

Agri-Gate

Latest news about MPI's Investment Programmes

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Manatū Ahu Matua



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Justine's column



Welcome to our September edition of Agri-gate.

This month we held the first of three workshops, themed 'Shaping New Zealand's Food and Fibre Future', bringing together leaders from across New Zealand's primary

industries. These workshops take a look 10-20 years into the future to consider how New Zealand's primary industries can prepare for the opportunities and challenges the future is likely to bring.

The workshops consider issues such as who our customers might be in 10-20 years' time and what products they might want, emerging trends, future drivers that could change how we create new products and markets for our primary industry products, what that might mean for investment, and how we increase capability and resilience across the primary industries.

The outcomes from the workshops will contribute to our annual PGP conference and Expo on 1 November 2016 in Wellington, also themed 'Shaping New Zealand's Food and Fibre Future'. We have invited an inspiring range of speakers from New Zealand and overseas for

the conference. Further details will be provided soon.

Recently the Steepland Harvesting PGP programme demonstrated an early prototype of their robotic tree-to-tree felling machine developed by Future Forests Research Limited, Scion and the University of Canterbury's mechatronics programme. More information about this machine is provided in this month's Agri-gate, and we provide an update about some of the other great innovations developed by the Steepland Harvesting PGP programme.

The 2017/18 funding round for the Sustainable Farming Fund closed on 8 September. 77 project applications were received, requesting a total of \$21.4 million. Most projects are carried out over three years with a maximum MPI contribution of \$200,000 each year. The Sustainable Farming Fund advisory panel will consider all applications in December and applicants will be notified in early 2017 for projects beginning 1 July 2017.



Demonstration of the early prototype of the tree-to-tree felling machine

This month we notified the successful applicants who will receive funding through the Afforestation Grant Scheme. We were delighted to approve 81 applications from the funding round which closed in June. We are

looking at holding an AGS themed celebration event at the Christchurch A&P Show in November – stay tuned for details on that; we hope to see you there!

The Erosion Control Funding Programme successful applicants will be notified shortly. 40 applications were received, which is double the number from last year, and double the treated land area (1,519 hectares), which is great news.

And finally, we announced that we are funding thirteen research projects totalling \$3.1million through our Sustainable Land Management and Climate Change research programme. We had an extremely high calibre of applicants and were very impressed with the research topics. We look forward to understanding their findings, which will help researchers, government, and farmers better understand, adapt to and mitigate climate change effects in New Zealand's primary sectors. You can read more about this year's research projects on our [website](#).

We hope you enjoy this edition of Agri-gate.

Justine Gilliland
Director Investment Programmes.

From the Chair, PGP Investment Advisory Panel



There are currently 22 PGP programmes in total, 19 of which are currently underway. But there is certainly scope for more. In my somewhat short time as Chair of the PGP's independent Investment Advisory Panel, I've noticed a few things that suggest the need for clarification. I'd like to provide those clarifications below.

Firstly, some think that for an organisation to apply for PGP investment they need to be in New Zealand's primary industries. Increasingly it is being appreciated in the wider industry that, in fact, applications for PGP investment are not limited to established primary industry players.

Provided intended programmes are aimed at increasing the economic growth and sustainability of New Zealand's primary or food industries, any New Zealand organisation may apply.

Secondly, some think if a primary sector is already represented in the PGP, other organisations in the same sector can't apply for PGP investment. In fact the opposite is true. If an organisation has good, workable ideas that will progress an opportunity for the primary industries, or overcome a challenge, we want to hear from you. If you're questioning whether or not an idea you have could be eligible for PGP investment, I'd encourage you to contact the PGP team at the Ministry for Primary Industries (MPI).

The third thing I'd like to clear up is a misunderstanding that funding is not available for new programmes. I'm pleased to say that there is no shortage of potential new programmes in the PGP 'pipeline'. They look to be both numerous and wide-ranging. PGP programmes are business-led and the potential programmes in the pipeline show no shortage of good ideas. While not all will meet the requirements for PGP investment, many will.

MPI and the IAP seeks innovation anywhere and everywhere in the chain from production to market. We particularly encourage applications that have an important or primary focus on the market end of the chain, or at least aim to lessen impediments to getting innovative added value products to the market.

During the year MPI made changes to the way it administers the PGP. The aim is to make it more accessible and attract further interest in new programmes from industry. MPI has simplified the reporting requirements for PGP programmes, but might I add they are still just as tough, and they are providing assistance to applicants for business case development. They're also continuing to explore opportunities to assist smaller primary industry sub-sectors to access PGP.

