dressing aircraft which broadcast the fertiliser in blanket applications over farm land, assuming the nutrient status of the land is relatively uniform. This results in over-fertilising and wastage in some areas, and under-fertilising and poor growth in others.

This PGP programme aims to improve the productivity of hill country sheep and beef farming through more efficient use of fertiliser.

It will develop technology to 'remote sense' the nutrient status of the land using aircraft-mounted sensors to determine where nutrients should be targeted. This will enable GPS-guided aircraft to deliver fertiliser to targeted areas of the farm. The technology will also enable farmers to minimise the discharge of nutrients into water ways and other sensitive areas.

Examples of achievements

- The programme has assembled the most comprehensive soil and plant tissue dataset collected in New Zealand – 8,052 soil and 7,280 plant tissue samples.
- An independent technical review of the programme carried out in 2017 by international experts concluded there was great potential to increase the profitability of New Zealand hill farms through the development of robust remote sensing algorithms to predict soil fertility.
- An independent 2017 review of programme management and governance concluded that the programme 'is well managed and effectively governed, and appears on target to deliver its intended outcomes'.



KEY FACTS:

Programme start: October 2013

Length: 7 years

PGP funding: $5.18 million

Industry funding: $5.18 million

Commercial partner: Ravensdown Fertiliser Co-op Ltd

Estimated potential economic benefits to NZ:
Additional export earnings of $120 million per annum by 2030 and a net economic contribution of $734 million to New Zealand's economy from 2020 to 2050

PRECISION SEAFOOD HARVESTING

Traditional fishing nets catch a wide variety of fish sizes and species, meaning a catch can include high proportions of undesired fish or undersized fish, which can't be processed. Fish are also damaged in the process of being caught and loaded onto the deck.

This PGP programme is developing a new fishing method, the Modular Harvesting System (MHS), along with new on-board handling methods. These will assist fishing vessels to target specific species and sizes of fish, and will land fish in much better condition than traditional trawls.

Examples of achievements

- The programme has concluded both deepwater and inshore validation trials for selectivity.
- New handling systems for sorting and grading inshore species are being fabricated for installation on a growing list of inshore vessels.
- The programme has successfully transitioned New Zealand MHS manufacturing to commercial manufacture.
- In 2016 the programme launched the Tiaki brand for the new category of fish caught using the MHS technology to differentiate the high quality, high value fish caught using PSH from fish caught through existing trawls.
- This programme has won a number of awards, including the Supreme Award and the Innovation in Sustainability & Clean-tech Award at the 2014 New Zealand Innovators Awards.

KEY FACTS:

Programme start: April 2012

Length: 7 years

PGP funding: $24.02 million

Industry funding: $24.02 million

Commercial partners: Moana New Zealand, Sanford and the Sealord Group

Estimated potential economic benefits to NZ: $43.6 million per annum by 2025

RED MEAT PROFIT PARTNERSHIP (RMPP)

The red meat sector is generally dominated by price, rather than productivity, and farm profitability has suffered. Some farmers are doing very well but most are not. Despite considerable research and development, opportunities for significant innovation-driven productivity gains are being lost.

The RMPP is increasing productivity and farm profits by implementing an evidence-based, farmer-centric extension model (Action Network) designed to help farmers adopt new management practices and technology. Action Network uses facilitated farm groups supported by advice, expertise and learning.

Examples of achievements

- For the first time, the country has a significant coalition of red meat industry partners working together.
- The Action Network, supported by education and training programmes and IT-based data systems, knowledge and tools, is underway. It is a core part of the programme to lift on-farm productivity and profitability.
- The online Knowledge Hub, which is now operational, will support farmer adoption of new knowledge and technology.
- Primary and Secondary education programmes to encourage more young people to take up careers in the industry, and training for farmers and rural women, are reaching and upskilling increasing numbers of people.
- The electronic version of the Animal Status Declaration form (eASD), which is being trialled, is proving to be fast and efficient.
- Twelve companies are due to start using the NZ Farm Assurance Programme (NZFAP) by the end of 2017. NZFAP streamlines farm audits and will eventually ensure all farmers are working to the same baseline standards.

KEY FACTS:

Programme start: November 2013

Length: 7 years

PGP funding: $32.15 million

Industry funding: $32.15 million

Commercial partners: Alliance Group, ANZ Bank, ANZCO, Beef + Lamb New Zealand, Blue Sky Meats, Greenlea Premier Meats, Progressive Meats, Rabobank, and Silver Fern Farms.

