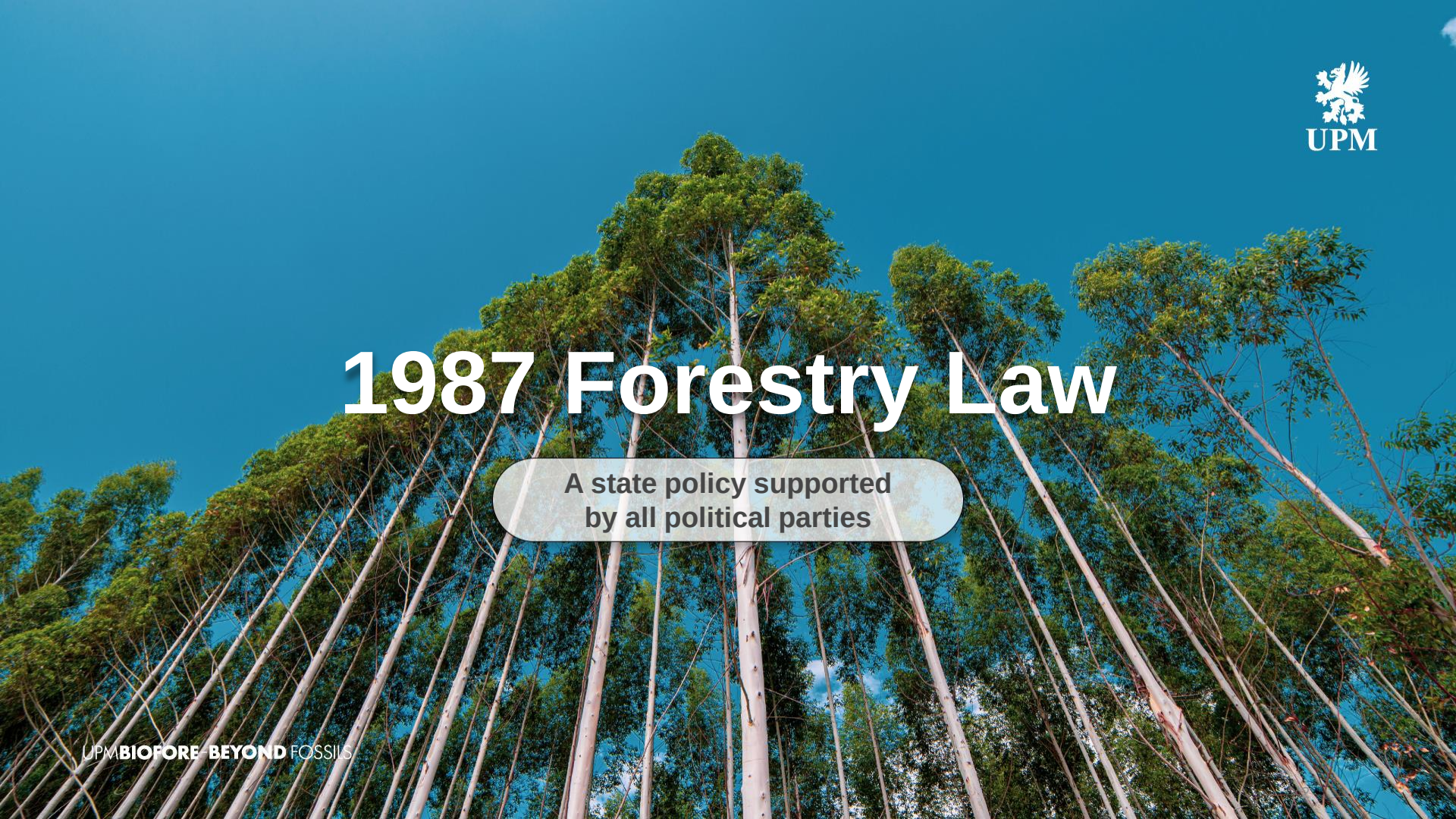
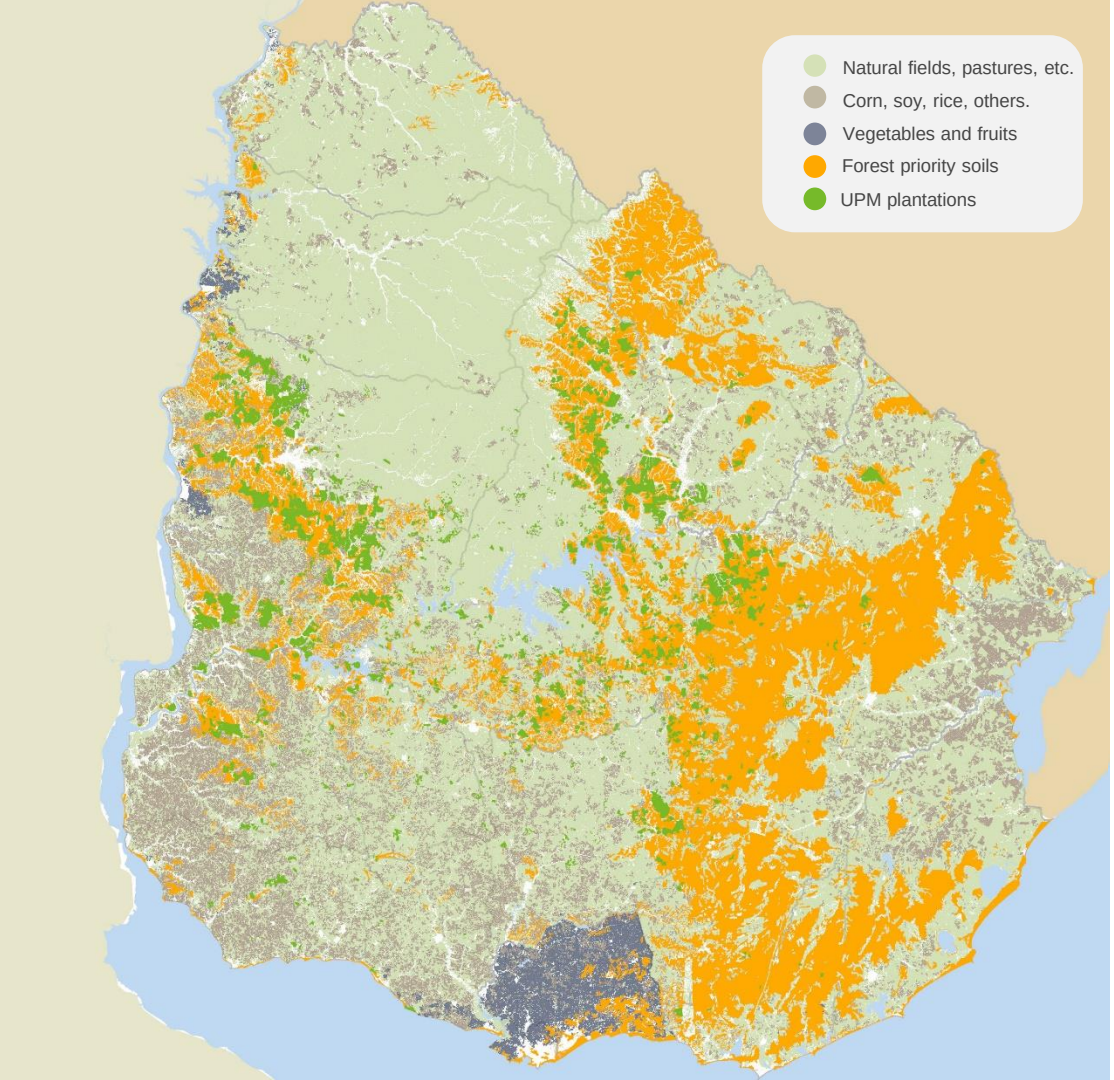
Sustainable Eucalyptus plantations in Uruguay

