



Programme Manager: Keith Raymond



# HARVESTING PROGRAMME UPDATE

Issue Number: 32  
Date: February 2018

## Summary

This update features news about the Forest Growers Research harvesting programme and the Primary Growth Partnership and a summary of the business case for the new Primary Growth Partnership in automated forestry value chains. This new PGP programme proposes a new logistics solution and development of new automated machinery products. The business case will be formally presented to the PGP Investment Advisory Panel at its meeting on 21 March 2018, and we look forward to approval of the \$11.7 million in PGP funding sought to get the programme underway.

## Ten Years of Forestry Research and Innovation

In mid-November Forest Growers Research held a special event in Wellington to celebrate 10 years of forestry innovation and research since FGR's predecessor Future Forests Research Ltd was established. It also marked the completion of the 7-year Steepland Harvesting programme to improve worker safety and increase the productivity of forest operations on steep slopes.

The Steepland Harvesting Primary Growth Partnership (PGP) programme was completed on 31 August last year. The event marking this completion was attended by the Minister of Agriculture, Hon Damien O'Connor, and Minister of Forestry, Hon Shane Jones, FGR Board members, key MPI and PGP representatives, and stakeholders from across the forest industry.

In addition to the seven innovative products developed and commercialised over the last 7 years, the programme has been a catalyst for increasing mechanisation across the forestry sector from 23% of all harvesting operations to over 50% now. This has removed around 165 workers from the hazardous forestry roles of tree felling and breaking out and has contributed to the reduction in serious harm injuries over the last few years. In addition the programme, and related sector activities, is expected to deliver more than \$113 million in economic benefits for New Zealand.

A final programme report (H032) is available on the FGR website: [www.fgr.nz](http://www.fgr.nz)

## PGP Review

In December, the Minister of Agriculture, Hon Damien O'Connor, announced a review of the Primary Growth Partnership. The Minister has now decided on the scope, timeframe and how MPI will continue to manage the PGP while the review takes place.

The review will be a desktop review, undertaken by MPI, which will proceed in two phases. Phase one, which will be completed by the end of January 2018, will involve evaluating existing documentation, such as progress reviews and programme completion reports, evaluations and audits. It will also identify any improvements MPI can make to its processes and systems, for example in the areas of governance, PGP programme application criteria and providing assistance to applicants on business case development. Phase 2 of the PGP review, which is aimed for completion by the end of April, will assess the economic impacts to date from the PGP.

While the review is taking place, the Minister has agreed to progress approved proposals for PGP programmes under existing criteria, but temporarily to not accept any new proposals. This means MPI will not accept any new PGP proposals during the review period. However, there are currently business cases being developed for 9 new programmes (including the new Forestry Automation programme), and these will progress through the process as usual.



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## NEW PGP PROGRAMME

The final draft of the business case for the new PGP programme was submitted to MPI on 21 December 2017.

This document has been circulated to selected government agencies in Wellington (such as MBIE, Treasury, Te Puna Kokiri, and MfE) for their comment by the end of January.

In early February MPI provided some feedback and on the basis of this we decided to delay submission of the business case to the PGP Investment Advisory Panel (IAP) to address these issues.

The business case will be formally presented to the PGP Investment Advisory Panel at its meeting on 21 March 2018. If the panel support the business case they will recommend approval to the Director-General of MPI. FGR will then negotiate a contract with MPI on the detailed project milestones. Programme commencement is scheduled for 1 July 2018, at the earliest.