Estimated potential economic benefits to NZ:
By 2025, red meat farming will be earning up to $880 million per annum more revenue and $194 million per annum additional on-farm profit, before tax

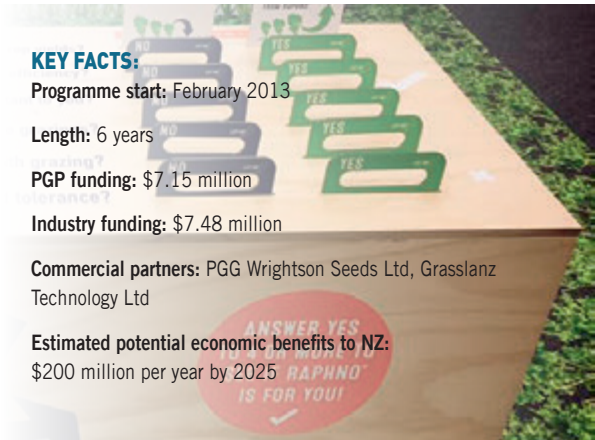
SEED AND NUTRITIONAL TECHNOLOGY DEVELOPMENT

Future farming systems require forages that can meet the nutritional requirements of high-performing animals. They also require technologies that can mitigate the environmental impacts often associated with highly productive farming systems.

This PGP programme is developing technologies to improve pasture performance, reduce the impact of pests and diseases, overcome animal health disorders and reduce greenhouse gas emissions and losses from drought stress. Farmers can expect technologies that provide improved productivity and profitability across all New Zealand regions and farming systems where pasture renewal occurs.

Examples of achievements

- Five products are in development and getting close to commercialisation. Two of these, Palaton and Firefly, are expected to be commercially released in 2018.
- Palaton, a hybrid brassica, has demonstrated improved water use efficiency, pest and disease resistance, and increased yield that will deliver economic and environmental benefits.
- Firefly, a herbicide tolerant kale, has demonstrated increased yield that will increase animal productivity.



KEY FACTS:

Programme start: February 2013

Length: 6 years

PGP funding: $7.15 million

Industry funding: $7.48 million

Commercial partners: PGG Wrightson Seeds Ltd, Grasslanz Technology Ltd

Estimated potential economic benefits to NZ: $200 million per year by 2025

SHEEP – HORIZON THREE

New Zealand is a country that is famous for its quality sheep farming and dairy expertise yet we have not fully taken advantage of the potential opportunity in high-value sheep dairy.

This PGP programme aims to build a high value, sustainable New Zealand sheep dairy industry that's fully market-led. To achieve this, the programme is undertaking market research to determine which market segments have the greatest potential for New Zealand sheep milk, and is developing the high value products to meet this demand.

The programme is also enabling the scaling up of supply through an innovative fit-for-purpose New Zealand sheep milk farming system. This will be suited to high performance imported genetics. It will also be commercially viable, environmentally sustainable, and replicable by other New Zealand farmers.

Examples of achievements

- The programme has undertaken extensive market insights work across multiple potential markets and categories.
- The programme is developing new product concepts and undertaking trials.
- The programme has set up a nutritional model and testing programme for milking sheep.
- The programme has implemented a breeding improvement programme with the first new lambs born in spring 2017.

KEY FACTS:

Programme start: July 2016

Length: 6 years

PGP funding: $12.56 million

Industry funding: $18.83 million

Commercial partner: Spring Sheep Dairy NZ Limited Partnership

Estimated potential economic benefits to NZ:
The programme's financial goal is $200 million annual gross revenue for New Zealand's sheep dairy industry by 2030. The programme's aspirational target is annual gross revenue of $700 million by 2030

SPATNZ

New Zealand's Greenshell™ mussels enjoy strong demand internationally. However, the industry faces risks and barriers to growth because it relies on wild-caught spat (baby mussels) for its marine farms. Wild spat supply fluctuates and is a finite natural resource.

This programme enables selective breeding of high performing mussels at a commercial hatchery scale and seeks to improve spat retention rates on marine farms. This offers a breakthrough for New Zealand's aquaculture industry, and significant economic and environmental returns.

Examples of achievements

- The SPATNZ hatchery is now moving from pilot to commercial scale production. Robust evidence from large samples growing at 10 marine farms is confirming superior hatchery spat performance compared to wild spat, with an average higher growth rate and more rapid weight gain.
- The programme won the 2017 NZ Innovation Award in the Agribusiness and Environment category. This was recognition that SPATNZ has built a platform of capability that has the potential to move the industry away from a single product, as well as the potential to reduce costs and ultimately support more reliable production and quality.