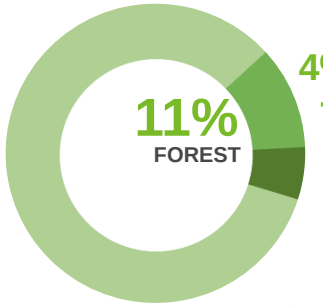
UPM BIOFORE - BEYOND FOSSILS


UPM
1987 Forestry Law
A state policy supported
by all political parties
UPMBIOFORE-BEYOND FOSSILS



Forestry law results after 30 years

90% **of forest plantations** are certified by FSC® and PEFC



4% NATIVE FOREST

7% PLANTATIONS

9% AGRICULTURE

79% CATTLE GRAZING

Key fundamentals of plantations in Uruguay

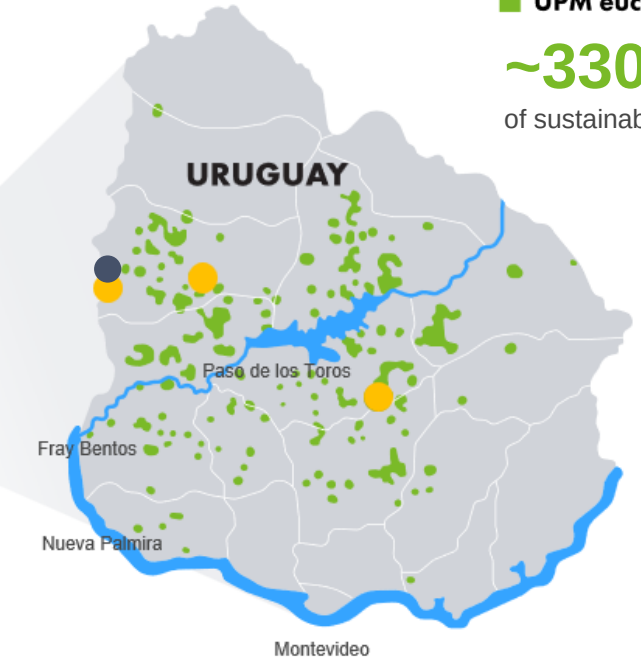
Clear land ownership structure and strict land use policies

Tree plantations established mainly on land not suitable for other uses

All native forests protected (4% of land surface – growing continuously)

Dual certification and environmental monitoring by government and third parties

UPM’s plantations footprint



UPM eucalyptus plantation

~330 000 ha

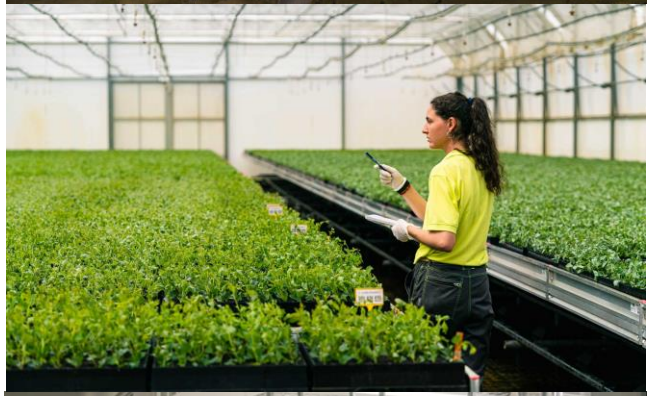
of sustainably managed plantations

Modern nurseries

45M plants annually

First UPM’s Forestry Research Center

Specialized on Euca plantations



The anatomy of UPM plantations

60%

planted with UPM's specifically selected, high-productivity trees (*E Grandis* and *E Dunnii*)

40%

non-planted area for maintaining natural vegetation, infrastructure and conservation areas

10 years

rotation time from planting to harvesting

Best practices in forest management

Native forest conservation

Demarcation of plantable and non-plantable areas

Unplanted low-lying, naturally drained, riparian, rocky areas and wetlands

- **Harvesting in mosaic** to minimize variations in water catchment flows and protect biodiversity

