OPRINS

amboo Beauty and Function

ssue Culture of Ornamental
nd Plantation Bamboo

y Jan Oprins

Outline of this Presentation

1. About Oprins
2. Our Products and Services
3. Bamboo Tissue Cuture
4. Ornamental Bamboo Applications
5. Bamboo for Plantations

About OPRINS PLANT N.V.

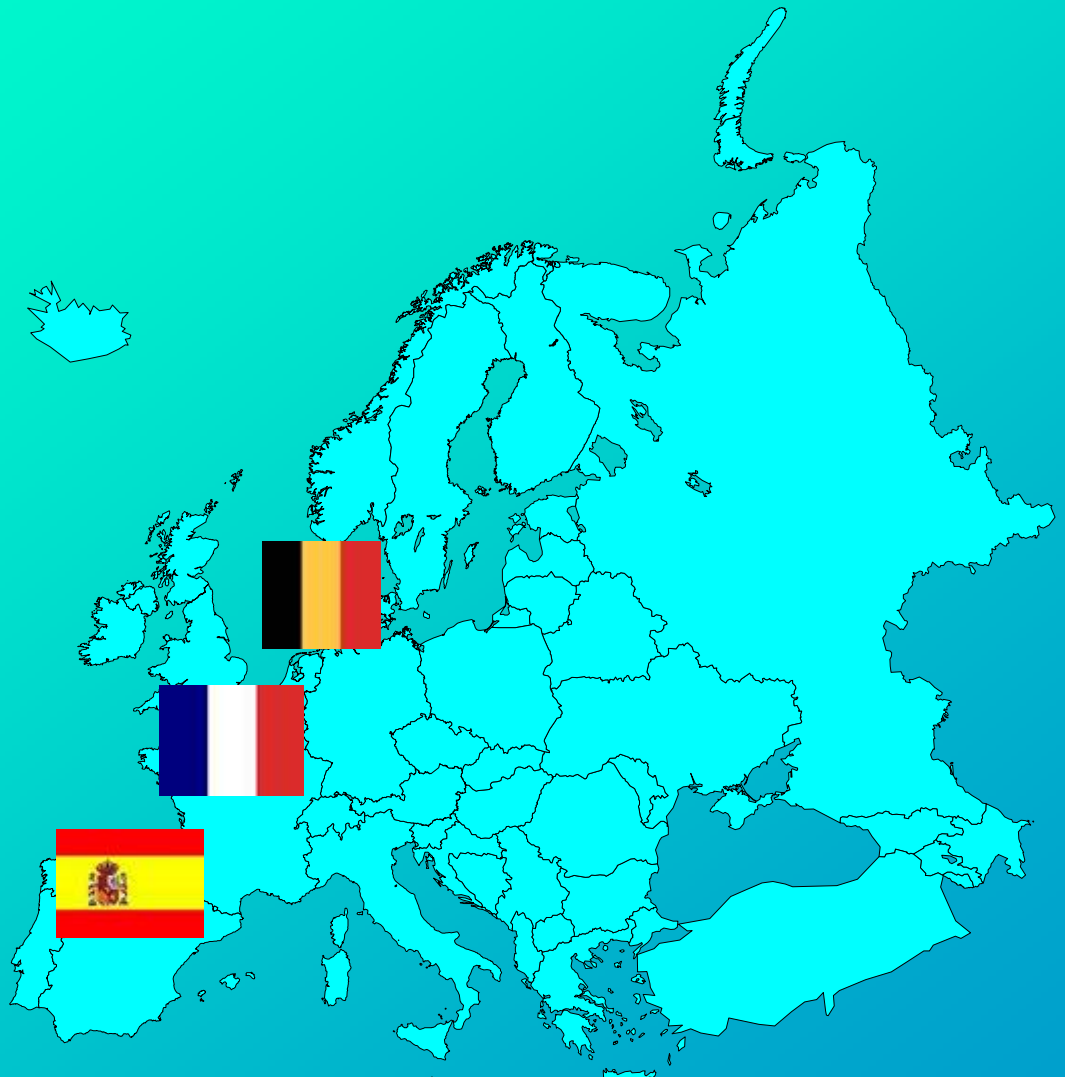
- Established in 1976 as a one man business
- Family Business with an orientation towards quality and innovation
- Expansion during the last 30 yrs.
  - Belgium: 105 ha open field production + 15 ha Greenhouses
  - Tissue Culture laboratories
    - Belgium (temperate bamboos)
    - Indonesia (tropical bamboos)
  - Subdiaries in France, Spain, South Africa, USA, Indonesia
  - 150 employees

OPRINS PLANT N.V.

