

COCONUT WOOD HIGH QUALITY FLOORING *A NEW POTENTIAL INDUSTRY FOR THE PACIFIC*

AN INTRODUCTION

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WHY COCONUT?

- WE HAVE LIVED WITH COCONUTS FOR A LONG TIME
- ENTWINED WITH OUR EVERYDAY LIFE
- REDUCED IMPORTANCE GAUGED BY ONE PRODUCT ONLY
- EXISTING RESOURCE READY TO BE TAPPED
- POTENTIAL TO PROVIDE RURAL LIVELIHOODS



EXTENT OF RESOURCE

- PACIFIC – 0.5 MILLION HECTARES
- SAMOA 93,000 HA(16% SENILITY)
- FIJI 60,000 HA (60% SENILITY)
 - i.e. 3.6m stems
 - total log volume of 3.5 m m³
 - potential millable volume of 1.0 m m³
 - high density sawn timber volume 0.3 m m³
 - estimated sawn timber value \$F210 m
 - high quality flooring valued at \$F600 m
 - issues relating to inventory, ownership, accessibility
 - component of any coconut replanting program
 - potential to source from other Pacific countries



ORIGIN OF PROJECT

- 2004 REGIONAL WORKSHOP
- REVIEW OF POTENTIAL END USES
- HIGH QUALITY FLOORING
- APPROVED BY ACIAR IN 2007 (FIJI & SAMOA)
- PARTNERS – QLD DEEDI, SPC LRD, FIJI & SAMOA FD, CIDA FIJI, SSTT, PALMWOOD, STRICKLAND BROTHERS SAMOA



OBJECTIVES OF PROJECT





Technical properties of coconut wood

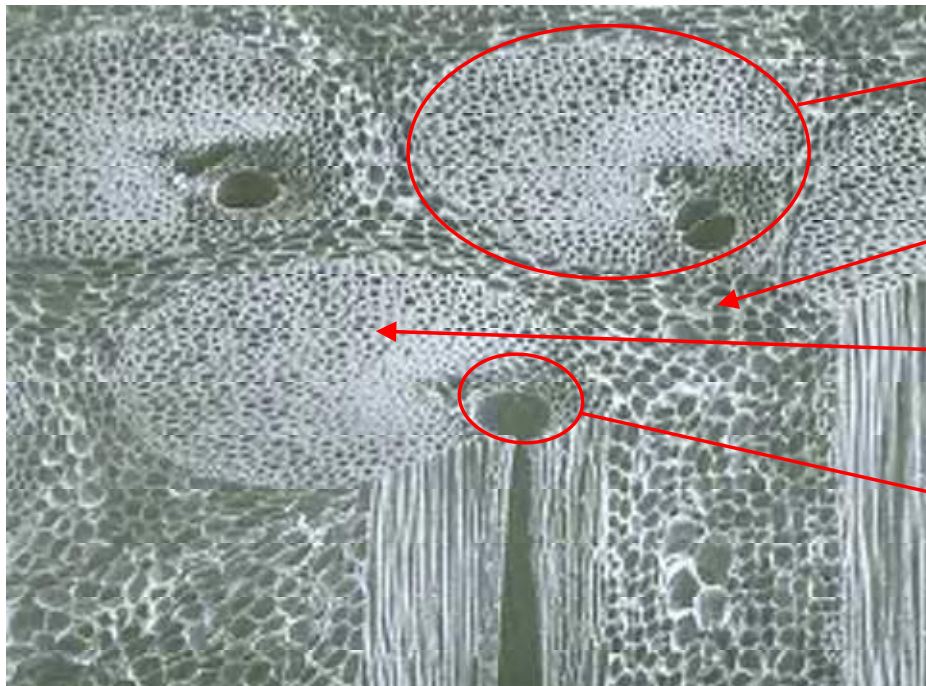
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Coconut wood is not wood... it is an herb