Use of **agrochemicals** approved by **FSC®**

Our main wood species

Eucalyptus grandis

1

Quick refinability
Good strength and runnability
Excellent formation
Outstanding surface smoothness
Excellent optical properties

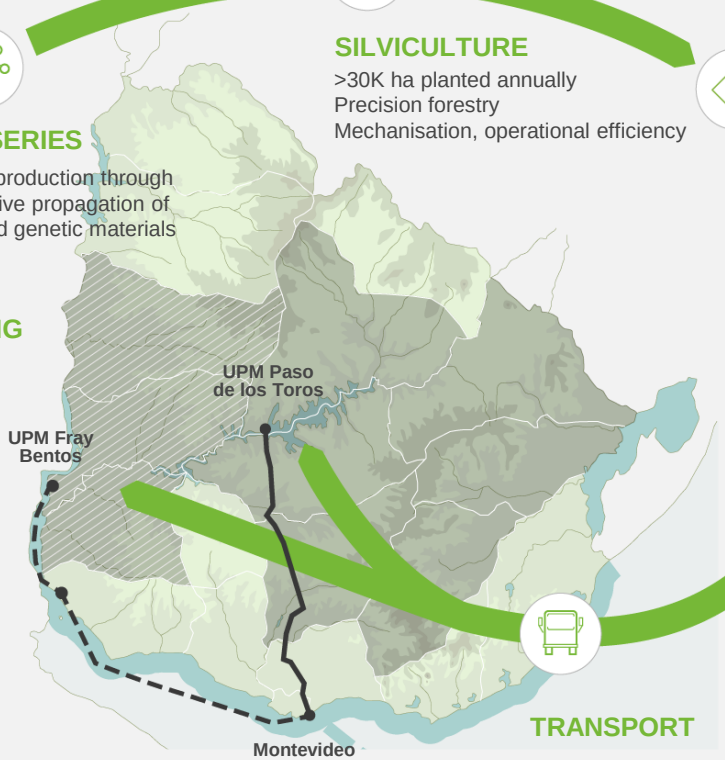
Eucalyptus dunnii

2

Frost resistance
High wood basic density
Outstanding bulk
Excellent softness

Combined E. grandis and E. dunnii provide a **well-balanced pulp**, of good quality, competitive with the main Eucalyptus fiber sources in the world

Forestry operations value chain



SILVICULTURE

>30K ha planted annually
Precision forestry
Mechanisation, operational efficiency

ROAD CONSTRUCTION

Strategic road planning
Infrastructure maintenance
Stockpiles network on asphalt roads

HARVESTING

100% mechanised
10M m3/year

TRANSPORT

Dedicated fleet
100% monitored to optimise planning and safety
High performance vehicles
~800 trips per day

NURSERIES

Clonal production through vegetative propagation of selected genetic materials

LAND USE PLANNING

Forestry planning
Plantation design
Conservation areas
Road layout

R&D – TREE BREEDING PROGRAMME

Genetic improvement programme
R&D forestry, forestry protection, sustainabilit

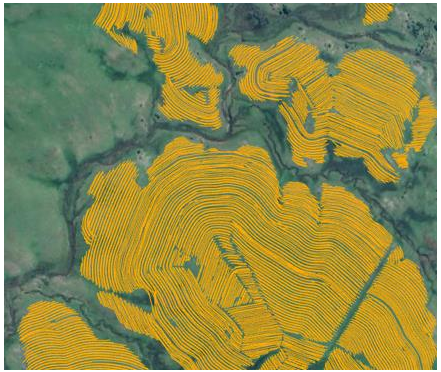
Digitalization at the core

UPM

Silviculture practices developed to maximize plantations productivity

>30k ha
planted annually

State-of-the-art machinery
specially designed for Uruguay conditions together with local suppliers