AREAS OF SPECIALIZATION

- BAMBOOS
- ORNAMENTAL TREES FOR LANES, GARDENS, AND PUBLIC PARKS
- HYDRANGEAS
  - H. macrophylla
  - H. quercifolia
  - H. sargentiana
  - Others
- EVERGREEN SHRUBS FOR HEDGES
  - ILEX
  - TAXUS
  - Buxus
  - Others

Oprins: Bamboo Nurseries in Europe




prins Head Office - Belgium


prins, Merksplas Nursery - Belgium


prins, Lacijns Nursery - Belgium


prins, Tissue Culture Lab - Belgium


ns (Viveros Botanica), Spain)

Bamboo is our specialty…

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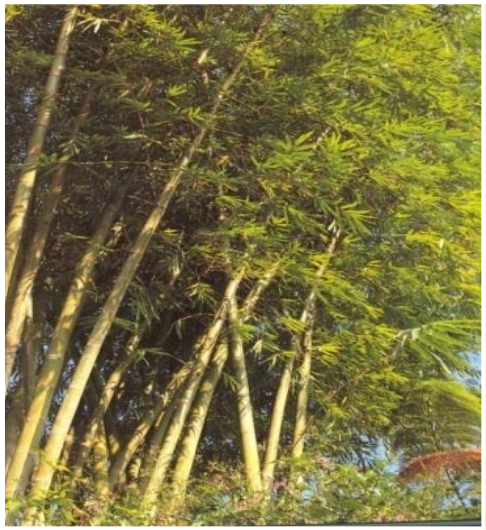
Tissue Culture of Bamboo

Tissue Culture of Bamboo

- Motherplants with superior traits are selected and multiplied by means of tissue culture.
- From one superior motherplant, thousands of elite clones are produced.




- **Temperate bamboos**
  - Produced at TC lab in Belgium
  - Mainly ornamental varieties
  - See www.oprins.com

- **Tropical bamboos**
  - Produced at Indonesian TC lab
  - Mainly forestry/plantation species
  - www.bambunusaverde.com

Bamboo Tissue Culture Production Process

- Stage 0 : Selection and Preparation
- Stage 1 : Initiation in Tissue Culture
- Stage 2 : In vitro propagation
- Stage 3 : Preparation for transplanting in greenhouse
- Stage 4 : Planting in Lab Greenhouse
- Stage 5 : Potting and Nursery Care
- Stage 6 : Finished Product

Bamboo TC Production Process

Stage 0: Selection and Preparation

- Selection of elite genotypes
- Preparation for in vitro culture

Bamboo TC Production Process

- Stage 1: Initiation
  - Nodal pieces of mother plants are sampled, sterilized, and intiatiated in TC media

Bamboo TC Production Process

- Stage 2: TC propagation via axillary branching
  - Genetic stability ensures true-to-type plants
  - Application of precise cutting techniques
  - High efficiency


GEA

- bamboo plants are grown under controlled environmental conditions.
- On 1 m^2 shelf area in a conditioned growth room, up to 2000 plants can be grown at one time.

Bamboo TC Production Process

- Stage 3:
  Preparation for transplanting in the greenhouse
  - Root induction in Tissue Culture

Bamboo TC Production Process

- Stage 4: Transplanting in the Greenhouse
  - in trays with peat
  - high relative humidity
  - controlled growing conditions

