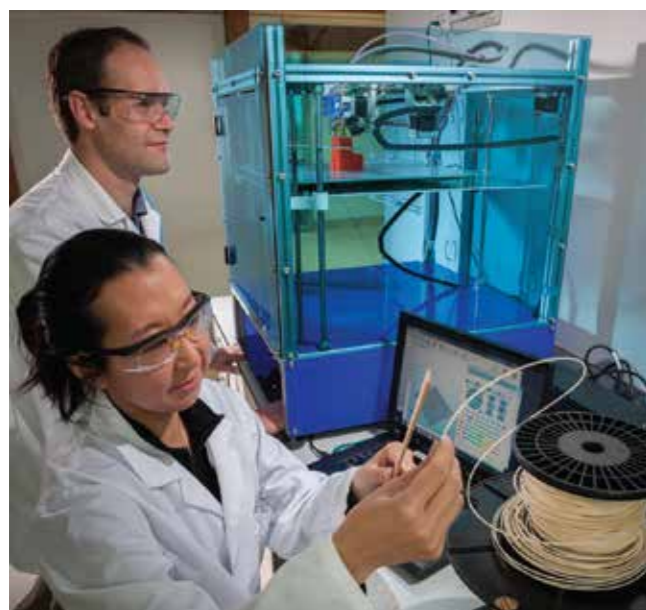




# Manufacturing and bioproducts

# Scion provides research, science and technology to convert wood and fibre into a range of renewable and sustainable products and energy



## Biopolymers and chemicals

Scion develops applications in the areas of bioplastics, biofoams, packaging and 3-D printing, combining our expertise in bio-based chemicals, polymer and composite research.

Scion has a strong track record in developing viable biopolymer and chemical options for products derived from wood or incorporating wood fibre, other natural fibres and biomaterials.

Our science capabilities include:

- **Packaging solutions.** Developing new materials and systems for packaging food products.
- **Advanced chemical characterisation.** Using advanced tools to supply specialised analytical services for science and industry (e.g. NMR, microscopy, biodegradation testing).
- **Polymers.** Enabling the development of new materials and products based on bio-based plastics.
- **Chemical synthesis and design.** Designing new chemicals and building blocks from woody biomass for the chemical, materials and manufacturing industries.

## Biotransformation

Through biotechnology, our scientists aim to enhance the value derived from New Zealand's renewable forest resources.

Our research focuses on using biological approaches to improve forest productivity and performance, and to transform materials derived from these resources.

Scion is a partner in several international and national research collaborations aimed at adopting rapidly evolving biotechnologies and adapting these for New Zealand forest industries.

Our science capabilities relating to biotechnologies include:

- **Plant biotechnology.** Investigating molecular and physiological aspects of wood to improve forest health, productivity and the suitability of wood for different end uses.
- **Industrial biotechnology.** Using biological approaches to enhance raw materials and their processing.

## Clean technologies

Scion focuses on developing technologies, processes and systems to overcome environmental challenges such as resource depletion, greenhouse gas emissions and waste disposal.

Our science capabilities to support clean technologies and improved industrial design include:

- **Bioenergy and biofuels.** Developing technologies and decision support tools for renewable energy and energy recovery.
- **Environmental technologies.** Developing new technologies for waste treatment, chemical and energy recovery.
- **Industrial ecology.** Analysing and developing systems and



The world is making a transition from a dependence on fossil fuels towards a sustainable bio-based economy. As New Zealand's Crown research institute dedicated to the forestry sector, Scion offers the range of science technologies required to generate wealth, jobs and environmental benefits from this global opportunity.

processes for improved industry environment interactions.

- **Chemical analysis.** Providing analytical services in forestry and wood-related activities through our chemistry laboratory, Veritec. For more information see [www.scionresearch.com/veritec](http://www.scionresearch.com/veritec)



## Wood and fibre

Timber products are the traditional mainstay of commercial forestry.

Manufacturers are increasingly finding options for supplying lucrative co-products in niche areas as the global wood processing industry strives to become more profitable. Scion provides the science and innovation needed to develop new systems that will enhance traditional wood processing and enable more value to be derived from every log.

Our science capabilities to support innovation and improve industrial design include:

- **Wood modification.** Developing technologies up to prototyping and pilot scale level that modify the properties of fast-growing softwoods for improved stability, durability and appearance.
- **Wood processing.** Developing technologies to increase processing efficiency, reduce costs and create niche products. Examples include mechanised timber grading, improved wood drying systems and novel processing systems.
- **Fibre sciences.** Developing new and improved options for using wood fibres in a range of products such as wood fibre composites, as required by growing global markets.
- **Pulp, paper and pilot plant facilities.** Providing the knowledge and testing facilities needed to optimise industrial manufacturing processes and develop future technologies for wood processing.

## Forest science

Scion also provides research, science and technology to help increase the value and profitability of New Zealand's commercial forests through forest sciences and value chain optimisation.

As New Zealand's Crown research institute dedicated to the forestry sector, we work with forest growers and government agencies to increase the value and productivity of the industry. Our forest science research is grouped under five broad categories:

- **Forest systems.** Maximising forest productivity through understanding the interactions between trees and the environment.
- **Forest genetics.** Using traditional and modern techniques to develop the best trees for New Zealand's forestry industry.
- **Forest protection.** Managing and mitigating the biological and physical risks to New Zealand's forests.
- **Forest industry informatics.** Developing integrated tools and systems to increase the performance of the forestry industry.
- **Value chain optimisation.** Logistics, supply and value chain design and diagnostics and market intelligence.



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## About Scion

Scion is the Crown research institute that specialises in research, science and technology development for forestry, wood and wood-derived materials, and other bio-material sectors.

Scion's purpose is to create economic value across the entire forestry value chain, and contribute to beneficial environmental and social outcomes for New Zealand.

## We provide

- **Services.** We undertake specific projects for clients, usually involving specialised testing and problem solving.
- **One-on-one confidential research.** Projects that are targeted to maintain client competitiveness.
- **Strategic multi-party alliances.** To address sector based challenges and innovative opportunities.
- **Tailored contractual relationships.** Scion can meet the specific needs of each customer.



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**Prosperity from trees *Mai i te ngahere oranga***