Cocowood

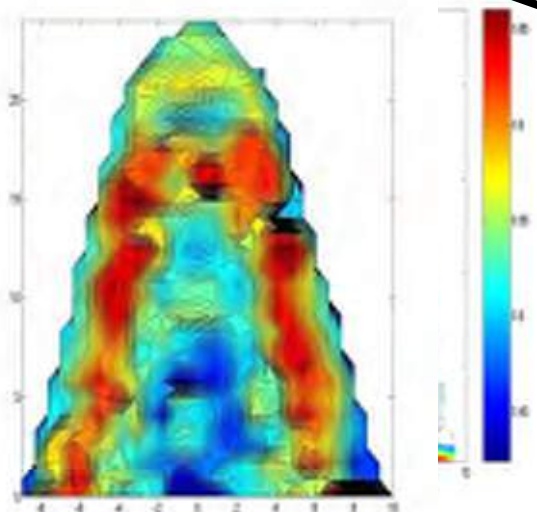
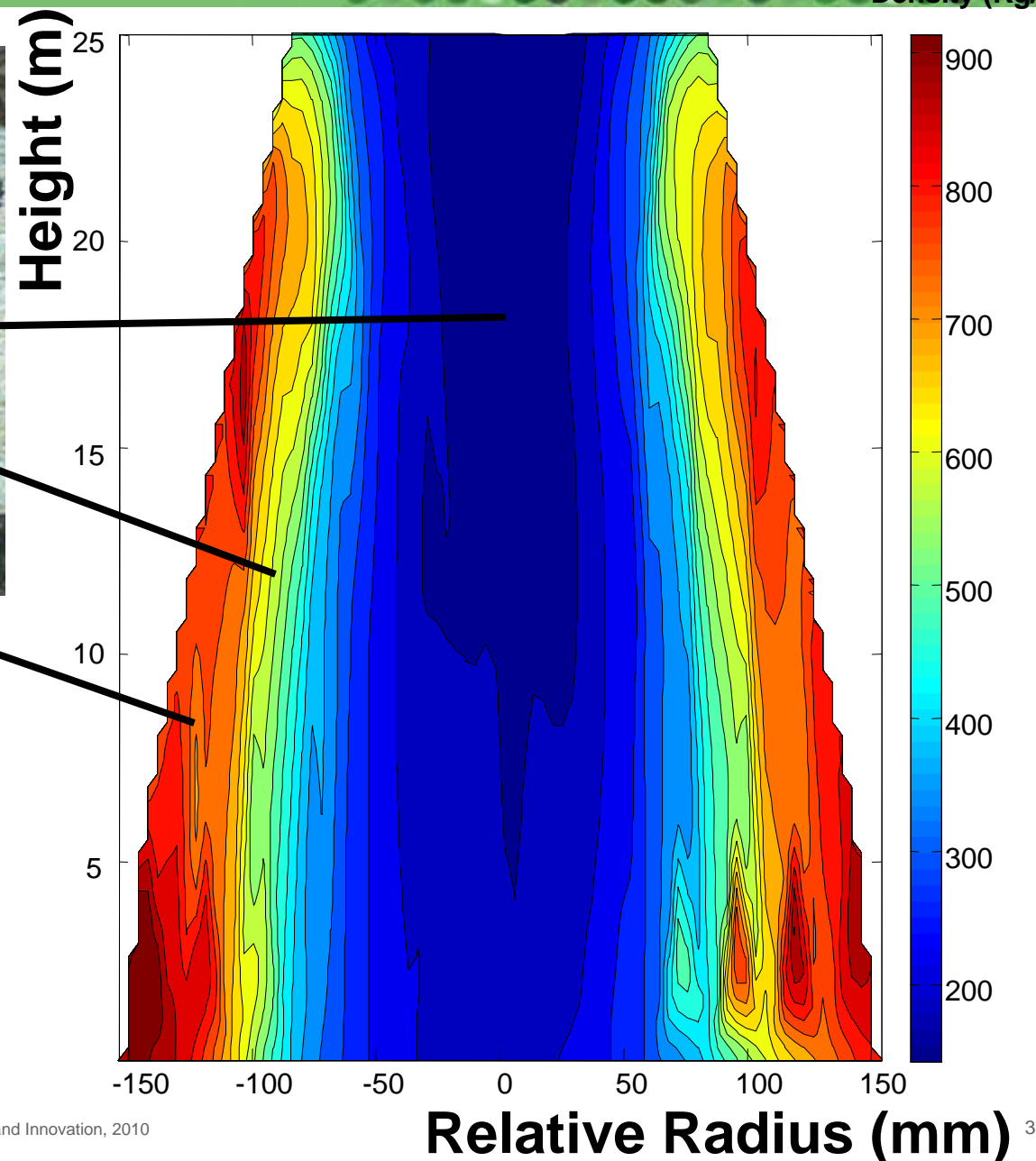
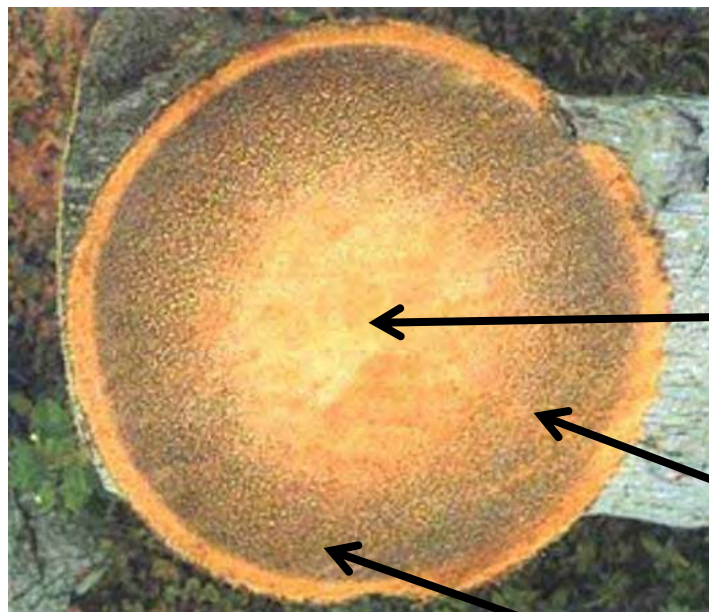


