

Appita 2007



Eucalyptus: the great Australian immigrant to Brazil



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 Celsius Degree / Grau Celsius



Brazil
...a great country with a
great people



↑
and you, here

...and with a top sustainable forestry technology

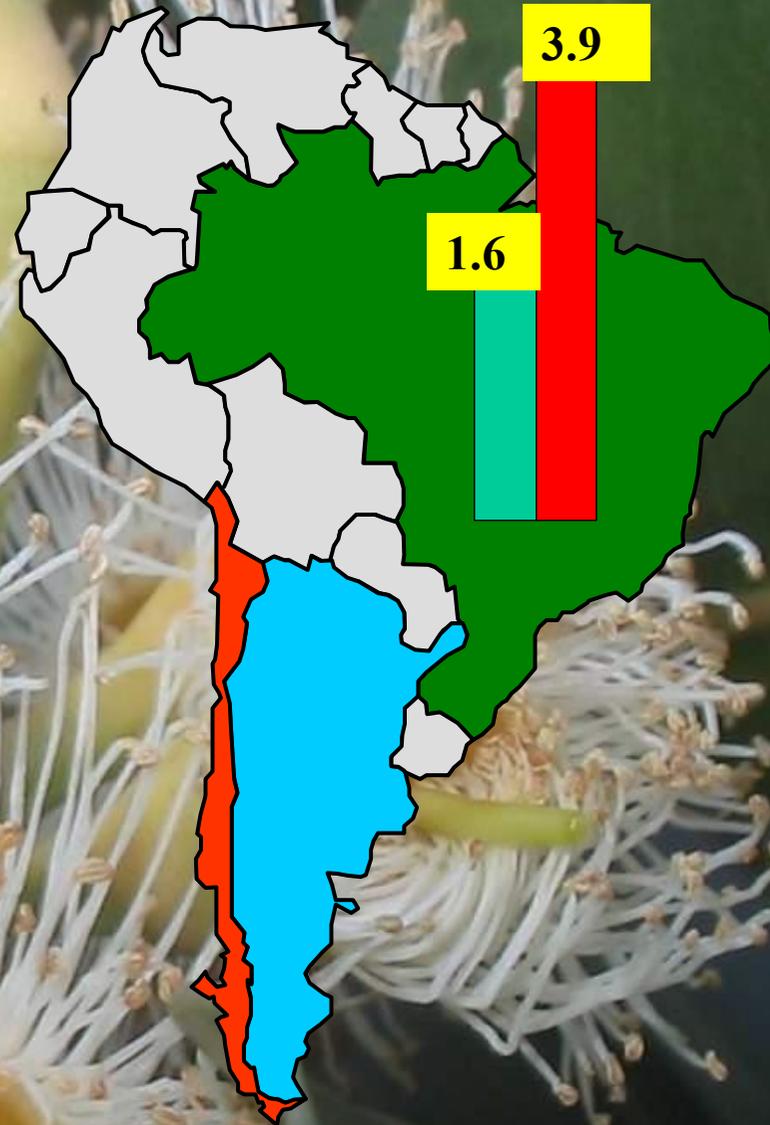


... we are now sharing with you

Brazilian Forest Plantations Area

World : 190 Million hectares
Source: FAO

Brazil: 2.5% of world
forest plantations



Brazil: **In Million hectares**

Total: **5.5**

Softwoods (green): 1.6

Hardwoods (red): 3.9

The immigration of *Eucalyptus* to Brazil

VISIT: http://www.eucalyptus.com.br/newseng_jul06.html



From 1825 to 1868
E.globulus
E.gigantea

First commercial plantations in 1904

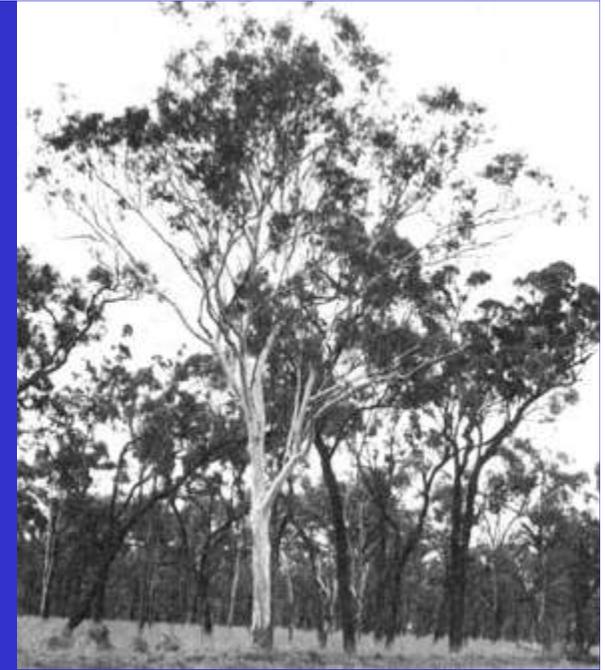


The “father of the Eucalyptus in Brazil”:

