

The Specialty Wood Products Research Partnership

Achievements and Future Plans September 2023



Specialty
Wood
Products
Research Partnership



The Specialty Wood Products Research Partnership (SWP) was a seven-year programme (2015-2023) which invested \$9million into research and development for specialty wood species.

What the SWP set out to achieve

- Increase the planting area of specialty species – namely cypress, Douglas-fir and eucalypts
- Lift investor confidence in specialty species
- Develop new products with superior performance
- Deliver regional strategies/business cases

What SWP has achieved

- **A 300% increase in specialty species planting** from 2015 to 2023.
- **Genetic improvement** for various species in the following parameters: growth and form (more volume or higher grade), heartwood quality and quantity (to produce durable timber), density and stiffness (better structural performance), and pest and disease tolerance (trees less impacted by biological threats).
- **An extensive trial network** established to:
 - (i) determine site-species matching (where different species will grow best), (ii) understand the impact of climate change (optimum location varies as climate varies) and (iii) provide a demonstration resource (very powerful to be able to show successful establishment and growth).

- **New products which are ready to be commercialised** including: OEL (optimised engineered lumber), CLT (cross laminated Douglas-fir timber, proven to match radiata pine CLT), thermally modified timber (increased durability without chemical additives), LVL (laminated veneer lumber - eucalypt veneers proven to be stiffer than radiata), and timber flooring (made from trees grown for pulp – added value).
- **Markets for durable hardwoods** evaluated, including domestic sawn timber and posts and poles (substituting for CCA-treated radiata pine and imported timbers), veneer (high-strength LVL and flooring products), and potential export markets (especially Australia).
- **Four regional investment strategies for specialty species** created, and an overarching plan for New Zealand to establish regional wood supply catchments to support a diverse and sustainable hardwood and softwood industry.
- **A non-destructive technique** developed to predict the volume and durability of heartwood within growing trees.
- **A new biological control agent** introduced to mitigate eucalypt defoliating pests.
- **Thirteen PhDs** completed via a partnership with the University of Canterbury to create a highly skilled workforce supporting speciality species and products.

SWP

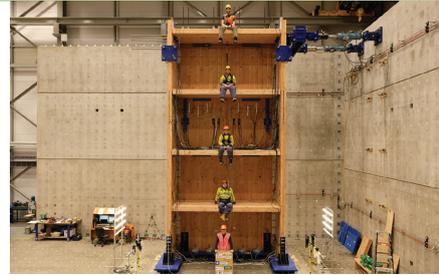


Case studies

- **Cross laminated timber fastening systems** developed by the SWP will be used in a building being designed for Nelson. These systems performed very well under simulated earthquake testing and could be easily and cheaply repaired to the same performance level following an earthquake.
- **Thermal modification of Douglas-fir and cypress** has resulted in significant increases in timber durability. The timber can now be used in new applications such as cladding where the non-modified wood was not acceptable. Modified timbers can compete directly with imported products such as Western red cedar.
- **Eucalyptus laminated veneer lumber** was proven to be significantly stiffer than radiata pine LVL, so could be used in more demanding structural situations (such as multi-story buildings). Eucalypt veneer could be incorporated into radiata LVL to improve its performance.
- **Posts and poles** - the domestic agricultural and horticultural treated post and pole market is worth an estimated \$200 million/year. The SWP has shown that naturally durable eucalypts could readily substitute into this market.

Reflections on programme and next steps

- **Strengths** of the programme: collaborators included growers, processors and researchers. Industry members set the research and development priorities, and the funding structure gave flexibility and cost-effectiveness.
- **Challenges** to the programme: a seven-year programme is short in forestry timeline terms, annual contracts made getting post-graduates more difficult, and the programme ending without a follow-up related programme has led to momentum being lost.
- **Next steps:** consult widely to determine new research and development priorities and then build a case for change to increase the diversity in the forest industry.



Testing Douglas-fir CLT fastening systems for seismic resilience, University of Canterbury.



Peeling trials on durable eucalypt posts.



Interior of a cabin built to demonstrate thermally modified cypress (back wall) plus other SWP timber products.

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