In closing, I'm looking forward to attending the PGP Conference and Expo on 1 November, which is closing in quickly. It's shaping up to be a very interesting and informative day that should provoke good discussion, information sharing and new ideas about ensuring a successful primary industries well into the future.

John Parker
Chair of the IAP

Agri-Gate Article

Safer forest harvesting through technology – an update on the Steepland Harvesting PGP programme

Innovative forestry technology is keeping pace with increasing New Zealand forest harvest operations to keep forest industry workers out of harm's way. New equipment is being seen out on the slopes as a result of the Steepland Harvesting PGP programme between the Ministry for Primary Industries (MPI) and a consortium of forestry companies and contractors, led by Future Forests Research Limited (FFR).

Technology in action

The Steepland Harvesting's programme's vision is 'No worker on the slope, no hand on the chainsaw'. Now in its seventh and final year, Steepland Harvesting has delivered a number of world-leading innovations. Its first innovation was the development of the ClimbMAX harvester, a ground-based, winch-assisted machine which can fell and bunch trees on steep slopes of up to 45 degrees.

Eight of the million-dollar ClimbMAX harvesters are now operating commercially in Canada and New Zealand, with the ninth machine recently shipped to Canada and the first machine sold into the United States currently being built.

A number of the subsequent innovations by the programme utilise remote control and teleoperation (control beyond line-of-sight) technology in new ways, to deliver safety across harvest operations. These are set to change steep terrain harvesting in the future.

The programme's most recent achievement was integration of teleoperation technology into a feller-buncher. Teleoperation enables operation of the forest harvester from the comfort and safety of a purpose built operator cabin and console, beyond line of sight.

"We believe this is the first fully tele-operated tracked harvester purpose built for application on steep slopes anywhere in the world," says FFR Chief Executive Russell Dale.

"We're really proud of this achievement," he says. "It has taken a lot of expertise and effort to get to this point, and we believe this will change the face of future forest harvesting operations in steep terrain."

Successful commissioning of the tele-operation control system is the culmination of three-and-a-half years of design and engineering research and development by the FFR team involving Scion, Cutover Systems Limited and ADM Design Ltd, working with harvesting contractors Ross Wood and Simon Rayward of Wood Contracting Nelson Ltd.

This technology was successfully demonstrated to the Associate Minister for Primary Industries Hon Jo Goodhew, industry, media and others in Nelson in July 2016.



Purpose-built operator cabin and the tele-operated John Deere feller-buncher

Videos from this demonstration are available on the [Ministry for Primary Industries YouTube channel](#).



Inside the purpose-built cabin

In another application of the teleoperation technology, a remote control unit was successfully installed in a Volvo EC290 mobile tail hold machine.

A tail hold machine is part of the log hauling operation and serves as an anchor point at the far end of the 'skyline' – a wire rope strung high above a harvesting site that supports a motorised carriage which is used to haul logs," explains FFR Harvesting Programme Leader Keith Raymond.

"We've installed three cameras in the tail hold machine to give better vision of the forest tracks and the camera control and monitor are installed in the cab of the hauler in easy reach of the operator," he says.

"This enables the operator to have full visibility and control of the machine from the hauler cab."

Commissioning of the remote controlled mobile tail hold machine is now underway.

Shifting the skyline

The 'skyline' in forest harvesting operations is attached to a yarder – a machine that moves logs to the landing at the top of steep terrain by reeling in a 'carriage' that is used to pick up and hold on to the logs. The carriage is attached to the skyline.

"Shifting the 'skyline' manually from one location to another in forest operations is time-consuming, difficult and potentially hazardous," says Keith Raymond. "This is because of the tricky terrain, combined with the need to move heavy cables and machinery."

"Awdon Technologies Ltd in Gisborne, with the help of the Steepland Harvesting programme, has developed the capability to shift the skyline remotely from the yarder cab. It's an innovative yarding carriage that is called 'Skyshifter'.

"We've developed a prototype and we carried out successful production trials in July."

"We've developed the second, or beta, prototype and we carried out successful field tests in July. As a result of the field tests some modifications are required, then the carriage will be ready for full production trials which will start in October."



A yarder in action, showing the skyline and yarding carriage holding logs (the Skyshifter isn't installed on this yarder)



The beta prototype Skyshifter twin-winch tail-hold carriage

Safer manual tree felling

Directional tree felling is the goal of another innovation by the Steepland Harvesting PGP programme, enabled by the remote controlled powered felling wedge.