KEY FACTS:

Programme start: November 2012

Length: 7 years

PGP funding: $13.03 million

Industry funding: $13.03 million

Commercial partner: Sanford Ltd

Estimated potential economic benefits to NZ:
By 2026 the programme could increase GDP by up to $81 million per annum. If the technology developed is adopted throughout the industry, $193 million per annum in additional GDP could be achieved

THE OMEGA LAMB PROJECT

Over the past 20 years, the sheep industry has focused on increasing lamb productivity and yield, selecting animals for lower fat levels. However, reducing fat has had unintended consequences. Lower fat affects the processing, cooking and taste of red meat – much of the flavour of meat comes from fat. Lower sheep fat also affects how well ewes cope in winter and raise their lambs.

This PGP programme will reach existing and emerging markets with a new class of premium lamb products with improved health qualities – including lower levels of saturated fat, and higher levels of polyunsaturated fat and healthy Omega-3 oils. It will enable industry to breed lambs that increase returns for farmers, while meeting the growing demand for premium healthy, tasty food.

Examples of achievements

- In 2017, the first product from the programme, TE MANA LAMB™, was launched in market trials to 17 New Zealand restaurants and 14 Hong Kong restaurants.
- TE MANA LAMB™ is achieving a significant premium to standard New Zealand lamb. Critical acclaim for TE MANA LAMB™ from leading chefs clearly positions it as a "hero" product from the lamb industry.
- A TE MANA LAMB™ dish won the silver medal in the Culinary Olympics in Germany in October 2016.
- The Omega Lamb Project won the Innovation in Food & Beverage award in the 2017 New Zealand Innovation Awards.
- Farm systems targets, resulting in low pH, high intramuscular fat and Omega-3 composition, have been met and 32,000 animals have been produced in 2017. This exceeds the programme's target.

KEY FACTS:

Programme start: July 2015

Length: 7 years

PGP funding: $12.50 million

Industry funding: $12.50 million

Commercial partners: Alliance Group and Headwaters New Zealand

Estimated potential economic benefits to NZ: $400 million NPV (net present value)

TRANSFORMING THE DAIRY VALUE CHAIN (TDVC)

This PGP programme is aimed at transforming the dairy value chain through investing in building capability and knowledge. It is enabling the creation of new dairy products, increasing on-farm productivity, reducing environmental impacts and improving agricultural education.

Examples of achievements

- 12,000 school-aged students have been introduced to primary sector careers.
- 560 rural professionals have been trained and certified in disciplines across the farm.
- 100 percent of dairying regions now have tailored riparian planting guides.
- 97 percent of waterways are now fenced on farms.
- Fonterra's new process for producing mozzarella in hours rather than weeks won a New Zealand Innovation Award, and successfully patented internationally. It has led Fonterra to invest $320 million in a new factory in Clandeboye with 125 permanent new staff members.
- The programme created a culture that recognises the importance of mental health and wellbeing in the dairy sector. It has delivered training to more than 2,000 rural professionals and support workers through the GoodYarn initiative, which received an international award for the Best Mental Health Promotion/Illness Prevention scheme.
- Fonterra has launched infant formula containing a complex lipid ingredient that much more closely matches the lipid components found in breast milk. This product was recognised in the 2016 New Zealand Innovation Awards. It was also a finalist in the 2017 NutraIngredients Awards in the Infant category.

KEY FACTS:

Programme start: April 2011

Length: 7 years

PGP funding: $84.61 million

Industry funding: $85.66 million

Commercial partners: Fonterra, DairyNZ Ltd, Livestock Improvement Corporation (LIC), Synlait Ltd, Zespri Ltd, Landcorp Farming Ltd, Fertiliser Association of New Zealand, Agriculture Services Ltd, New Zealand Federation of Young Farmers Clubs Inc

Estimated potential economic benefits to NZ: $2.7 billion per year by 2020

W³: WOOL UNLEASHED

Strong wool is being sold as a commodity product and the industry has been in steady decline for the past 25 years. This PGP programme aims to deliver premiums for New Zealand's strong wool sector. These premiums will come from applying a customer-led approach to wool production and processing to develop products that align with customer preferences.

This programme will connect farmers with consumers, promote greater collaboration within the strong wool industry, differentiate strong wool products from synthetics, develop new uses for strong wool and ensure that on-farm production practices align with consumer expectations of a premium product.

Examples of achievements

- New insights gathered in existing and potential markets to help drive a tailored approach for product development.
- This programme has developed, in collaboration with other companies, product prototypes for new innovative wool uses e.g. yoga mats.
- The programme has secured contracts with strong wool brands such as Best Wool Carpets, Dixie Group Carpets, Prestige Carpets and Glerup's shoes. These contracts are averaging a 37 percent premium above the current market rate.

