Stakeholder-oriented article no 1

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Young somatic seedlings
(Larix x eurolepis, ©HUB/SBS)

Looking confidently into the future of sustainable plantation forestry

Multi-varietal plantation forestry of conifers as chance for the future?

Plantation forestry worldwide concentrates mainly on faster-growing, commercially valuable and easy conifer species (e.g. 2/3 of roundwood production in EU, FAOSTAT).

So far, most of the increasing wood production comes from plantation forests with improved varieties. These are still mainly propagated through seeds in orchards. To avoid a strict dependence on seed-based forestry, the development and implementation of alternative and flexible, true-to-type reproduction strategies based on vegetative propagation – via *somatic embryogenesis*[1] – may become more essential in the near future. Hence, specific clonal mixes can be compiled for a *multi-varietal forestry*[2] as a modern, sustainable strategy and further be adapted in regard with site requirements, changing climate and breeding goals with the aim to strengthen plantation forestry while balancing social concerns, especially diversity issues.

MULTIFOREVER is a ForestValue transnational project focused on developing conifer somatic embryogenesis towards this multi-varietal forestry strategy. The overall aim is to develop a value-added chain and joint strategy to bring high-quality somatic trees at acceptable costs into planted forests. Combining our long-standing expertise in different *commercially relevant conifer species*[3], we will be able to exchange experience, achievements (including field trials) and materials as well as to tackle still unresolved issues to refine the somatic embryogenesis process.

The MULTIFOREVER team

From left to right, front row:

J.-F. Trontin (Coord. FCBA, France)
M.E. Gauchat (INTA, Argentina)
U. Egertsdotter (UPSC, Sweden)
I. Dobrowolska (UPSC, Sweden)
A. Rupps (co-Coord., HUB, Germany)

Back row:

C. Teyssier (INRAE, France)
P. Moncaleán (NEIKER, Spain)
M.-A. Lelu-Walter (INRAE, France)
J. Raschke (HUB, Germany)
T. Aronen (LUKE, Finland)
I. Montalbán (NEIKER, Spain)
B. Dedicova (UPSC, Sweden)

Research question:

How to build a sustainable plantation forestry of productive conifers?

Traditional plantation forestry in France (Landes de Gascogne): *Pinus pinaster* after 15 years of cultivation (©FCBA).

We are looking for scientific and practical-oriented collaborations for implementing conifer multi-varietal forestry based on somatic embryogenesis!

Just contact us, when you are:

- **Foresters** and other **scientists** interested in innovative conifer breeding and propagation strategies as well as their opportunities for sustainable forestry,
- Representatives of **forest nurseries** involved in production of conifer varieties looking for innovative propagation methods,
- **Forest owners** or representatives of **forest organizations** and **industries** interested to plant more valuable conifer varieties,
- **Policy makers** looking for reliable information about multi-varietal forestry at the EU and/or (inter)national levels,
- A **citizen** wanting to get involved or stay informed about plantation forestry.

Help us to plant more and more valuable trees worldwide!

✉ jean-francois.trontin@fcba.fr / andrea.rupps@hu-berlin.de (co-Coordinators)

Project title: **MULTIFOREVER: Towards intensification of conifer production through multi-varietal forestry based on somatic embryogenesis**

Authors:

J. Fiedler
J. Raschke
A. Rupps
J.-F. Trontin

[1] *Somatic embryogenesis* is an *in vitro* tissue culture method used for high-throughput (vegetative/clonal) multiplication of seed embryos.

[2] *Multi-varietal forestry* is defined as the deployment of a range of improved varieties in commercial plantations through vegetative propagation. Learn more.

[3] *Commercially relevant conifer species* focused on in this project:

- *Larix decidua Mill.* (**European larch**), *L. x eurolepis Henry* (**hybrid larch**)
- *Picea abies (L.) H. Karst* (**Norway spruce**)
- *Pinus pinaster Ait* (**maritime pine**), *P. taeda L.* (**loblolly pine**), *P. radiata D. Don* (**radiata pine**), *P. elliotti Engelm. x P. caribaea Mor. Var hondurensis* (**hybrid pine**) *Pseudotsuga menziesii (Mirb.) Franco* (**Douglas-fir**)