## Vision

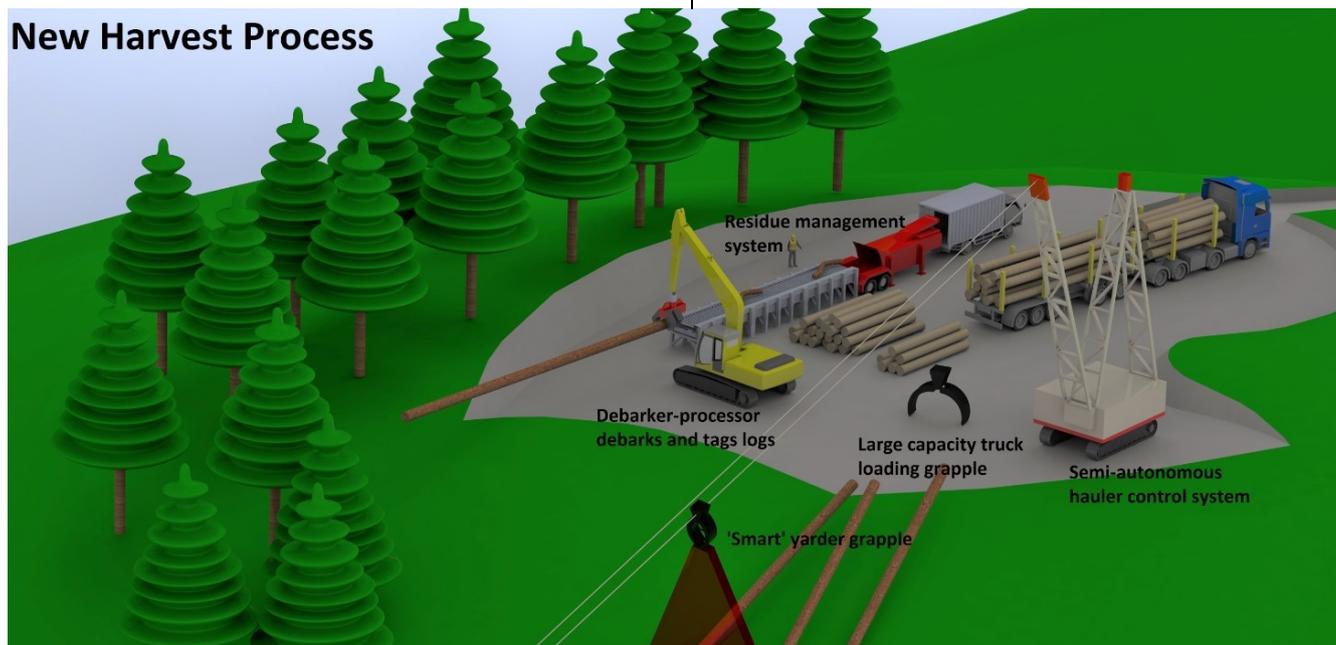
This new PGP programme proposes a new wood logistics solution which builds on the concepts of forestry mechanisation, remote control and teleoperation and extends into the field of automation and robotics in forestry.

The programme completely redesigns harvesting, log manufacturing and sorting processes to improve long term sustainability across the forestry value chain.

Under this proposal log sorting and storage will be moved off the forest landings enabling smaller landings, through the use of new automated technology and the installation of new centralised robotic sort yards.

Our vision is "No boots on the ground, no hands on the log", to eliminate all manual handling. New highly automated harvesting and logistics systems are envisaged that will eliminate hazardous manual tasks, such as log branding, log measurement, quality control, stocktaking and truck load securing.

## New Harvest Process





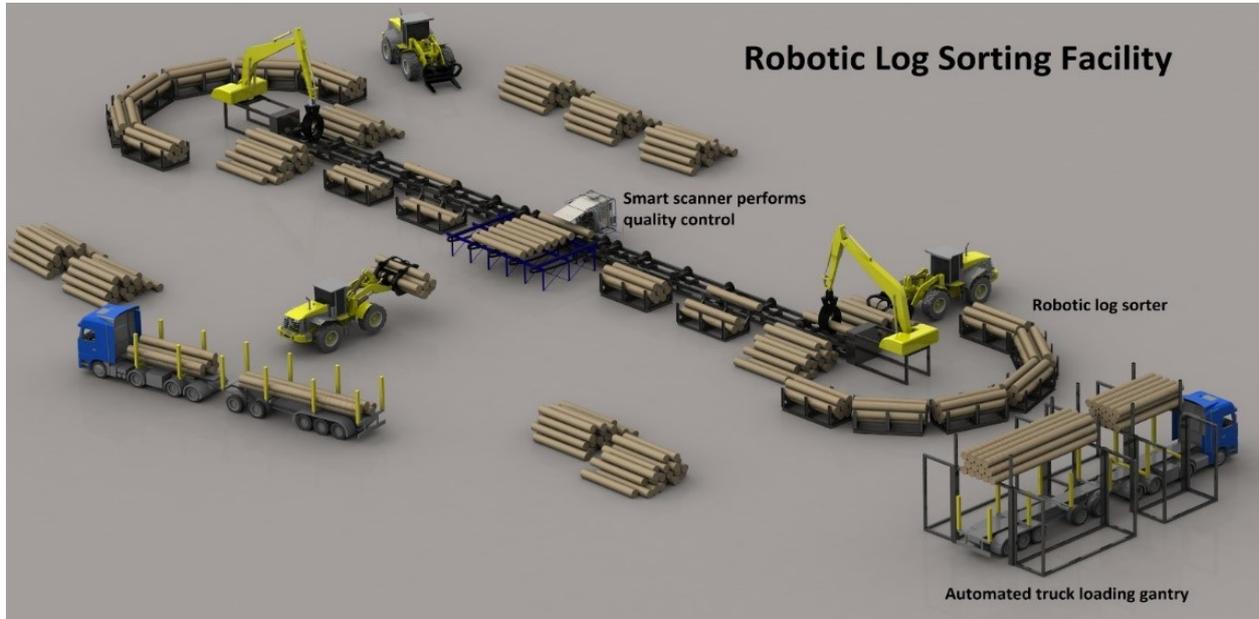
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## Product Commercialisation