Bamboo TC Production Process

- Stage 5: Potting and Nursery Care

Tissue Cultured Bamboos:
Vigorous plants with a well developed Root System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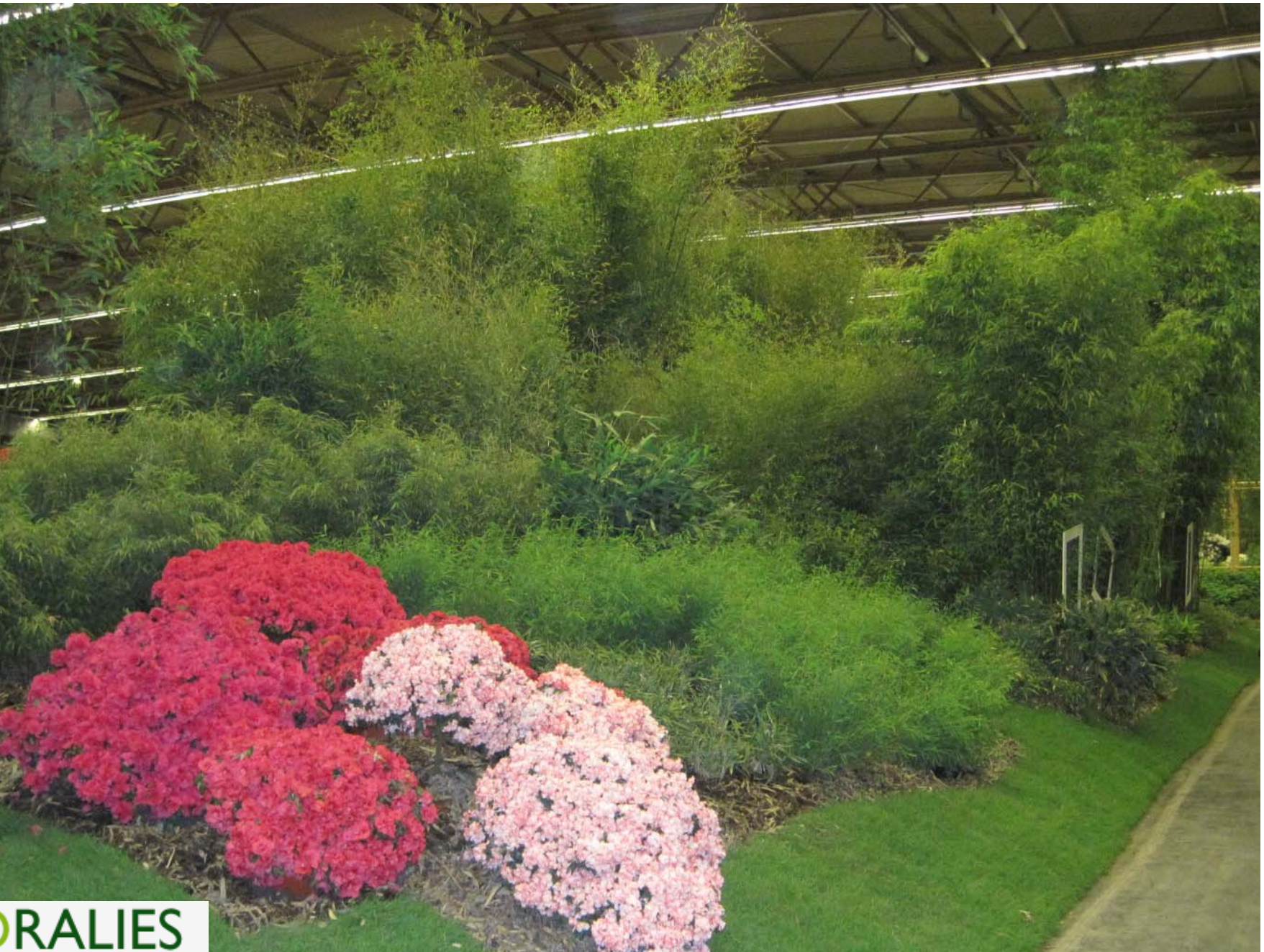
Bamboo TC Production Process