KEY FACTS:

Programme start: February 2016

Length: 7 years

PGP funding: $11.05 million

Industry funding: $11.05 million

Commercial partner: The New Zealand Merino Company Ltd

Estimated potential economic benefits to NZ:
Cumulative economic benefits for New Zealand's economy of up to $335 million by 2025

COMPLETED PROGRAMME

FARM[IQ]

Completed programme

Farm[IQ] aimed to create a demand-driven, integrated value chain for red meat that could grow the sector by 50 percent by 2025. The programme consisted of a suite of projects throughout the value chain, from on-farm production systems and genetics, to processing and analysis of market requirements.

Examples of achievements

- The red meat industry now has one of the most integrated farm management systems available through the Farm[IQ] software, which now supports around 13 percent of the industry.
- Over $3.5 million premiums paid back to farmers supplying Silver Fern Farms for the value-add range developed by the programme.
- Genetic increases as a result of the programme will not only significantly increase productivity across the national sheep flock, but it will also maintain the current high eating quality achieved and assist towards greenhouse gas research.
- Programme partner Silver Fern Farms has achieved premium value-add sales of $68 million for the 12 months ending June 2017, which is built on several years of double-digit growth as a result of the marketing work undertaken through the Farm[IQ] programme. Over the course of the programme, 126 new value-add products were developed.
- The Farm[IQ] software developed by the programme now supports more than 5.9 million stock units being run on 1.4m effective hectares. Across the 'IQ Farms' contracted to the programme, productivity and profitability gains have been made including a 5 percent increase in Economic Farm Surplus (operating profit).
- Farm[IQ]'s software development capability was called on to help run a pilot for the Sri Lankan Government, which not only assisted with trade relations but also demonstrated the adaptability of the Farm[IQ] software platform.

KEY FACTS:

Programme start: November 2010

Programme completed: June 2017

PGP funding: $59.34 million*

Industry funding: $91.39 million*

Commercial partners: Silver Fern Farms,Landcorp and Tru-Test Ltd

Estimated potential economic benefits to NZ: $593 million per year by 2025

*The final programme cost and PGP investment were still being compiled at the date of publishing of this booklet

STEEPLAND HARVESTING

Completed programme

Both the New Zealand forestry sector and the Ministry for Primary Industries identified steep country harvesting as a key bottleneck to achieving greater profitability in forestry, with worker safety also being an issue.

This PGP programme aimed to ensure that harvesting operations on steep terrain kept pace with New Zealand's increasing forest harvest by developing innovative forestry technology to keep forest industry workers out of harm's way, while increasing productivity and lowering production costs.

Examples of achievements

- Seven new harvesting products have been commercialised, including the ClimbMax harvester, a winch-assisted machine which can operate safely on steep slopes, and innovative tele-operated systems for operating machines remotely from an operator console, providing safer working conditions and potential for extended working hours.
- A further three prototype products have been developed, including a robotic tree-to-tree felling machine which doesn't touch the ground.
- The programme has been a catalyst for further innovation in mechanised harvesting systems across the forest industry. Since 2012 more than $80 million has been invested by industry in new harvesters, winch-assist machinery, grapples, cameras and other equipment designed to enable safe work in tree felling and extraction.
- Approximately 165 workers have been removed from hazardous roles of tree felling and breaking out.
- Cable harvesting costs have reduced by $6.18 per m^3 (17 percent).
- Some technology developed by this programme is being exported.

KEY FACTS:

Programme start: November 2010

Programme completed: June 2017

PGP funding: $3.68 million

Industry funding: $3.92 million

Commercial partner: Forest Growers Research Ltd

Estimated potential economic benefits to NZ: $113.1 million per year by 2019

COMPLETED PROGRAMME

STIMBR–STAKEHOLDERS IN METHYL BROMIDE REDUCTION

Completed programme

This programme explored sustainable and effective alternatives for methyl bromide, an ozone depleting fumigant for logs and other primary sector imports and exports.

Examples of achievements

- Among its achievements, the programme implemented a nationwide monitoring protocol and methyl bromide reporting system to report annual methyl bromide use.
- The programme developed possible methyl bromide recapture/recycling technology that is a candidate for commercial development.
- The programme developed a proof of concept for Joule Heating technology as a possible niche phytosanitary treatment for high value logs.
- The programme allowed the industry to maintain good momentum in seeking alternative treatments for methyl bromide and the development of technology to reduce emissions.