The goal is that by 2025 all harvesting operations will be fully mechanised, and at least 10% of operations will be automated, using products developed in this programme. The following products will be commercialised for domestic and export sale:

- Semi-automated log debarker-processor
- Automatic log tagging and tag reading technology
- Semi-autonomous yarder grapple and control system
- Automated log residue chipper
- Robotic log sorter
- Automated truck loading gantry
- Large capacity log loading grapple
- Automated truck load securing system

## Programme Activities

To achieve the programme goals investment is planned in the following objectives:

- Objective 1: New Automated Technology (\$20.83m)
- Objective 2: Human Factors of Automation (\$3.13m)
- Objective 3: Commercialisation and Deployment (\$4.48m)

- Programme Management: This objective covers monitoring project progress against milestones, financial management and reporting (\$0.92m).

## Programme Benefits

- Operational cost savings across the forestry value chain of \$9.71 per cubic metre of wood delivered, which would make all forests more economical to harvest (\$80.8 million to 2025).
- Alleviating labour shortages of an estimated 700-800 additional workers in the industry through increased productivity (up 15%) and more automation
- Enhancing environmental sustainability through reduced landing size (sorting logs off-landing), less chemical fumigation (through increased debarking), increased HPMV use from log sort yards, and improved management of harvesting residues.
- Increasing skill levels in the industry, reducing labour turnover, and enhancing career opportunities in forestry.
- Total sales of new equipment and machinery of \$56 million by 2025, generating margin for manufacturers of around \$22.8 million.



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## Programme Management and Governance

FGR is the co-investor company managing this programme on behalf of the industry and the consortium of industry investors.

Programme funding is summarised below:

- 7 year programme to 30 June 2025
- Total programme funding \$29.36 million
- Forest Growers Levy funding \$6.795 million
- Other industry cash (first adopter forestry companies and contractors and FGR members) \$7.368 million
- Industry in-kind contributions \$3.453 million
- PGP funding \$11.744 million

Financial risks will be managed to ensure industry funding is maintained through funding from the Forest Grower Levy Trust, financial input from participating forestry companies and contractors, and ongoing FGR industry member fees.

Technical risks in the programme will be mitigated by the technical team using best practice R&D project management processes and effective project guidance through the Technical Steering Team.

The programme will be governed by a Programme Steering Group made up of 3 representatives from the Consortium and 2 representatives from MPI. The PSG will have an independent chair agreed between MPI and the Consortium.

Governance through the Programme Steering Group and FGR Board, and effective FGR programme management will ensure that project expenditure will be managed closely to achieve project milestones and deliver the desired outcomes of the programme.

## Programme Outcomes

- Commercialised 8 new products that improve labour productivity and reduce costs of harvesting and logistics.

- Implementation of new products and processes in 5 new log sort yards that generate cumulative economic benefits of \$103.6 million by 2025 from value chain efficiencies and sales of new machinery and equipment.
- De-risked investment by harvesting contractors in new automated machinery.
- Created new opportunities for NZ forestry machinery and equipment manufacturers.
- Continued to catalyse innovations in harvesting and logistics.

## Programme Development

- Submission of first draft Business Case to MPI – 1 Dec 2017 (completed).
- Submission of final draft Business Case to MPI – 22 Dec 2017 (completed).
- IAP Meeting – 21 Mar 2018.
- IAP recommendation to MPI re success of bid – end-Mar 2018.
- MPI contracting with FGR – Apr-Jun 2018
- Programme commencement – 1 Jul 2018 (earliest)

## RESEARCH OUTPUTS TO DEC 2017

The following research reports were published during the Quarter:

- Harvesting Technical Report H031: Skyshifter Twin Winch Tail Hold Carriage: Field Trials – Spencer Hill and Don Scott
- Harvesting Technical Report H032 Steepland Harvesting Programme Summary Report – Keith Raymond
- Harvesting Technical Note HTN09-09: Production Trials of the CutoverCam – Spencer Hill.
- Harvesting Technical Note HTN09-10: Production Trials of the HarvestNav Machine Navigation System – Hamish Marshall.

These reports complete the outputs of the Steepland Harvesting Programme and are available on the FGR website: [www.fgr.nz](http://www.fgr.nz)