- Stage 6: Finished Product
  - ornamentals
  - Plantation species


Bamboo Select
http://www.bambooselect.com
2m
3m

Ornamental Applications


FLORALIES
of Ghent
6


RALIES

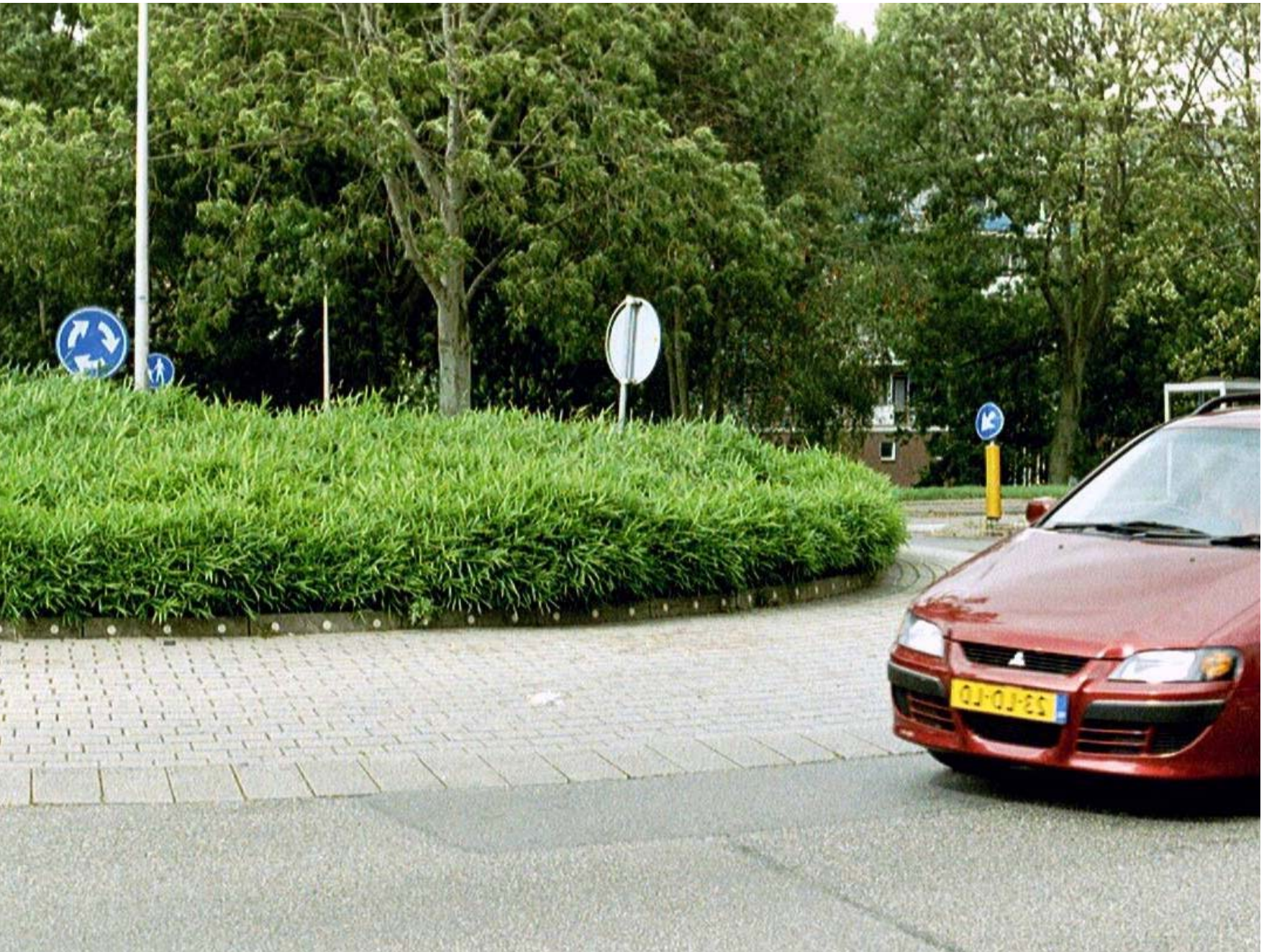

FLORALIES


FLORALIES
of Ghent

lostachys aurea


esia robusta ‘Green Screen’

esia murieliae ‘Jumbo’



ella glabra ‘Albostriata’

saella glabra ‘Albostriata’