KEY FACTS:

Programme start: September 2011

Programme completed: June 2014

Length: 2 3/4 years

PGP funding: $1.19 million

Industry funding paid: $1.46 million

Commercial partner: Stakeholders in Methyl Bromide Reduction Inc

STUMP TO PUMP

Completed programme

A completed programme that assessed the feasibility of generating more value from forestry waste by converting it to liquid biofuels.

Programme finding:

- This programme concluded that a biofuels business in New Zealand from forestry waste remained sound over the longer term, however, it identified that more work by the industry partners and stronger market signals were required to further de-risk the significant capital investments required.
- The industry partners undertook to confirm the commercial viability of producing biofuels from forestry waste and ensure products meet the required specifications, with a potential opportunity to progress towards plant development and, ultimately, commercialisation.

KEY FACTS:

Programme start: July 2013

Programme completed: September 2014

Length: 14 months

PGP funding paid: $1.81 million

Industry funding paid: $1.81 million

Commercial partner: Norske Skog Tasman Ltd and Z Energy Ltd

COMPLETED PROGRAMME

THE NEW ZEALAND SHEEP INDUSTRY TRANSFORMATION PROJECT (NZSTX)

Completed programme

This PGP programme aimed to increase production of market-driven sheep, shifting the balance between New Zealand strong and fine wool production, and using product differentiation to generate better grower returns for fibre, meat and other products. It also improved genetic, animal health and forage outcomes.

Examples of achievements

- NZSTX created new and expanded market opportunities for fine and mid-micron wool growers based on branded contracts. For example, New Zealand Merino and Reda Successori released a $45 million, 5-year, 2,500 tonne contract for 15.8-19.2 micron fibre. Superfine New Zealand Merino wool woven by Reda is used in the production of the Allbirds wool shoes.
- SILERE, a differentiated brand of Merino meat was commercialised in a joint venture, initially with Silver Fern Farms and with the Alliance Group.
- The Southern Cross nucleus breeding flock was established with the objective of developing a new fine-wool sheep genotype (with improved carcass, reproduction and animal health attributes). In early trials in the North Island, lambs from Southern Cross rams have outperformed traditional strong wool breeds in terms of grower returns.
- NZSTX has developed tools to help farmers address barriers to the production of fine and mid-micron wool. For example, the FeetFirst project has successfully developed a genomic breeding value (gBV) for predicting resistance to footrot in fine-wool sheep. This is a world-first and creates a great platform from which the New Zealand fine-wool sheep industry can create a footrot-resistant future. Footrot is estimated to cost New Zealand's fine wool sector up to $10 million each in year lost productivity and treatment.

KEY FACTS:

Programme start: September 2010

Programme completed: June 2017

PGP funding: $16.77 million*

Industry funding: $16.77 million*

Commercial partner: The New Zealand Merino Company Ltd

Estimated potential economic benefits to NZ:
At least $250 million a year in economic benefits by 2025.

*The final programme cost and PGP investment were still being compiled at the date of publishing of this annual report.

WHAI HUA

Completed programme

Supplying ingredients for food manufacture has long been a cornerstone of the New Zealand dairy industry's business. The challenge was to develop new, added-value products, working closely with in-market partners. There was an opportunity to create niche products as well as develop Māori agribusiness capability.

This PGP programme developed immune-enhancing dairy milk products targeting health-conscious consumers in Asian and New Zealand markets. It developed dairy herds which produce milk that has high immune-enhancing properties, and undertook product development, functionality testing and market research.

Examples of achievements

- The programme successfully developed a skim milk powder (SMP) product containing high levels of a natural immune enhancing compound.
- The programme undertook research indicating that the target compound in bovine milk acts in a similar way to its counterpart in human milk, binding with a wide range of bacteria. Research results also demonstrated that SMP with elevated levels of the target compound dampened down infection levels of pathogenic bacteria in the gut of mice. The results of this research have been published in independently reviewed international journals.
- An elite herd of 510 cows was assembled containing naturally high levels of the target compound. A standard operating procedure has been prepared to expand the herd.

KEY FACTS:

Programme start: March 2013

Programme completed: December 2016

PGP funding paid: $2.04 million

Industry funding paid: $2.08 million

Commercial partners: Wairarapa Moana ki Pouakani Incorporation, Miraka Ltd, Kanematsu New Zealand Ltd

Estimated potential economic benefits to NZ: $5 million to $16.6 million per year in economic benefits to New Zealand by 2021.

NOTES

New Zealand Government

www.mpi.govt.nz