"The team, comprising Dr Paul Milliken of Cutover Systems Ltd, and Daniel Lamborn and Allister Keast of ADM Design Ltd, has been developing and testing the remote controlled powered felling wedge," says Keith Raymond.



The remote-controlled powered felling wedge

"Our aims are to enable safer manual tree felling by improving our ability to control the direction of tree fall, reducing tree breakage and improving productivity. The wedge will allow the forest harvesting staff to move away from the tree and out of harm's way before the tree falls."

The Steepland Harvesting PGP programme has developed and trialed a prototype, and is making some modifications as a result. There has already been interest in the new remote controlled powered felling wedge. A harvesting contractor has requested conversion of two manual tree-felling wedges to remote-controlled powered models.

Next generation forest harvesting

FFR has been working with Scion and the University of Canterbury mechatronics programme to develop a prototype sensor-guided bi-ped felling machine for steep terrain. This machine will move from tree-to-tree without touching the ground.

"We're combining our teleoperation control system with sophisticated sensing technology – the end goal is to create semi-autonomous teleoperation of this robot from safe working distances, reducing risk to harvesting workers," says Russell Dale.



Prototype tree-to-tree robotic felling machine

“We’ve got a prototype up and running, and successfully demonstrated it this month,” he says.

“We’ve made some great progress but, as with any innovation activities, we need to do further development in the areas of applied research and engineering to take it to the next stage.”

A catalyst for change in forest harvesting

The Steepland Harvesting PGP programme, supported by innovative engineering firms and contractors throughout New Zealand, has catalysed the expansion of mechanisation in New Zealand’s forest industry. Mechanised tree felling now accounts for 57 percent of all harvesting operations compared to only 23 percent in 2009. This is providing forest owners and contractors with solutions to improve productivity and reduce the exposure of workers to hazards on steep terrain.

As a result of increased mechanisation across the industry, there has been a significant improvement in the accident statistics for the logging industry, with serious harm accidents dropping by 50 percent between 2013 and 2015. Also, sector-wide benefits arising from the programme to date are around \$94 million from operational cost savings and machinery and equipment sales. By 2019 FFR are forecasting these economic benefits to increase to \$128 million per annum. The Steepland Harvesting PGP programme has received a one year extension to support the commercialisation and uptake of the innovations developed under the programme.

Further information about the Steepland Harvesting PGP programme and its achievements are available at www.mpi.govt.nz.

Field studies focussed on increasing lamb survival

Field studies are currently underway to find out if there’s a relationship between drenching pregnant sheep with long-acting drenches and lamb mortality. The study involves trials with mixed age ewes as well as hoggets.

The three-year project carried out by farmers and AgResearch, supported by the Sustainable Farming Fund, aims to provide farmers and industry with more information and confidence around parasite management practices for sheep.

Treatments were given to pregnant ewes on four South Island sheep farms at the end of August with lambing due early September.

For the hoggets involved in the trial, one flock had treatments administered mid-August and the other which is lambing later was treated in mid-September. The two hogget trials are located in the North Island.

This project arises from two studies which collectively have raised questions around the common practice of drenching adult sheep with long-acting macrocyclic lactone products

for parasite management around lambing.

Previous studies investigated the production benefits from drenching ewes around lambing on a collection of farms in the Wairarapa over two years.

Unexpectedly, the results of those studies indicated that ewes treated with long-acting products tended to wean fewer lambs than untreated ewes. Other research has shown that when ewes are treated with long-acting macrocyclic lactone drenches, a proportion of the drug is transferred across to their lamb. Because these drenches are known to be toxic in young animals, this raises the possibility that lower lamb survival could be an outcome of using these products.

This Sustainable Farming Fund project will be carried out over the next three years and the results will be shared across the industry.

The project is also supported by Beef and Lamb New Zealand, AGMARDT, ANZCO Foods, Massey University, AgResearch, Landcorp, South Rangitikei Veterinary Trust Company and PGGWrightson.



Agri-gate survey

We want to know your thoughts on this newsletter.

Currently, Agri-gate is sent electronically each month highlighting events and profiling a range of current programmes and projects.

To help us improve this newsletter, we would appreciate it if you could complete our readers' survey. The survey takes less than two minutes and will help shape future content to better suit our readers.

[Click here to complete the survey.](#)