Shibataea kumasaca and


Sasa kurilensis


Phyllostachys
iridescens

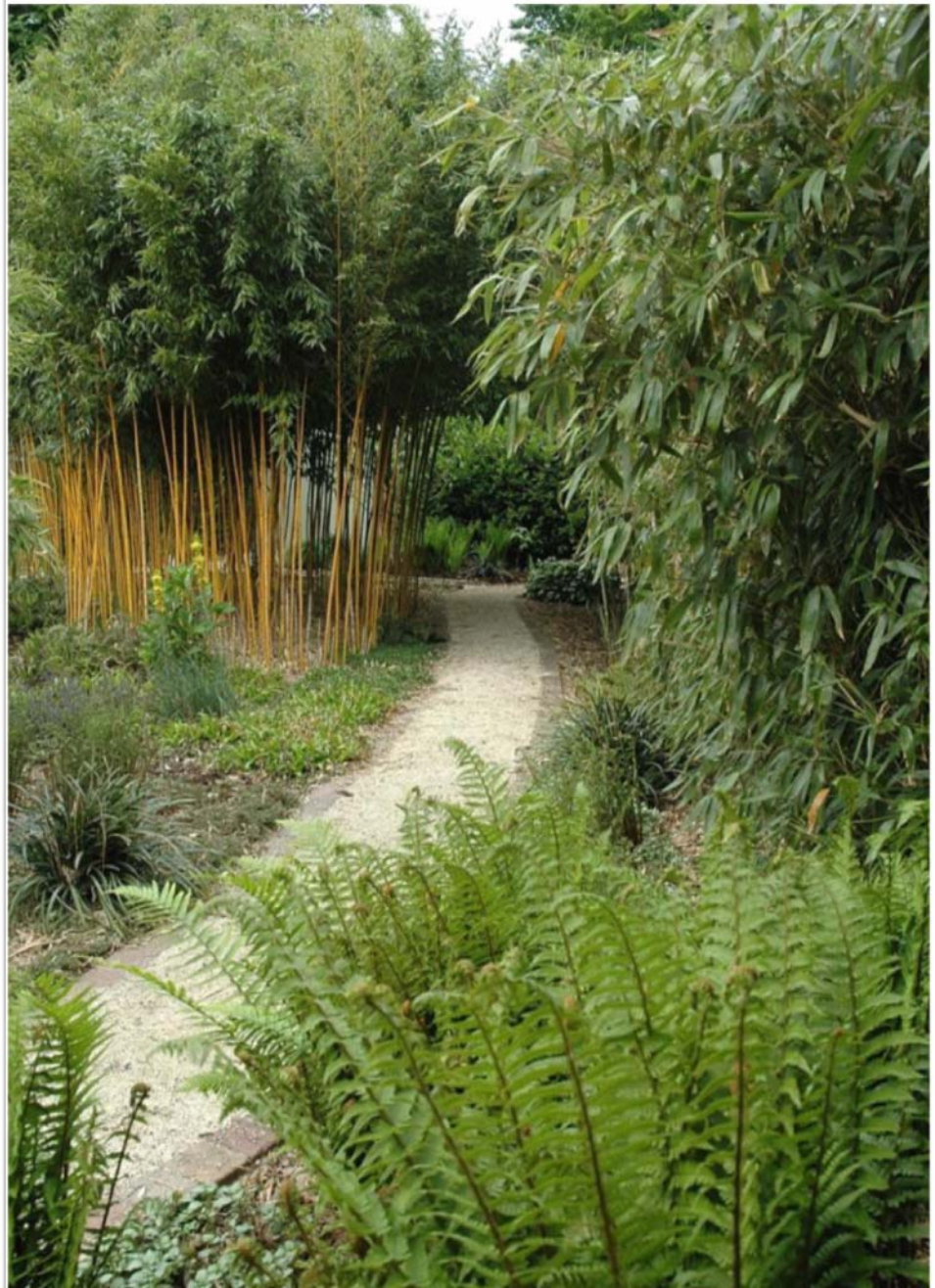
plastus argenteostriata

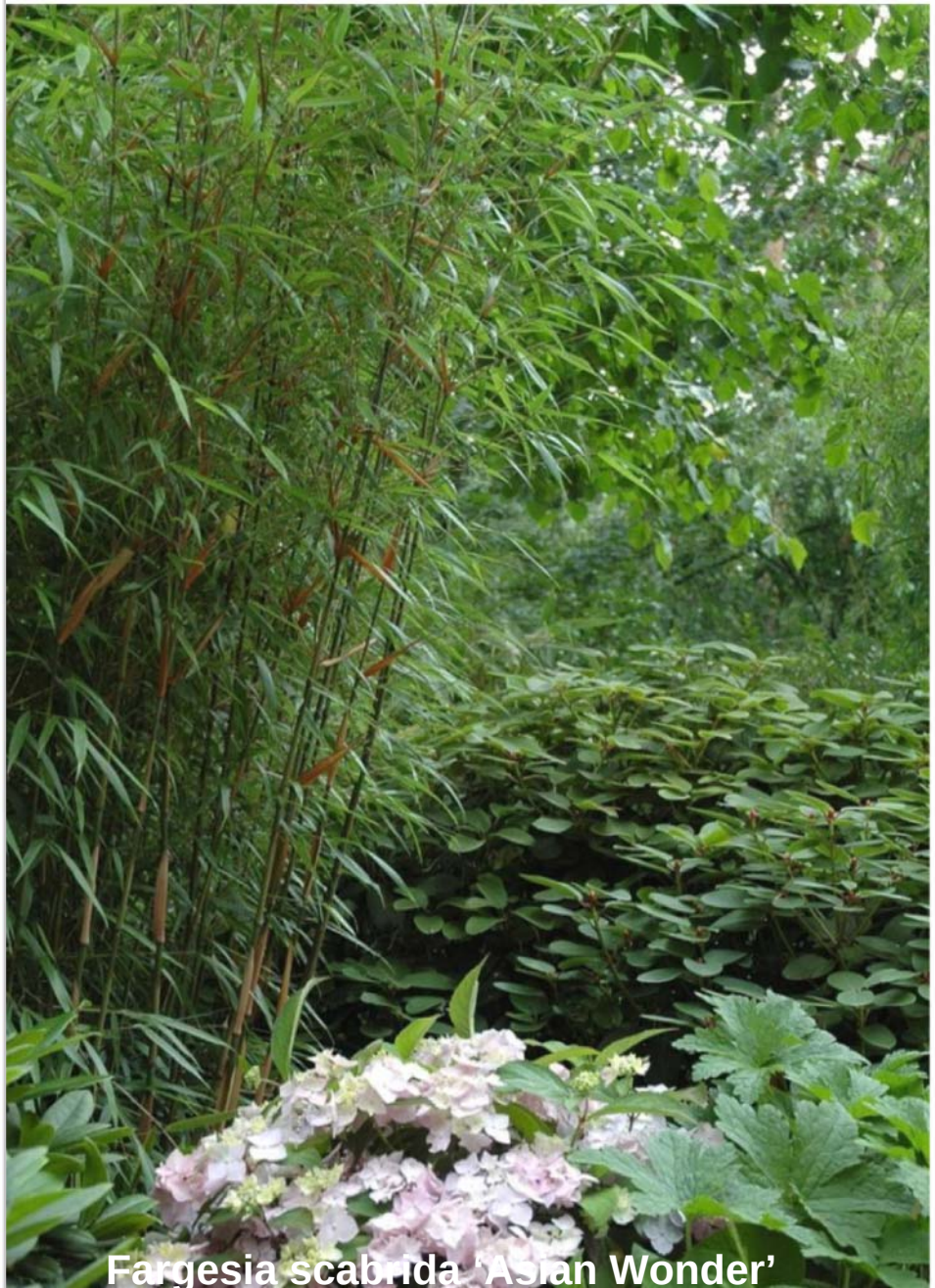
Sasa palmata ‘Nebulosa’

ataea kumasaca & Geranium endressii

lostachys viridis & Parthenocissus

oblastus viridistriatus and Aquilegia ‘Woodside’





Fargesia scabrida 'Asian Wonder'