SMS strategy

- **S**ynchronize
- **M**echanize
- **S**implify

100% of activities
monitored by GPS

Efficient and safe wood logistics

- **24/7 dedicated fleet**
- **100% monitored** to optimise planning and safety
- **High performance vehicles configurations** implemented with tri-trains and 48tons semis
- Strategic **road planning**

65 M
km / year

15k
Trips per month

350
trucks


VOLVO
Actros
500
UPM

500 MAX OVERHANG
300 MAX OVERHANG
1832 MAX OVERHANG
7200
7500
5300
160 LEAD
180 LAG
1250 LAG
4300 MAX OVERALL HEIGHT
1370
1423 MAX BOLSTER HEIGHT
1250
1424 MAX BOLSTER HEIGHT
1256
1426 MAX BOLSTER HEIGHT
1250
1520 MAX
3685
2500 MAX
25235 MAX OVERALL LENGTH

Intermediate log-yards secure supply in all weather conditions

- **Strategic location** over asphalted roads
- **Scanners** to measure wood volumes and wood load quality
- **Secure volumes** to operate when adverse weather conditions

6
Intermediate Log-yards

Plantations integrate well with other activities

Cattle grazing

Beekeeping

Mushroom collection

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Sustainability is at the core of our operations

UPM

100% TRACEABLE WOOD ORIGIN

ZERO DEFORESTATION

NO USE OF GENETICALLY MODIFIED TREES

FSC® / PEFC
dual certification

BIODIVERSITY, SOIL AND WATER
sustainability proven through long-term monitoring

>70 000 HECTARES
dedicated to biodiversity conservation in UPM land

CARBON ACCOUNTING
along all value chain steer climate-positive actions

CONTRIBUTION TO THE DEVELOPMENT
of small communities in Uruguay inland

Biodiversity conservation

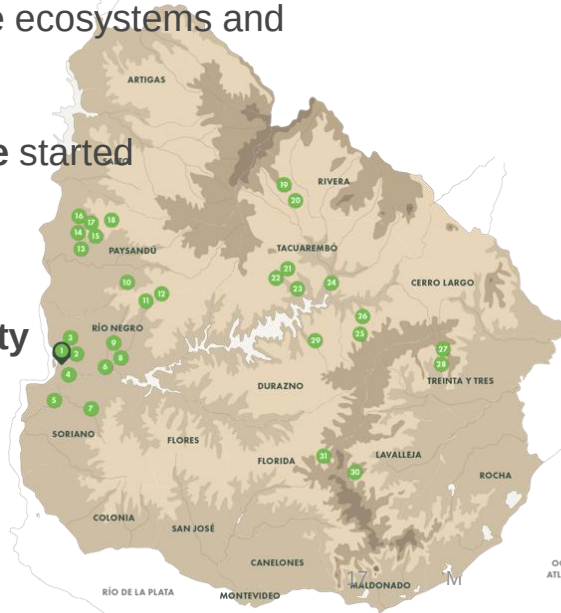
>70.000 ha of natural areas
under conservation measures

Specific **management plans** designed to actively protect sensitive ecosystems and endangered species

Monitoring programme started in early 1990s

33 **biodiversity reserves**

Antyphythum charruasorum



Contribution to development

Presence in Uruguay inland

99% of the communities in which we work
have less than 10,000 inhabitants

Community engagement Strategy & Actions

DIALOGUE

Build trust & establish relations

Community engagement

Leaders' involvement

ISSUE MANAGEMENT

Understand impacts

Solve conflicts

Social monitoring

COMMUNITY DEVELOPMENT

Community projects

Biofore Share&Care focus

UPM Uruguay operations

- Open days
- Operations visits
- Local meetings
- Key leaders' group

- Complains and inquires management
- Social monitoring
- Management of impacts related to transportation, fires, water, biodiversity