Fibrovascular bundle

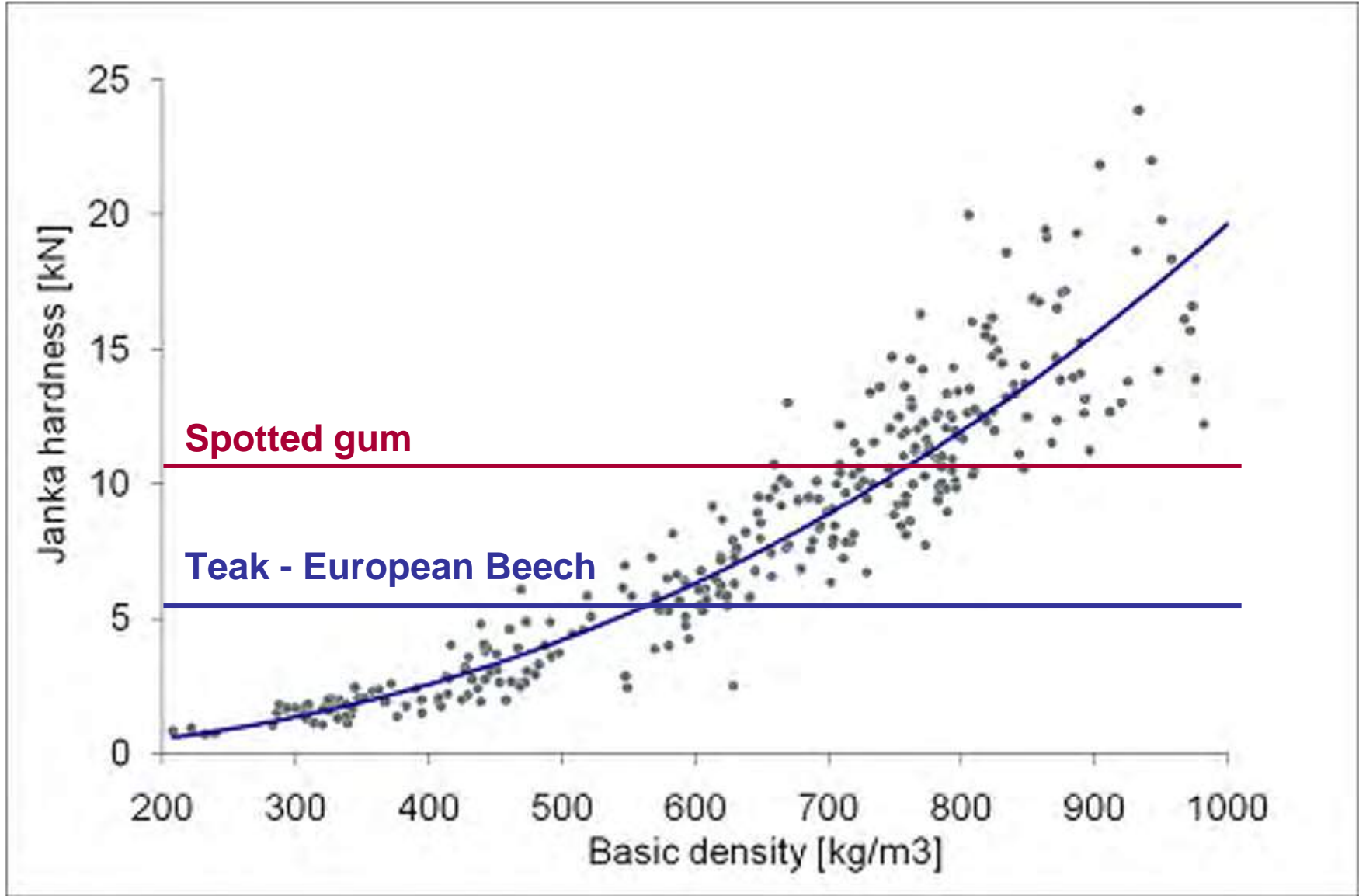
Parenchymatous ground tissue

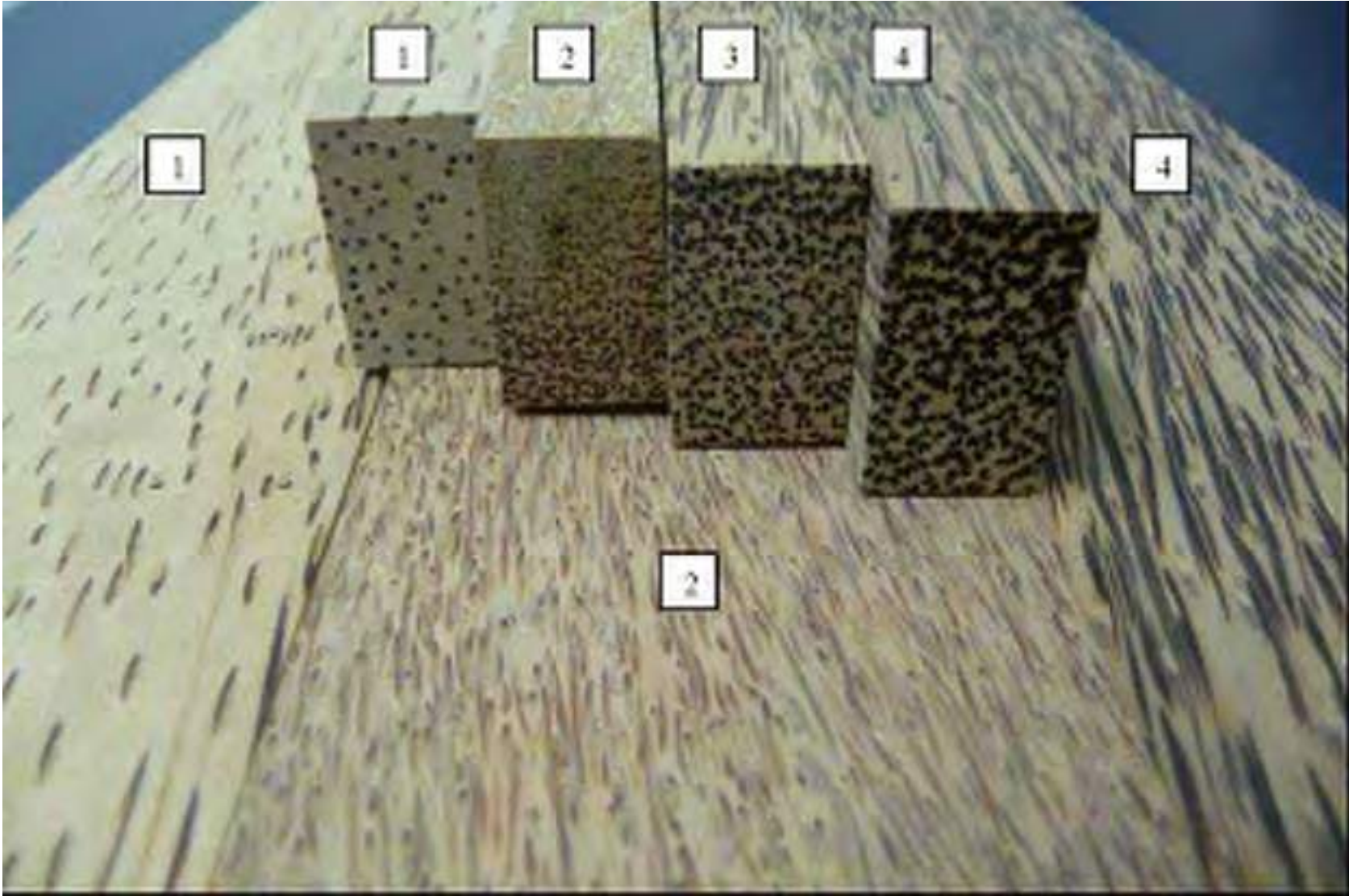
Sclerenchyma fibres

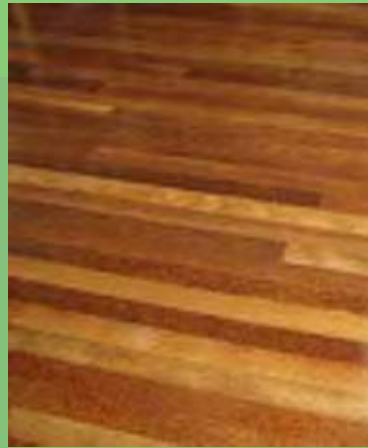
Vascular tissue (Xylem and Phloem)











COCONUT WOOD HIGH QUALITY FLOORING

LOGGING, LOG SELECTION AND MILLING

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Outline

- Coconut Logging
 - Fiji
 - Samoa
- Palm and Log Selection
 - Palm selection
 - Log selection
- Milling Process
 - Sawing
 - Treatment
 - Stacking and drying

Coconut Logging - Samoa



- Coconut logging in Upolu (Mulifanua & Samatau) and Savaii (Salalevalu) – Wood properties trial.

Coconut Logging - Fiji



Coconut Logging in Savusavu (Nagigi) and Taveuni (Vunivasa estate) – For the wood properties trial.

Palm Selection



- Age of trees
- Trees not bearing nuts

- Height
- Absence of bark scars (fallen branch)

Log Selection



- High density wood – darker part of the stem
- Straightness

Milling Process - Sawing



- Bandsaw cutting – Forestry Band sawmill (Suva)
- Circular saw cutting – Strickland Bro. Portable mill (Apia, Samoa)

Milling Process

Preservative treatment

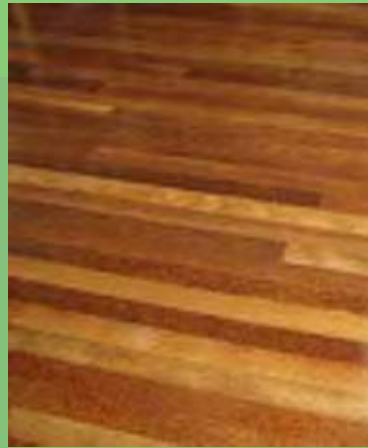


- Susceptible to stain, mould and insect damage
- Old treatments not safe
- New treatments found to protect cocowood

Milling Process - Stacking & Drying



- Stacking by grade - high, medium and low dense
- Packet to be filleted before drying
- Cocowood stacks to be dried under cover.



