

breeding tomorrow's trees today

#### Our strategy is to establish a durable hardwood industry in New Zealand's East Coast regions

UC Workshop NZ School of Forestry

19<sup>th</sup> June 2018



# **Strategic Planning 101**

Strategic planning is an organization's **process of defining its strategy including:** 

- to set a vision and priorities,
- to focus energy and resources,
- to strengthen operations,
- to ensure that employees and other stakeholders are working toward common goals,
- to establish agreement around intended outcomes/results,
- to assess and adjust the organization's direction in response to a changing environment.

## **NZDFI** Vision

Our vision is for 100,000 ha of durable eucalypt forests established in New Zealand's east coast regions by 2030 that could generate an estimated \$2 billion in annual sales of naturally durable timber products by 2050.



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# A quick review of how we got here

# Stage 1 (2003-2008) The VT Post

# a naturally durable post for New Zealands vineyards



# The naturally durable eucalypt VT post





# Proposed Forest Resource Development Research Strategy

- Species selection for class 1 & 2 timbers
- Obtain seed of best provenances
- Evaluate seedling production
- Field trials for optimal spacing
- Evaluate optimal silviculture
- Undertake post production trials including portable milling



## **Resource Development Strategy** Establish New Forest Resources





# Stage Two (2008-2017) NZDFI R&D programme

- Official launch on 28<sup>th</sup> January 2009 by MRCT, VT, Proseed and UC.
- Team building first planting at Lawson's on 7<sup>th</sup> October 2009.







# Marlborough Lines identified they needed cross arms.

• 'Aussie hardwood's have been the preferred timber for crossarms that are now in short supply and expensive.







# Comparison of export sawn timber value to import sawn timber value



value difference of imported hardwood over export radiata is \$763/m3 11

#### 21/06/2018

Kaikoura District Council new offices under construction High strength LVL beams and cross laminated timber panels. Can high stiffness eucalypt be used in engineered wood products?



Australian research on small-log processing to achieve structural veneer from juvenile hardwood plantations

- McGavin (2016) reports on veneer quality and 70-80% recovery using a spindle-less lathe to peel ~10-15 year-old plantation eucalypts.
- 5 species were included in the trial. Among the tested specie were Corymbia citriodora subsp. variegata, Eucalyptus cloeziana, E. dunnii, E. pellita, E. nitens and E. globulus.
- https://www.youtube.com/watch?v=LqnOutizVSI

# Eucalypts can support native bio diversity and honey bees



## **Stage Two - NZDFI Research Strategy**



**NZDFI** trial sites 140,000 seedlings planted on 70 ha across 30 sites from 2009-2016 (plus 1,000's of seedlings in Woodville trials)

# Mean Annual Rainfall



# NZDFI's current breeding individuals – almost 40,000 trees





Current status of NZDFI's Breeding Populations planted 2009-2012							
Plant Yr	Landowner	E.bosistoana	E.argophloia	E.globoidea	E.tricarpa	E.quadrangulata	Grand Total
2009	Martin	1,336					1,336
2009	Lawson-A	2,852					2,852
2009	Lawson-B	264					264
2009	MDC Cravens-A	545					545
2009	MDC Cravens-B	400					400
2010	Avery	1,103	270				1,373
2010	Martin	1,115					1,115
2010	MDC Cravens	652					652
2011	Atkinson			3,444			3,444
2011	Avery			5,300	600		5,900
2011	Martin					920	920
2011	Cuddon		899			795	1,694
2011	Dillon		912		480		1,392
2011	McNeil					921	921
2011	JNL Ngaumu		950	2,560			3,510
2011	Trimble				720	900	1,620
2012	Dillon	2,890					2,890
2012	McNeil	4,075					4,075
2012	JNL Ngaumu	4,548					4,548
Grand Total		19,780	3,031	11,304	1,800	3,536	39,451
Note: Figures exclude trees to small/unmeasureable							

# NZDFI Research Themes to ensure successful durable eucalypt plantations



# *E. bosistoana* and *E. globoidea* are producing seed in our trials





### **Proseed's success with propagation research**









# Annual nursery seedlings sales estimate of the total area planted (>900ha by 2017).



#### New government announced 'One Billion Trees' policy in November 2017



and innovative locations

# Stage Three – 2018 and beyond NZDFI regional strategy underway

- Meetings held with Regional Councils and MPI staff.
- Summer student gathered economic and financial data for developing model for LVL peeler value chain and saw log value chain.
- Consultation paper prepared and circulated.
- Summary of feedback circulated and working group established.