UPM Foundation

- Community development projects
- Education projects

R&D at the core of our sustainable plantations

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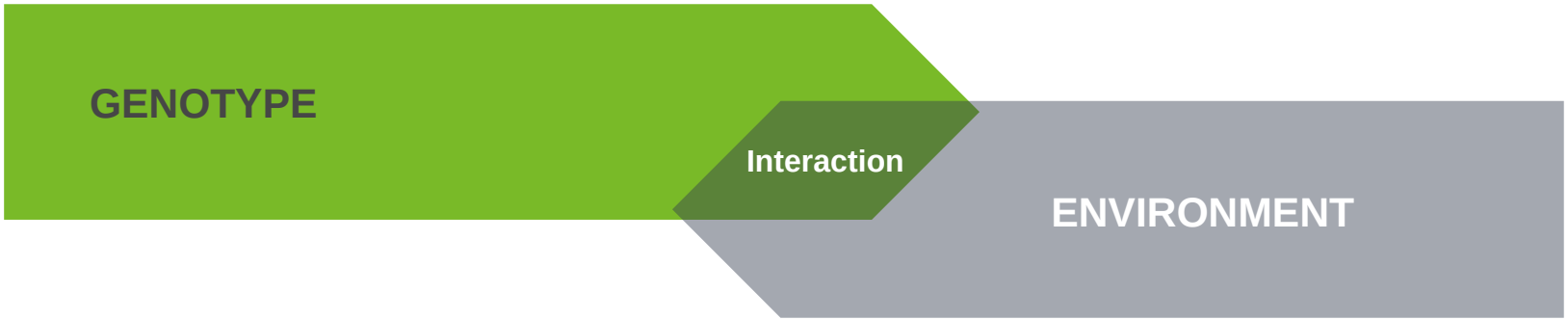
E. grandis and E. dunnii selected as the main species to maximize Pulp productivity (adt/ha/year) and Pulp quality

Scope of R&D in UPM Forestal Oriental

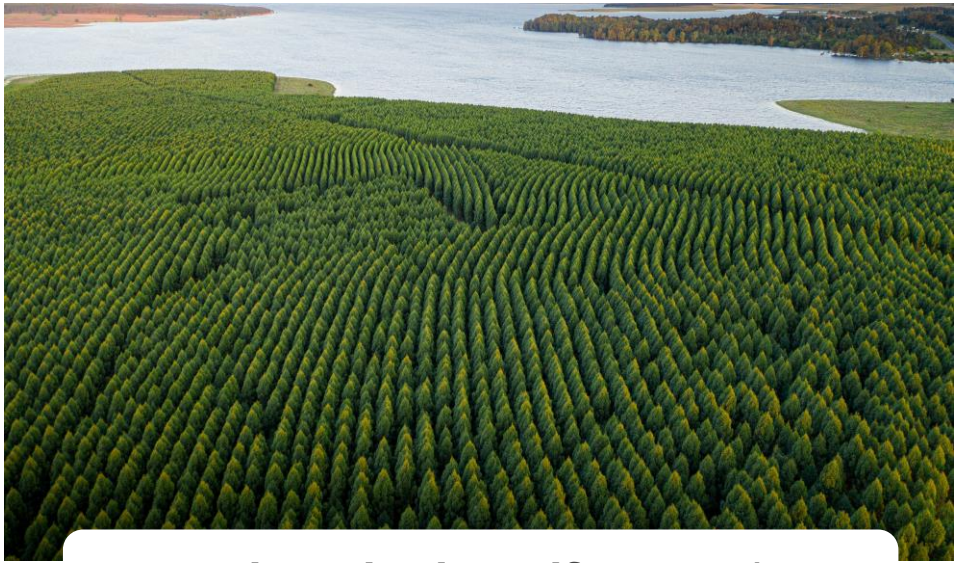
Genetic Improvement

Forest Protection (pests & diseases)