Mr. Edmundo Navarro de Andrade

Over 150 species first introduced

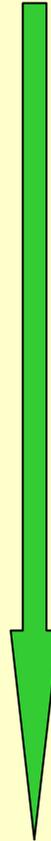




Brazil - 1960's

(15 - 20 m³/ha.year)

From 1960's till now

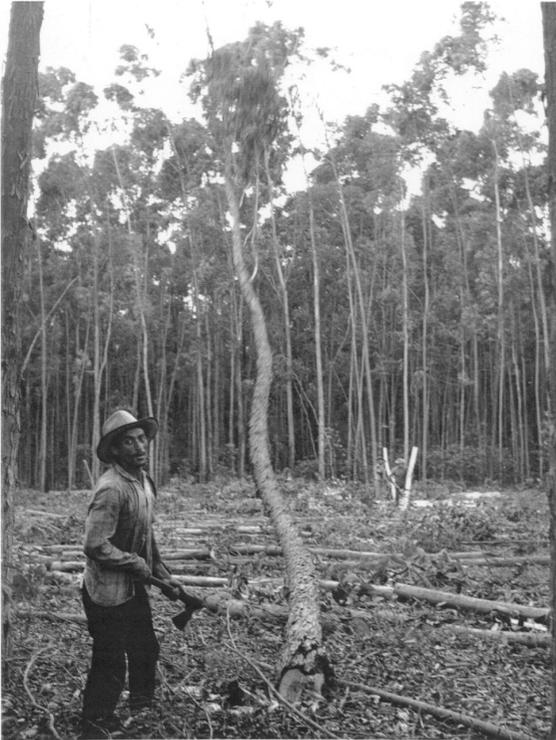


Today





From 1960's till now



Today



40 - 50 m³/ha.year



Present Days



Today's plantation forest performances

Eucalyptus: 40 - 55 m³/ha.year

Pinus: 25 - 35 m³/ha.year

Acacia mearnsii: 20 - 25 m³/ha.year





In 40 years, the forestry technological growth in Brazil was amazing

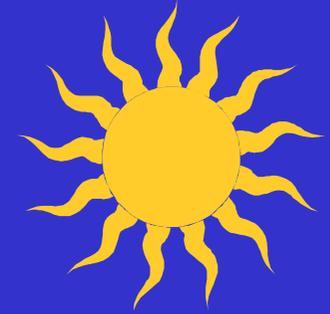
Because of this, the Brazilian forest based industry, including the pulp and paper, is very competitive