## **Summary of feedback - Positives**

- increase diversity in rural landscapes alternative to radiata pine.
- reduce market and biological risks for forestry.
- increase diversity of regional industries by establishing a sustainable hardwood products value chain.
- reputational boost to horticulture and wine-growing businesses operating under sustainable or organic production systems (by acting as a replacement to CCA-treated radiata pine).

## **Summary of feedback - Positives**

- control soil erosion due to ability to coppice (regrow vigorously from a cut stump).
- contribute to climate change mitigation by storing carbon.
- cope with the increasingly lengthy and intense droughts that are forecast for NZ.
- produce pollen and nectar for bees and native birds when supplies from other plant species are limited.

# Summary of feedback – Negatives (Barriers/challenges)

- shortage/unreliable supply of planting stock.
- lack of growth and economic models to compare durable eucalypts with other potential land uses (e.g. livestock grazing, radiata pine, and manuka).
- uncertainty about timber properties and performance.
- lack of market information and market demand.

# Summary of feedback – Negatives (Barriers/challenges)

- perceived high risk of pests and diseases decimating eucalypt forests.
- concern about possible risks eucalypts plantations may pose to water quality and human health.
- concern about eucalypt plantations reducing water catchment yield.
- concern about eucalypt forests being a significant fire hazard.

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To build sustainable regional industries based on highvalue, fast-growing hardwood forests

Genetically improved XG seedlings and clonal plants that thrive in dry conditions

Certified timber that is naturally durable, strong, and richly coloured for laminated veneer lumber, decking and posts



#### THE BENEFITS:

Diversify land use in dry regions

NEW ZEALAND DRYLAND

FORESTS INITIATIVE IP LTD

breeding tomorrow's trees today.

lature's Green Diamond

- Produce an alternative to CCAtreated pine
- Combat climate change by storing carbon
- · Protect soil by coppicing
- Provide pollen and nectar for bees and birds
- Generate regional jobs and skills
- Produce high-value products

#### THE BARRIERS TO OVERCOME

- · Lack of growth models and site/ species information
- Uncertainty about wood properties
- Risk of new pests and diseases
- Lack of supply chain
- Concern about water quality and water yields
- Concern about fire hazard

#### ... to collaborate with the ONE BILLION TREES PROGRAMME

#### 21/06/2018



NZDFI IP Ltd have registered the XyloGene Nature's Green Diamond trade mark to certify genetically improved durable eucalypt seed/germplasm.

A royalty will be collected on sale of improved seed or plants to pay for ongoing research.

XyloGene could add value to future hardwoodforests and timber products.

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Our vision is for 100,000 ha of durable eucalypt forests established in New Zealand's east coast regions by 2030

that could generate an estimated \$2 billion in annual sales of naturally durable timber products by 2050.

At 1,000 trees per ha that's 100 million trees and 10% of government's 1BT target!

#### Thanks to an excellent team of dedicated people

**Shaf van Ballekom**, Chairman NZDFI (Proseed NZ Ltd, Amberley) **Gerald Hope,** Finance Manager (Marlborough Research Centre Trust, Blenheim) Professor Bruce Manley, HoD (School of Forestry, UoC) **Dr. Clemens Altaner**, Wood science (School of Forestry, UoC) **Assoc Professor Luis Apiolaza**, Tree Genetics (School of Forestry, UoC) **Professor Euan Mason**, Physiology & modelling (School of Forestry, UoC) **Dr. Tara Murray**, Forest entomology (School of Forestry, UoC) **Dr. Justin Morgenroth**, Forest GIS systems (School of Forestry, UoC) **Ruth McConnochie**, Consultant tree breeder (under contract to NZDFI) **Harriet Palmer**, Communications consultant (under contract to NZDFI) **Roger May**, Forestry GIS mapping specialist (under contract to NZDFI) **Ash Millen,** Forestry technician (under contract to NZDFI) Kevan Buck and Mandy Mitchell, Administration (MRC Trust, Blenheim) **Other UC staff and PhD students 30 landowners** 

#### Check out <u>www.nzdfi.org.nz</u> for more information

### Thanks to our supporters over the last 10 years

- 30 landowners in Marlborough , Nelson, Canterbury, Wairarapa, Hawkes Bay, Horizons, BoP, Taupo and Gisborne.
- Includes Juken NZ, Lake Taupo Forest Trust and NZ Redwood Company
- AGMARDT
- Regional Councils x4: MDC, GWRC, HBRC and GDC
- Ministry of Primary Industries Sustainable Farming Fund
- Marlborough Lines and Marlborough Gold Honey
- Neil Barr Farm Forestry Foundation
- NZ Farm Forestry Association
- NZ Forest Growers Levy Trust via MBIE/FFR Speciality Wood Products partnership