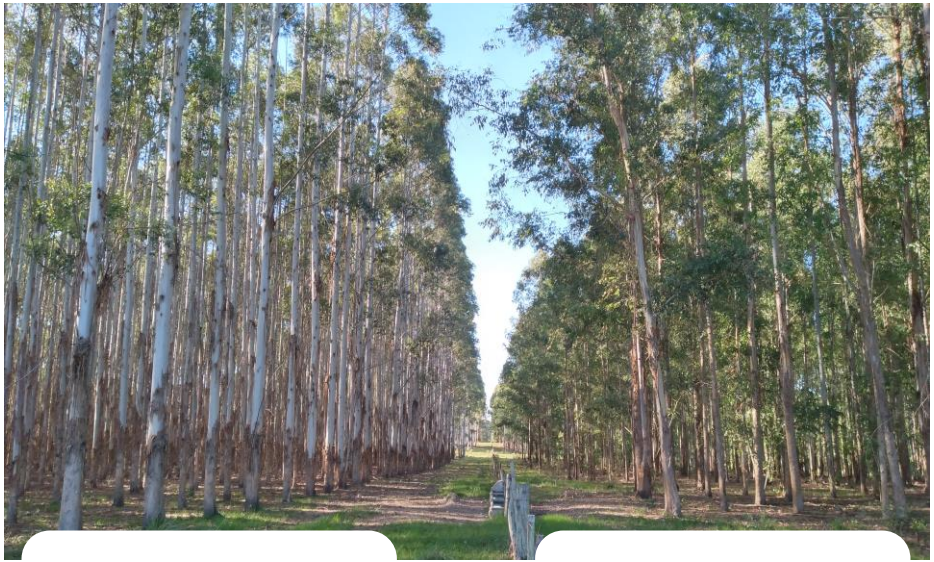
Silviculture Research



Clonal forestry: the selected strategy to maximize the capture of the genetic gains



…and to obtain uniform and **highly productive** plantations

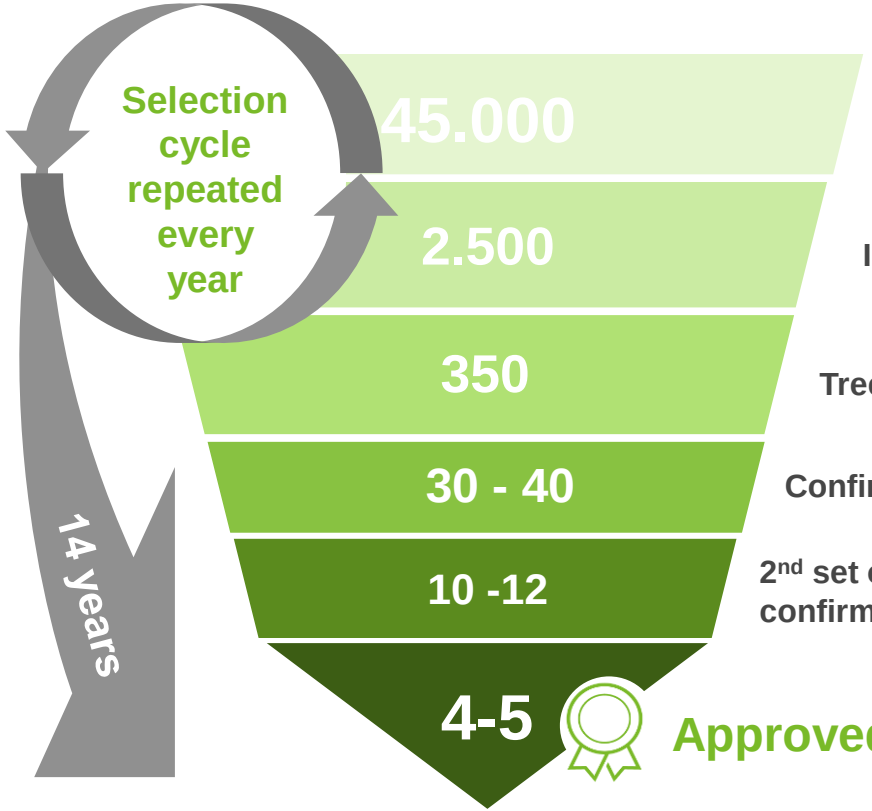


***E. grandis* clonal** plantation 10y

***E. dunnii* seed** plantation 10y

How cloning is done in practice?