Bamboo for Plantations

ADVANTAGES of Tissue Cultured Bamboo

True-to-type plants

Vigorous growers

Smaller planting materials

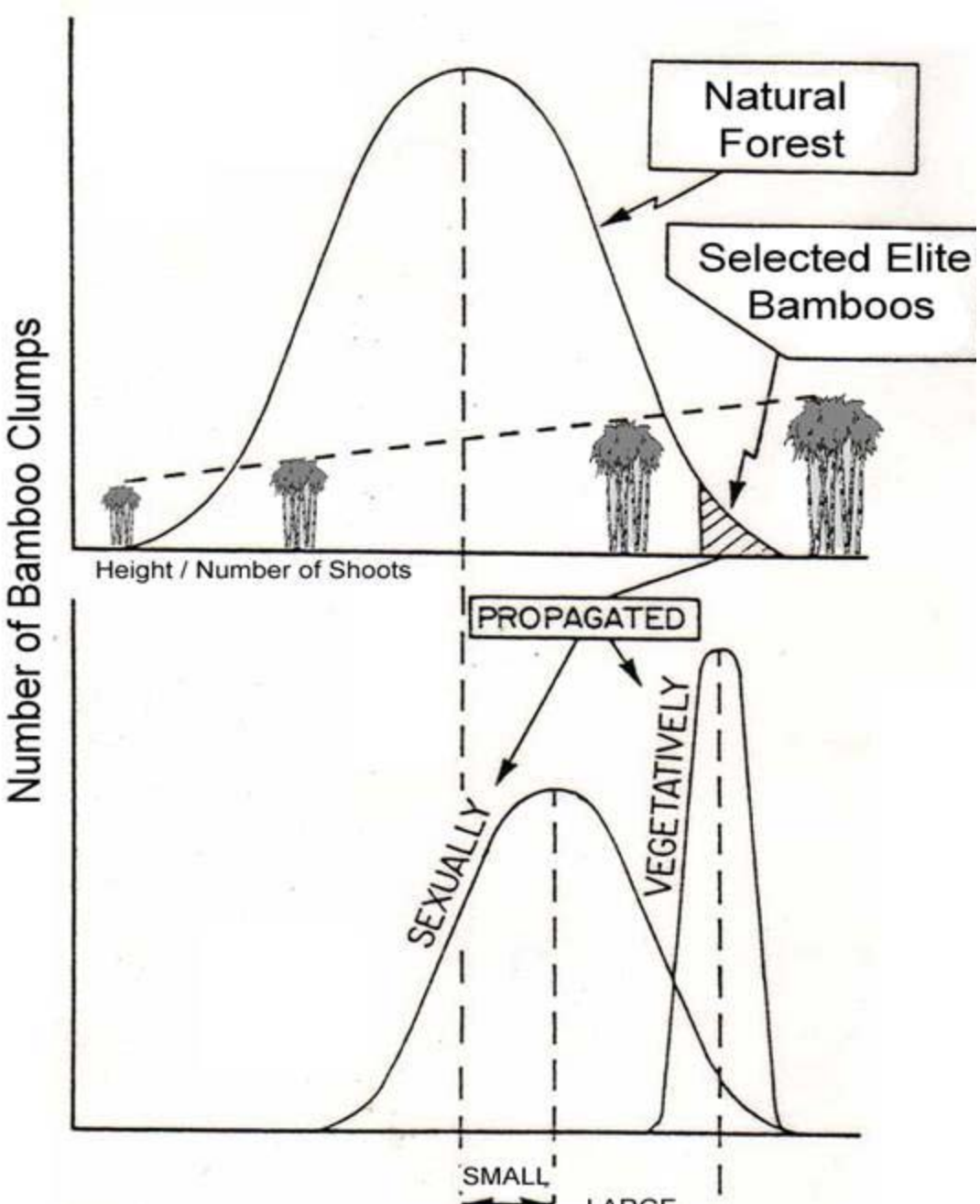
Available in large quantities

Better field establishment

Potentially higher yield

Importance of Mother Plant ection

- TC (and Vegetative propagation in general) offers the possibility of selecting plants with desired traits
- This results in reduced variance of traits compared to sexually propagated plants (e.g. bamboo seedlings from natural forests)
- Cloning of selected of elite plants results in a genetic gain which may be expressed in larger or more productive plants and overall increased yield in plantations.



Bamboo For Europe (EU Project)
Field Trial – Merkplas, Belgium
Established in 1998

Field Trial – Merkplas, Belgium
Strip Harvest in 2004
Yield: P. vivax : 17 tons/ ha/ yr (dry matter)

Chipper feeding

Collection of chips in Big Bags

Bamboo as Biomass Crop

- **From a « combustion » point of view : Bamboo is nearly the same as wood :**
  - **Ash content ± 1 % (similar to wood)**
  - **NCV (Net Calorific Value) dry basis : 18,16 MJ/kg (wood : 18,55)**
  - **NCV (Net Calorific Value) at 40 % moisture : 9,7 MJ/kg**


Field trials in Ireland
(www.outliving.ie)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Tropical Bamboo Production in Indonesia

Bambu Nusa Verde - Yogjakarta

Bambu Nusa Verde – Yogjakarta
Transfering TC Bamboos into Plug Trays

Bambu Nusa Verde – Yogjakarta

- In cooperation with a local NGO in Bali (Yayasan Lingkungan Asri Bersemi)
- Field trials of tissue cultured bamboo species in selected plots in Munduk, Karengasem, and Kintamani, in the North of Bali.


SPRINT
SPORT


SPRINT
SPORT


1 year
3
yr
4 yr
1 Year Later
yr


3 Years Later


4 Years Later


5 Years Later

OPRINS

Thank you !

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Oprins Plant NV – Rijkevorsel (Antwerp), Belgium

www.oprins.com

www.bambooselect.com

www.viverosbotanica.com