The Future demands for even more Sustainable Forestry



Forest and Wood Certification



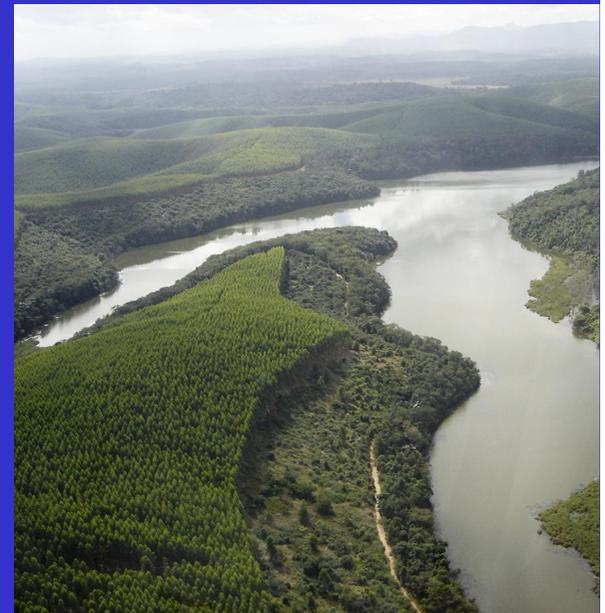
F S C



CERFLOR



ISO 14001



Forest and Wood Certification

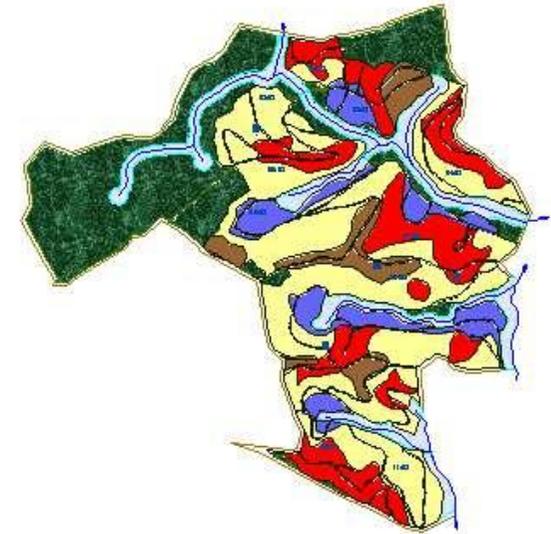


- ISO 9001 e ISO 14001
- Good Forest Management (FSC & CERFLOR)

In Brazil, late 2006, the area of certified plantations (forest management) was close to 3 million hectares, this means, over 50% of this kind of forests in the country



Mosaic Design in Forest Planning



Monitoring environmental impacts & managing watersheds



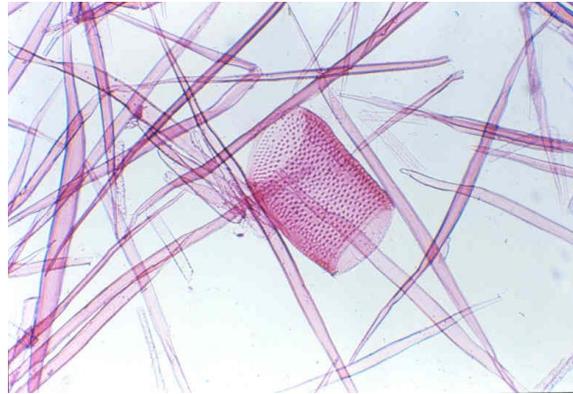
AGROFORESTRY & RURAL FARMERS INVOLVEMENT







Forest Technologies for High Growth Rates, Excellent Wood Quality and Forest Sustainability



Forest Technologies: A summary of main technological issues

1. High quality seedlings
2. Minimum impact soil preparation for planting
3. Irrigated plantation to guarantee all year operation
4. Efficient combat to ants, weeds, and pests & diseases
5. Soil nutrition: fertilization and forest residues management
6. Soil conservation measures: fertility, erosion prevention & water content
7. High quality genetic material
8. Hybridization and cloning
9. Mechanized operations
10. Tailor made wood quality
11. Parameters for tree and wood selection in tree breeding
12. Specifications in quality for the wood according to end-uses



