

Proposal for Research Funding in 2024

(1 January to 31 December 2024)

Please complete and return to Forest Owners Association, R&D Director, PO Box 1127 Rotorua or amanda.brake@fgr.nz. Submissions must be received prior to 5pm, Thursday, August 31st 2023.

Background	
Title	<i>Try and capture the attention of the reader in the title.</i> Ensuring product quality in durable Eucalyptus plantations
What is your Research Project?	
Research Project	<i>What is your project? Describe in no more than 3 sentences.</i> NZDFI breeding trials, planted since 2009, have been progressively screened to identify healthy, fast-growing genotypes with fit-for-purpose class 1 durable wood properties. Three more breeding trials are due for full phenotyping assessments followed by thinning. Analysis will identify elite families and new plus tree selections with superior growth, form and wood properties (i.e., heartwood quantity and quality).
Why is this Project important to forest growers?	
The “why”	<i>Convince us in no more than 20 words!</i> Successful production forestry is underpinned by improving genetics and developing a skilled workforce. This project builds on earlier NZDFI investment.
What are you planning to do?	
The “what”	<i>Describe the overall aim of the research and how it will be achieved.</i> <i>Describe in one short paragraph.</i> This project will a) phenotype three NZDFI breeding trials, b) identify plus trees for potential deployment by Proseed in their grafted seed orchard, and c) provide additional data to support PhD student Frederick Antonio who will work on natural durability of durable eucalypts.
What will the project deliver to forest growers?	
Delivery	<i>Describe in no more than three paragraphs:</i> <ul style="list-style-type: none"> • <i>What the project will deliver?</i> • <i>What problem will it help solve?</i> • <i>What is the output of the research?</i> • <i>How will the industry use the outputs?</i> <p>This project will <u>deliver</u>:</p> <ol style="list-style-type: none"> 1. Breeding values for three NZDFI breeding trials located in Marlborough. <ul style="list-style-type: none"> ○ 2012 <i>E. bosistoana</i> breeding population at Dillons (70 families) ○ 2011 <i>E. tricarpa</i> breeding population at Dillons (14 families) ○ 2011 <i>E. tricarpa</i> breeding population at Avery (17 families) <p>Trees will be assessed for DBH and form, and a representative sample of 10 trees per family will be cored and heartwood quality and quantity assessed. Breeding values will be calculated and potential ortets selections identified for clonal seed orchard deployment.</p> 2. After the assessment, trials will be thinned to reduce competition and ensure their future use for phenotyping, seed collection or timber harvest. 3. Support one of 3.5 years of training PhD student Frederick Antonio, ensuring a skilled future work force. A scholarship covering his living expenses and fees is in place. Financial support to cover operational costs to conduct research is needed.

The project will solve the problems of

- supporting an active breeding programme for an emerging alternative forest resource,
- delaying further identification and selection of new elite genetic material of *E. bosistoana* and *E. tricarpa* that will improve what is currently available in New Zealand,
- shortage of new trained talent in New Zealand’s forest and wood processing industries.

The outputs of the research are:

- breeding values for three NZDFI trials which will be used by Proseed to increase the supply of improved seed for nurseries to propagate stock for growers to establish a durable hardwood resource,
- future-proofed maintained breeding trials, which can be used as seed source for commercial propagation in the near term and supply timber for wood processing research in the medium future,
- samples suitable for the PhD student Frederick Antonio to develop thesis chapter. Industry will be able to use the outcomes of the research and his expertise.

How will the project benefit forest growers? (200 words max)

Potential impact and Performance measures

- FOA are looking for projects that will be of value to forest growers
- What difference will your research project make? And to whom?
- How will success be measured or determined (also see Performance measures below)

- Performance Measures of output usefulness?
This information is required for FGR / FGLT performance reporting and is a crucial element. Examples of the type of measurements could include, but are not limited to:
 - feedback on value/effects from groups intended to benefit
 - improved outcomes (in terms of deliverables)
 - money saved/generated
 - information gained and in user hands
 - costs avoided or reduced
 - expert assessments/ reports/audits
 - survey of customers/users/beneficiaries
 - stakeholder approval/criticism
 - other measures

The project will provide a) growers of durable eucalypts with improved planting stock, increasing their economic viability, b) a diversification option for NZ’s radiata dominated forestry sector and c) support the training some of essential work force.

Success measures are:

- Three NZDFI breeding trials assessed for growth and form
- Three NZDFI breeding trials cored
- Cores assessed for heartwood quality and quantity
- Elite families identified and plus trees selected
- Three NZDFI breeding trials maintained, thinned
- Breeding values stored in NZDFI database enabling the selection of superior plants for deployment
- Frederick Antonio studying towards his PhD

FOA’s Forestry Roadmap supports diversification of the forest industry, and Te Uru Rākau’s Industry Transformation Plan aims to increase annual new planting of non-radiata species to 20%.

NZ’s annual imports of high-value sawn lumber and other hardwood products (37,000 m³ in 2017 worth \$53.3 million) have a 5-year average value of over \$1,400 per m³. Investment in planting regional wood supply catchments of eucalypt forests to produce naturally durable/high-stiffness hardwood could largely replace these imported timbers. Some domestic consumers

also want naturally durable timber to substitute CCA-treated timber. This domestic market is estimated to exceed \$500 million annually including both lumber and round wood sales.

Who's on the team?

Team

Who's on the project team?

Frederick Antonio (PhD UC)
 Clemens Altaner (UC)
 Paul Millen (MRC/NZDFI)
 Ruth McConnochie (MRC/NZDFI)
 Monika Sharma (UC)
 Ash Millen (MRC/NZDFI)
 Marlborough based contractors

How much Funding are you seeking?

Funding

- *What is the total cost of the proposed Research?*
- *What funding leverage is available?*
- *Total funding requested from Forest Levy Trust?*

One year funding

Total cost: \$173,560
 PhD scholarship incl, fees: \$38,500
 UC operating: \$41,500
 MRC operating: \$45,000
 UC supervision: \$33,560 (0.1 FTE)
 Scion supervision: \$15,000 (0.05 FTE)

Co-funding: \$99,060
 NZDFIP: \$12,000 (cash)
 PhD scholarship incl, fees: \$38,500 (cash)
 UC supervision: \$33,560 (0.1 FTE) (in-kind)
 Scion supervision: \$15,000 (0.05 FTE) (in-kind)

Forest Growers Levy Trust fund request : \$74,500
FGLT funding leverage factor 2.33