SCION™
FORESTS ■ PRODUCTS ■ INNOVATION

Research and development services

For the forestry, industrial biotechnology and advanced manufacturing sectors, and for businesses adapting to the circular bioeconomy.

We work with customers to understand their needs, then we look at how we can use technology and science to make a difference.

Scion – Research and development (R&D) for forestry, industrial biotechnology, advanced manufacturing and the circular bioeconomy

Scion is driving innovation and growth to create economic value and contribute to beneficial environmental and social outcomes. We are helping industry solve new challenges and support the transition into a new economy focused on sustainable design and renewable resources.

Scion has been creating science impact for New Zealand's forestry industry for over 75 years, maximising the value and range of products derived from trees. We are dedicated to helping New Zealand transition to a biobased economy. We have developed new bioproducts from renewable resources, with our science covering biorefining, biomanufacturing, biomaterials and fuels made from trees and other biomass.

We are here to support your business to adapt and grow. Backed by our strong international networks, we provide unique R&D expertise across entire value chains specialising in:

- Sustainable forest management and tree improvement.
- Managing forest biosecurity, fire and climate change risks.
- Wood products and processing.
- Wood fibre, pulp, biopolymer and biochemicals.
- Bioenergy (heat, power and liquid fuels from wood).
- Creating value from waste and residue streams.
- Sustainable packaging and distributed manufacturing.
- Biodegradation and recyclability.
- Biomanufacturing.

Tax credits for R&D work with Scion

To help build a skilled, productive economy, New Zealand businesses can apply for tax credits when they invest in research and development. Scion is an approved research provider under this scheme which means there is no minimum investment requirement when you contract your R&D work with us.

The tax incentive offers:

- A tax credit equal to 15% of eligible R&D expenditure.
- A $120 million per year maximum on eligible expenditure.
- No minimum R&D expenditure threshold if you work with an approved provider, such as Scion.

The R&D tax incentive is delivered jointly by Callaghan Innovation and Inland Revenue.

Scion's R&D services

Our scientists are world leaders in sustainable forest management, tree improvement, forestry biosecurity, forest ecosystems, wood processing, bioenergy, waste stream valorisation and biomaterials and bioproduct development. We provide a comprehensive range of technical services, specialist facilities and state-of-the-art technologies for the forestry, industrial biotechnology and advanced manufacturing sectors, as well as businesses transitioning to the circular bioeconomy.

Working with Māori
Scion recognises the important role that Māori play in the future of forestry, forest products and the circular bioeconomy. At Scion we work with whānau, hapū, iwi, Māori land entities, collectives and enterprises to enable their aspirations for their whenua, ngahere, taiao and indigenous taonga. Our wide range of services, described below, recognise that Māori aspirations in forestry exist right across the value chain.

Forest establishment and maintenance
Forestry research enables diverse and mixed-use productive forests to be planned and grown for a range of wood/fibre product, environmental, economic, societal and cultural outcomes. Scion offers land use assessment and modelling from forest stands, farms to regional level.

Species/product/carbon value chain mapping
We enable a smart, connected value chain for the forestry and wood products sector by visualising and quantifying information flows from germplasm through to wood products. Scion develops new carbon models for indigenous and mixed forests which includes new frameworks that characterise carbon in the whole forest ecosystem.

Bioprocess technology development
Scion develops integrated biorefinery processes by combining chemical, mechanical and biotechnological approaches. We optimise processes using advanced modeling tools like digital twins and techno-economic analysis. Our cross-disciplinary team of chemists, engineers and biotechnologists design efficient biomass conversion and fractionation technologies.

Industrial biotechnology
Scion enables industrial biotechnology in New Zealand through our dedicated PC2 facilities. We partner with companies in our labs, utilizing raw materials and waste gases for fermentation and enzymatic synthesis of bio-based chemicals, as well as recombinant protein and enzyme production. Our biotechnology capabilities span synthetic biology, gas fermentation, enzyme manufacturing, and the bioconversion of biomass into high-value biochemicals, biopolymers and other products.

Timber engineering and built environment solutions
Reshaping building design and in-service protection through new building physics modelling. This supports timber construction sectors via product development, testing and standards compliance. We deliver new solutions around planning circular, sustainable and regenerative built environments and communities.

Wood processing and product development
Transitioning the wood products and building sectors towards circular, high-efficiency and low-impact manufacturing by ensuring consistent performance.

Remote sensing
Scion's remote sensing capabilities support a wide range of forest management applications, including high-definition geospatial mapping for forest planning and operations, pest and disease identification and monitoring, comprehensive forest inventory assessment, and analysis of the environmental impacts of forestry activities.

Plant Protection
Plant protection services includes formulation and application of agrichemicals, including herbicides, insecticides, and fungicides, for use in various forestry, agricultural and horticultural settings. We have expertise in the use of chemical additives, such as adjuvants, to enhance the effectiveness and environmental sustainability of agrochemicals.

Bioproduct development
Our cross-disciplinary R&D expertise combines biotechnology, chemical processing and materials science to create high-performance, eco-friendly alternatives to conventional fossil-based products. Scion develops a wide range of sustainable bioproducts derived from renewable biomass and bioplastics. Our bioproduct expertise includes biogas, biofuels, pulp and paper products, plastics, adhesives, composites, packaging materials, nanocellulose, lignin-based products, plant extracts, and other innovative fibre and chemical-based products.

Materials Testing
Scion provides comprehensive materials testing across physical, thermal, chemical and end-of-life properties. Our skilled team leverages cutting-edge analytical instrumentation for product development, quality control, failure analysis and compliance testing. Materials characterization data from Scion supports innovation and mitigates risks across industries.

Advanced Chemical Characterization and Analytics
Scion has advanced analytical capabilities for extraction, identification and comprehensive characterisation of chemical compounds to better understand and optimise both feedstocks and products. Our analytical chemistry expertise utilizes a wide range of techniques including nuclear magnetic resonance (NMR) spectroscopy, mass spectrometry, infrared spectroscopy, inductively coupled plasma (ICP) spectroscopy, elemental analysis, and various chromatographic methods.

Nursery production, tree site species mapping, indigenous and exotic species
Our science enables plant production at scale to produce sustainable, healthy, resilient and cost-effective forest trees that have been tested in a wide range of sites and climates.

Forest protection, biosecurity and fire research
New biosecurity surveillance, diagnostic, and biological control tools allow the industry to prevent and manage new pest and disease incursions. This includes remote sensing and disease monitoring platforms to manage the impact climate change will have on forest health. Scion uses new tools and fire theory to prepare forest owners and communities for an increasing wildfire prone environment.

Ecosystem services and social impact assessments
We have specialist ecosystem service valuations that quantify how forests contribute to habitat, water quality, carbon sequestration, erosion prevention and recreation. Community engagement and social impact evaluations for forestry include engagement with mana whenua.

Consultancy
We provide expert advice and technical services that can create new high-value opportunities related to: additive manufacturing, circular bioeconomy, bioenergy and biofuels, biorefineries, food contact compliance, process development and supply chain optimisation, socioeconomic analysis, technoeconomic and resource modelling and biomass availability assessments.

Accredited laboratory services
Facilities are available for biodegradation analysis, chemical characterisation, environmental analysis and biomass characterisation.

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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 biomaterial 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.

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