1. High quality seedlings



2. Minimum impact soil preparation for planting



3. Irrigated planting of seedlings to guarantee all year operation



4. Efficient combat to ants, weeds, and pests & diseases



5. Soil nutrition: fertilization and forest residues management

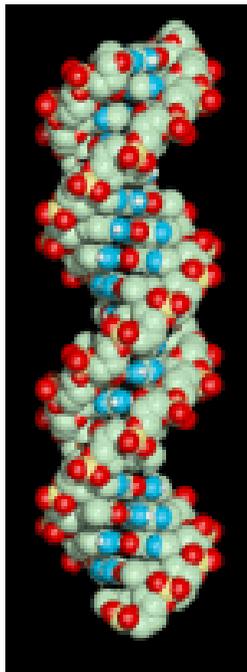


6. Soil conservation measures: erosion prevention & water content



7. High quality genetic material

Projeto Genolyptus
Mais qualidade e produtividade para o Eucalipto brasileiro



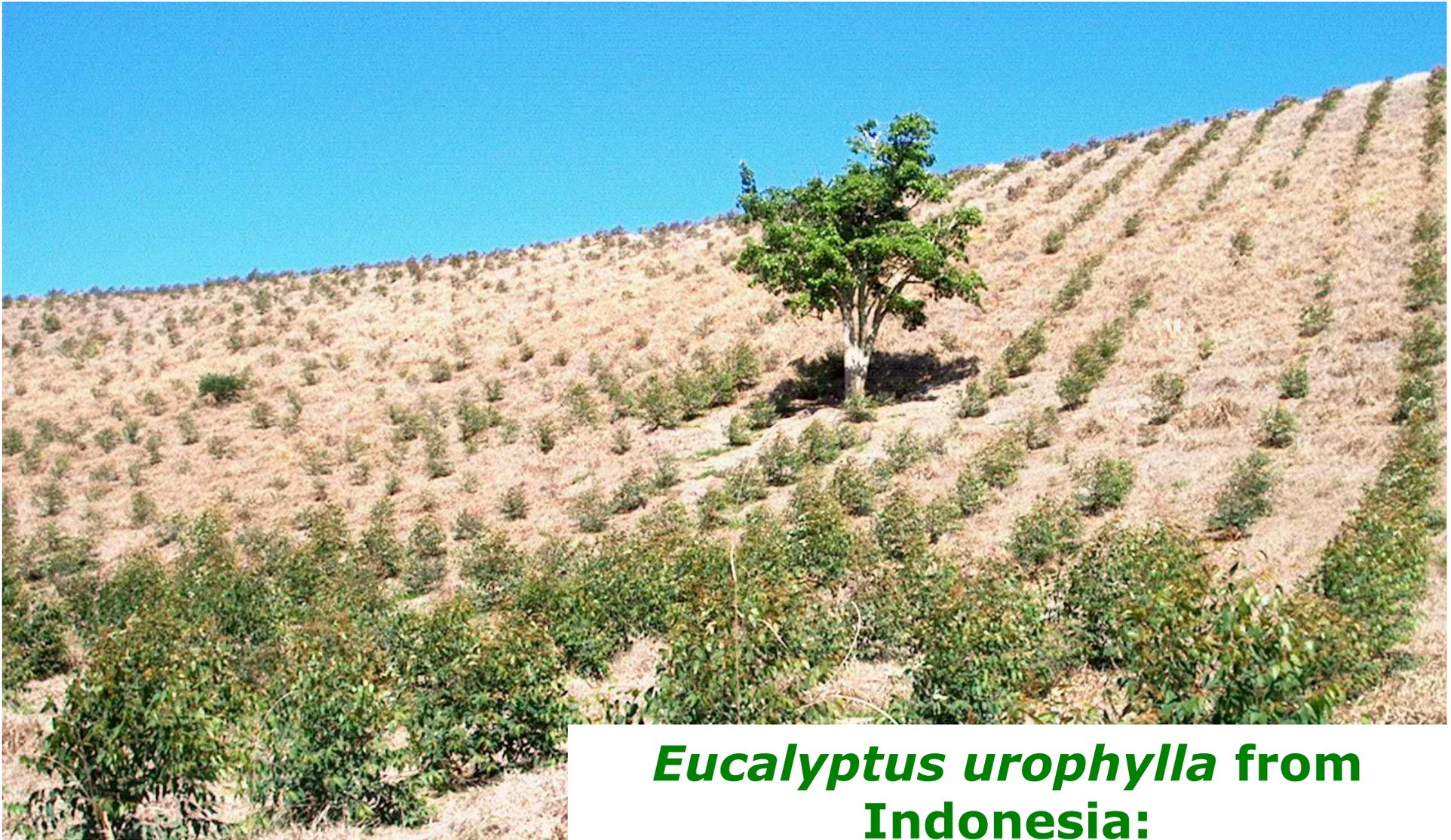
8. Hybridization and cloning



**The enormous
success
of another *Eucalyptus*
immigrant**



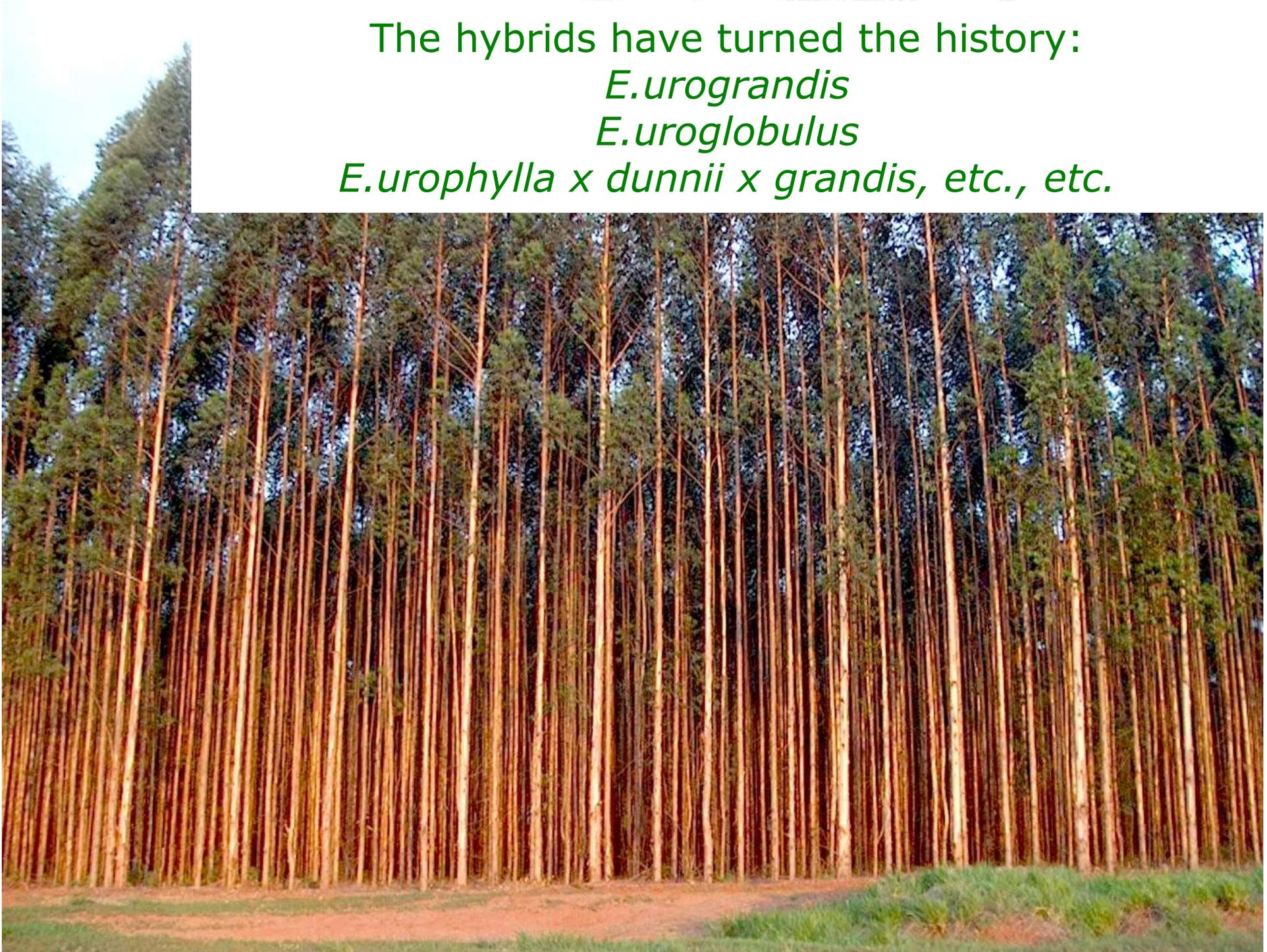
Most of the *Eucalyptus* species in Brazil were sensitive to tropical diseases, as rust and eucalyptus canker



