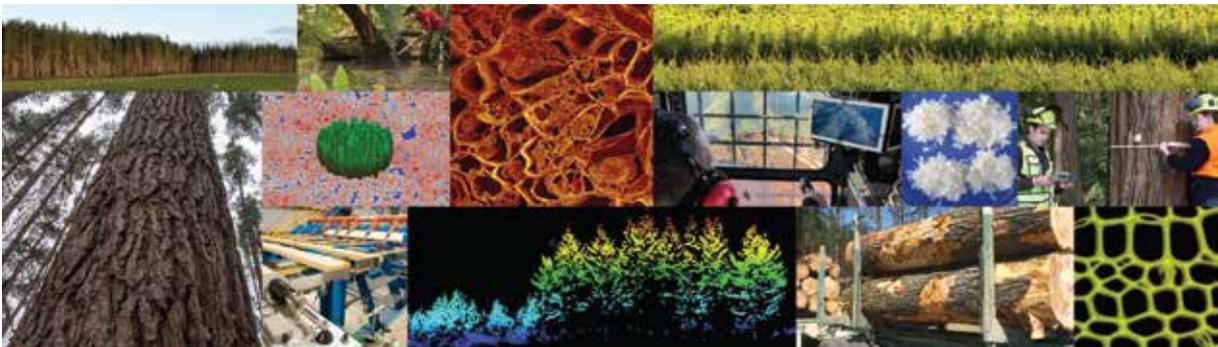


Growing confidence in forestry's future

Research Programme
2013-2019



Raising the profitability of commercial forestry investments is an imperative for the entire New Zealand forestry sector and also vital to increasing economic wealth for our country as signalled in the Government's Business Growth Agenda.

The value derived from each hectare of forestry land must remain competitive with other rural land uses. Research and innovation is critical to improving the value of forestry through **sustainable intensification** otherwise land use change will continue and forestry's contribution to New Zealand's economy will decline.

A multi-disciplinary team of scientists at Scion, along with collaborators from other crown research institutes and universities, is embarking on a six-year research programme aimed at raising the profitability of current and future commercial forestry. The programme is a joint initiative between Scion, industry and the Ministry of Business, Innovation and Employment. It has been allocated \$3.375 million per annum funding from MBIE

with a further \$1.6 million per annum commitment from forest growers.

The programme is one of the most significant initiatives being taken by the sector and focuses on improving the value realised from existing forests and doubling the productivity of future forests. Together, this will create a stable future wood supply that will, in turn, encourage the investment needed to enable the sector to achieve the Woodco vision of increasing the value of forestry exports to more than \$12 billion by 2022.

Achieving this goal will require a shift from current low input forestry management practices to precision forestry, integrating the latest advances in sensor technology, tree physiology, genetics and forest ecology. The programme targets points where improvements can be made in the forest growing cycle, for both current and future forests, that will boost productivity under intensified management regimes while maintaining wood quality and the quality of the environment.