Genetic material selection safeguards long-term competitiveness and supply security



Pedigree trees planted in the field

Initially selected for outstanding growth

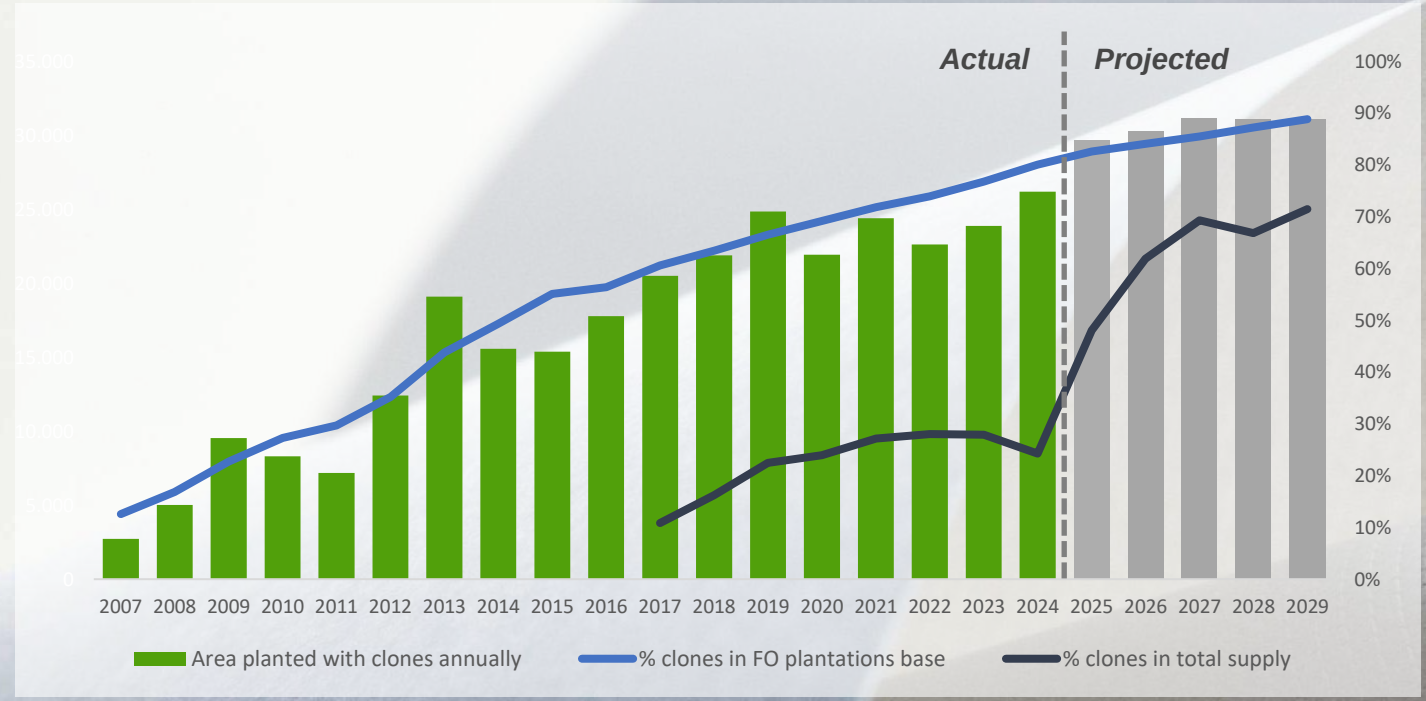
Trees selected by wood quality

Confirmed as excellent growers in 1st set of field trials

2nd set of field trials: best growers tested in lab for final confirmation

Approved for operational use

Currently ~80% of the plantations are clonal with high performing material feeding wood supply plans



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