Hybridization and cloning

***Eucalyptus urophylla* from Indonesia:
very healthy, resistant or tolerant to pests and diseases**

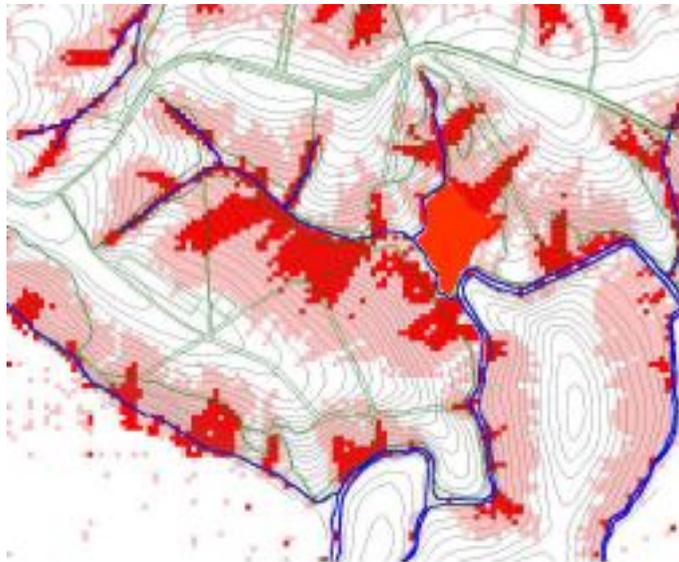
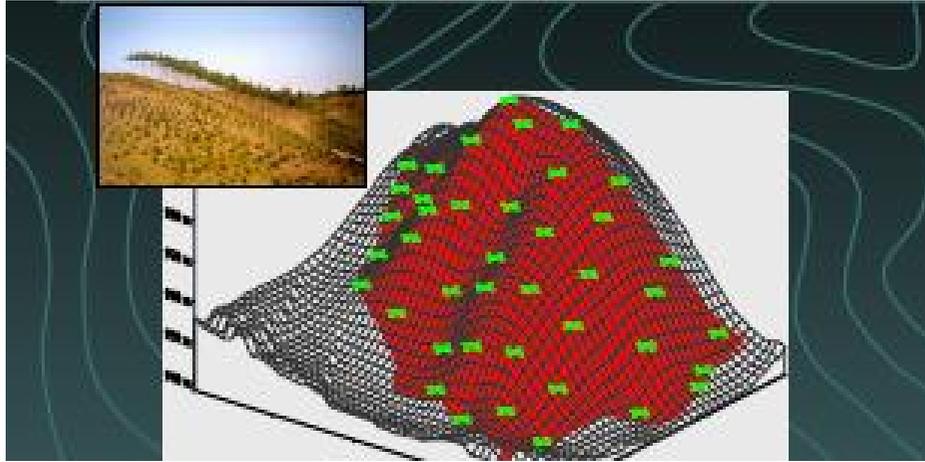
The hybrids have turned the history:
E.urograndis
E.uroglobulus
E.urophylla x dunnii x grandis, etc., etc.



9. Mechanized operations and automation

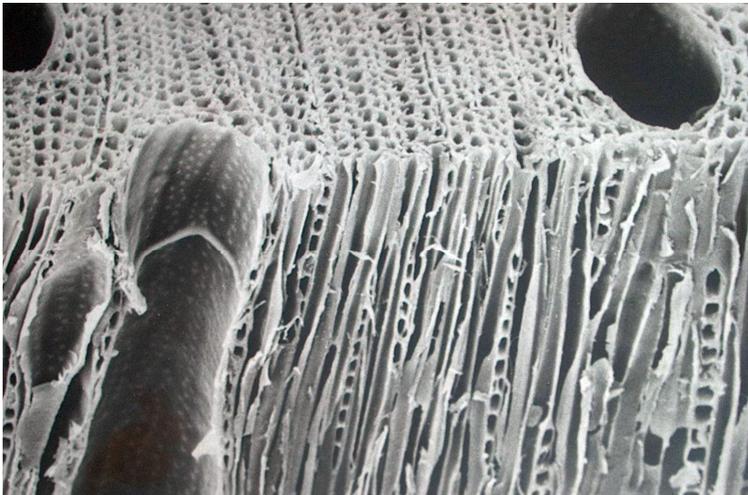


High tech silviculture





10. Tailor-making wood quality



- for pulp manufacturing
- for different paper grades
- for veneer
- for saw timber
- for furniture
- etc



11. Silvicultural characteristics for tree selection in forest breeding

- Individual growth
- Shape of tree, type of branches, canopy
- Resistance to pests and diseases (via inoculation)
- Resistance to herbicides
- Rooting and cloning ability
- Resistance to winds
- Bark content
- Nutrient consumption and efficiency in using them

12. Properties for wood selection in tree breeding for pulp and paper production

- Lignin content and type of lignin
- Extractive content / Pitch potential
- Hemicellulose content
- Wood basic density
- Kraft pulp yield and wood specific consumption
- Fiber coarseness and fiber population
- Pulp bleachability
- Pulp strength
- Paper bulk, opacity, porosity, water absorption
- Water retention value, drainability