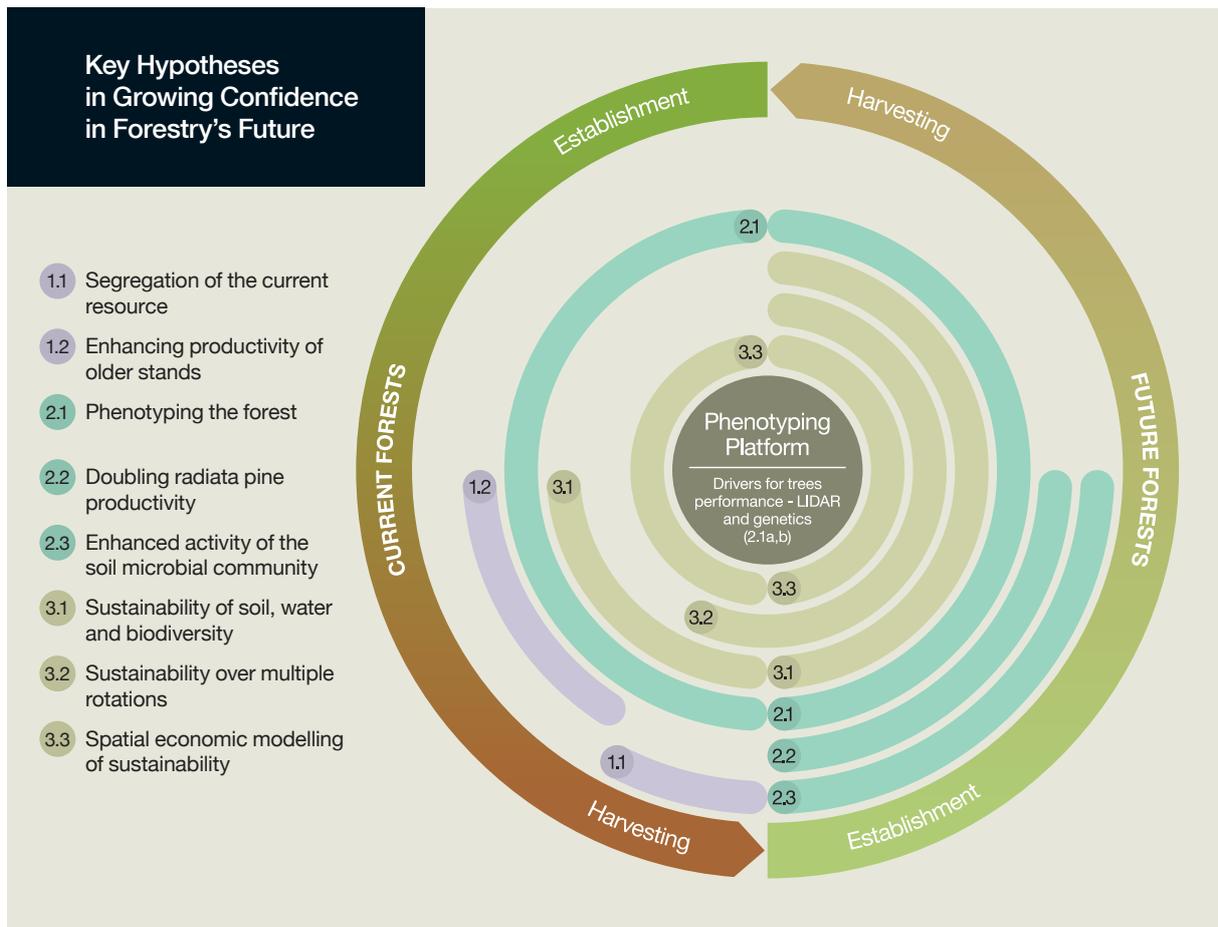
MANY LAYERS OF RESEARCH

The development of a forest 'phenotyping platform' capable of providing information on performance of different genetic material under a wide a range of environmental conditions will be one of the core elements of the programme. Advances in remote sensing technologies, such as LiDAR, coupled with increased computing power have made it possible to assess multiple traits on large numbers of trees. This platform will integrate remote sensing, wood properties, environmental physiology and genetics to identify what drives growth and wood quality. Using this, trees of interest (particularly those with improved disease resistance) can be identified for breeding programmes.

Understanding the full productivity potential of radiata pine is another key challenge. Process-based growth

models will be used to predict potential productivity across New Zealand under current and future climatic conditions and compare it to actual productivity data. Interventions to close the productivity gap will then be determined and tested in a series of forest accelerator trials. These trials will enable site modifications aimed at increasing productivity to be assessed for effects on growth, plant health, wood quality and soil microbial communities.

The diagram below shows where the research targets different intervention points in the forest growing cycle, for both current and future forests. The goal is to increase the returns from existing forests through mid-rotation interventions aimed at increasing productivity and end-of-rotation segregation, while also focussing on how to increase the productivity and consistency of future forests.



PROJECT COLLABORATORS include Landcare Research, University of Auckland, Waiariki Institute of Technology, University of Canterbury, as well as Oregon State University, Université Laval and CSIRO.

PROGRAMME LEADER: Dr Peter Clinton, Science Leader, Forest Systems, Scion.



Peter is a forest ecologist who specialises in maintaining the productive capacity of commercial forests. He is an internationally recognised scientist and one of New Zealand's leading experts in sustainable forest management.

TO LEARN MORE ABOUT THE RESEARCH PROJECTS IN THE PROGRAMME:

Contact

Dr Peter Clinton at peter.clinton@scionresearch.com

Visit the website www.scionresearch.com/gcff (will be launched in early May)

Register for the programme conference on 10-12 June TBC (watch the Events pages on the Scion and programme websites for registration information)

Order a copy of the research summary document from annette.brockerhoff@scionresearch.com