Secondary processing and products

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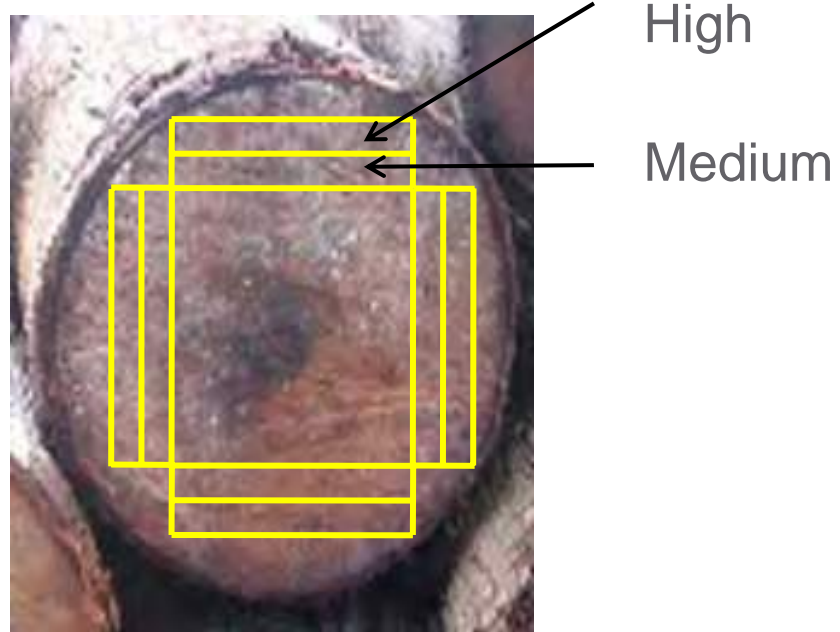
Secondary processing

- grading
- drying
- machining



Grading

- boards sorted by hardness
- high and medium hardness required for flooring



Drying

- Improves
 - stability
 - hardness
 - transport costs
 - strength and stiffness
 - resistance to pests



Kiln drying

- essential to reach target moisture content for export
- high energy costs offset by faster throughput
- complete control over drying conditions and quality





10 m³ gas-assisted solar kiln was installed at Forestry Department to run research trials (\$100,000 FJD).



Machining

- Compared with most hardwoods, cocowood machines require:
 - sharper tool edges
 - more frequent maintenance
 - slower feed speeds
- Optimised feed speeds are now known for planing, moulding and sanding to produce excellent quality



Products

- Engineered flooring
 - Laminated pancake construction
 - Re-sawn
 - Glued to plywood
 - 133 mm x 15 mm



Secondary products

- Plant growing media and mulch
 - properties within suitable range (water retention, pH, etc)
- Ethanol
 - lower starch content than anticipated
 - probably not feasible
- Coreplate, blockboard
 - cocowood has suitable properties
 - competition from existing products





Cocowood website

Bringing cocowood production and markets together

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Exploring the potential of *coconut wood*

Web Site

Search

[Home](#) [About the project](#) [About us](#) [About cocowood](#) [Members](#) [Contact us](#) [Cocowood forum](#) [News](#)

Latest News

April 10 Cocowood properties - technical fact sheet available. [More](#)

June 05 Coconut prospects for Pacific countries - roundtable meeting in Fiji. [More](#)

January Cocowood - the new timber. [More](#)

[Register](#) [Login](#)

Welcome to cocowood

The cocowood project is helping cocowood enter the Australian and international flooring market.

The ACIAR project 'Improving the value and marketability of coconut wood' is providing the science to underpin coconut wood production, engineering and marketing initiatives and address gaps in our understanding of cocowood properties and suitable processing technologies.

Cocowood properties and processing facts

This technical fact sheet provides information about properties as well as processing cocowood with particular reference to flooring products. [Download](#)



Coconut palms - the timber of the future

We see them along our beachfronts and in many streets and gardens, but the iconic palm tree may soon have a new place in the Queensland lifestyle as a high quality timber product. [Read more.](#)

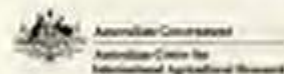


Precision drying technology for cocowood processors

Forestry and timber specialists from Fiji and Samoa learned how to dry coconut stem 'wood' to produce high value 'timber' products in Brisbane, recently [Read more.](#)



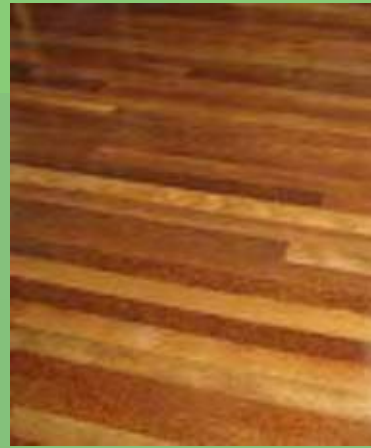
Project Partners



Discussion forum and cocowood mailbox

- **importing** cocowood products
- acquiring engineered **boards**
- contact with **sawmillers**
- advice about kiln **drying**
- cocowood natural **durability**
- **market potential** of cocowood
- developing the plantation **resource**





Next steps

Possible ways forward

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