13. Specifications in quality for the the eucalyptus wood and fibers according to end-uses

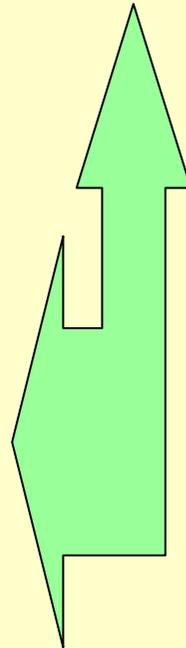
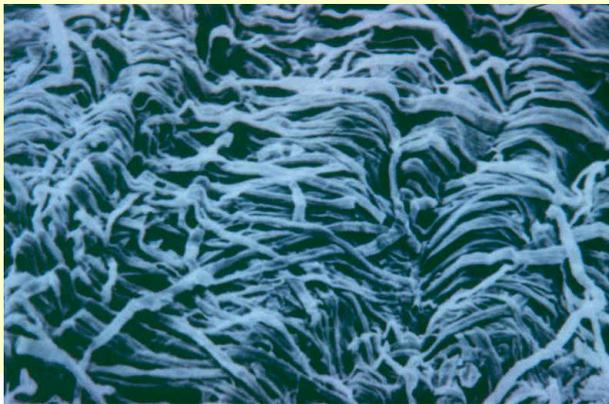
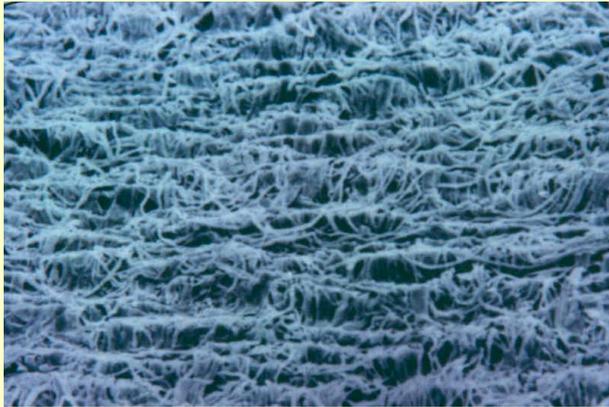


Tissue & Filter Papers

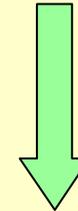
- higher density wood (average $0,55 \text{ g/cm}^3$)
- higher coarseness fibers (from 8 to 10 mg/100 m)
- lower fiber population (average 20 million/g)
- low initial freeness
- high bulk
- high porosity
- high water absorption
- low hemicellulose content (S-5 lower than 10%)

13. Specifications in quality for the the eucalyptus wood and fibers according to end-uses

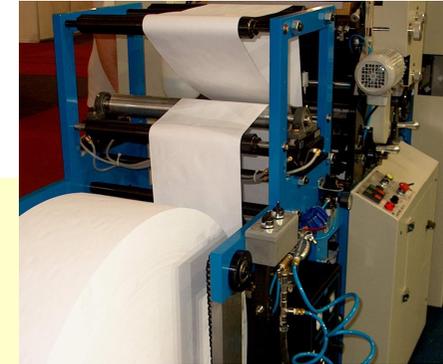
High quality tissue papers with eucalyptus



Poor quality tissue paper



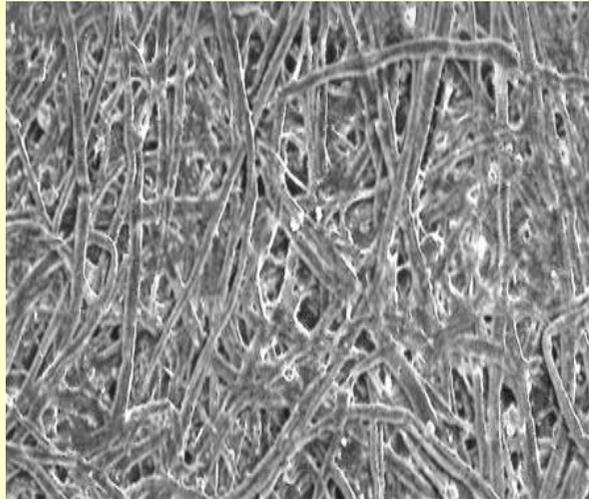
13. Specifications in quality for the the eucalyptus wood and fibers according to end-uses



Printing & Writing Papers

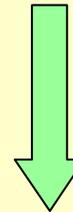
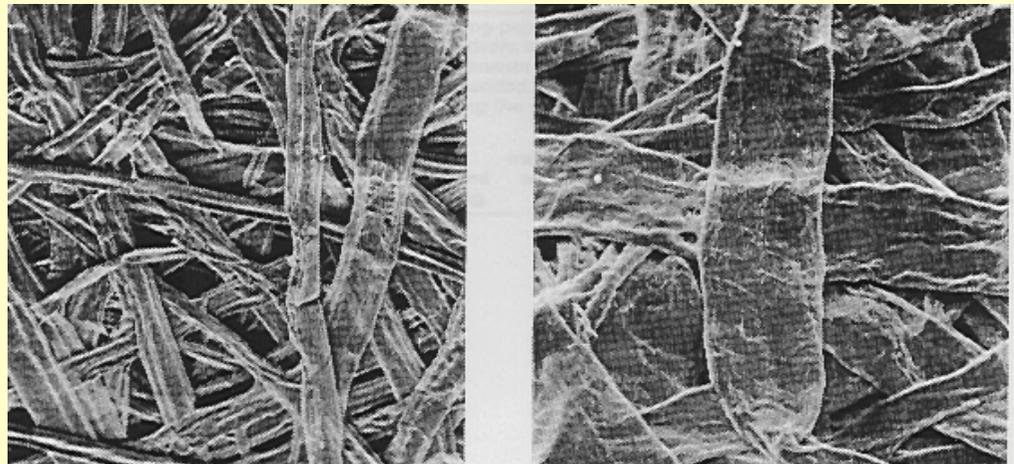
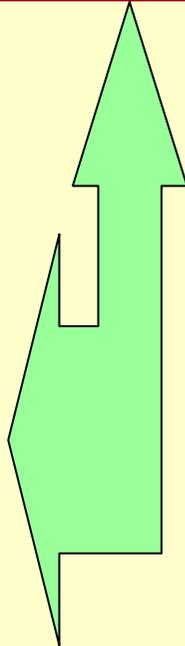
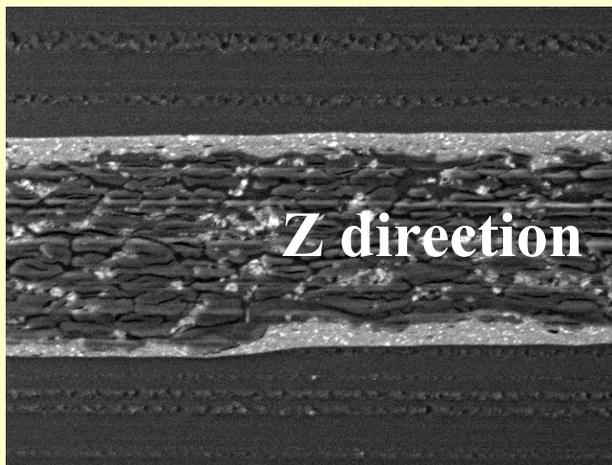
- medium density wood ($0,48 - 0,52 \text{ g/cm}^3$)
- lower coarseness fibers (from 5 to 7 mg/100 m)
- higher fiber population (average 25 million/g)
- high tear and tensile
- good porosity
- high opacity
- excellent smoothness
- higher hemicellulose content (S-5 higher than 10%)

13. Specifications in quality for the the eucalyptus wood and fibers according to end-uses

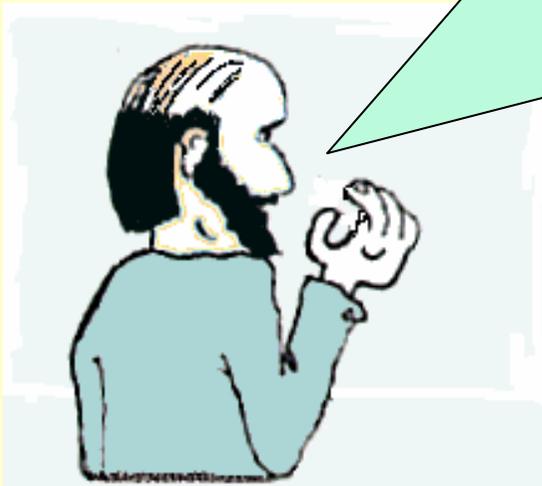


High quality P&W papers with eucalyptus

Long fibered paper



www.eucalyptus.com.br
www.celso-foelkel.com.br
www.abtcp.org.br



**This is a wonderful world,
don't you think so?
Thanks for your patience...
...and GOOD LUCK**