



Biotechnology & Advanced Forestry Department

BORDEAUX - FRANCE

To increase industrial wood supply, genetics, modeling of wood growth and quality, and biotechnology are used :

- **To design new, improved forest varieties taking into account climate change**

Breeding programs are currently focused on maritime pine, Douglas fir, poplars as main species and loblolly pine, eucalyptus and chestnut as secondary species

- **To propose more competitive silviculture regimes taking also into account societal expectations**

Research projects address technical issues such as nursery practices, mechanization of forest operations, soil preparation, short-rotation coppice, fertilization, with economical optimization (integrated economical and biological modeling under custom-tailored silviculture web-based decision support-tool) but also societal issues to build collectively the social acceptability of the planted forest

- **To adapt wood qualities to industrial needs**

Research projects are underway to describe and to model silvicultural operations as well as the effects of environmental stresses (storms, pest diseases, drought,...) on wood quality

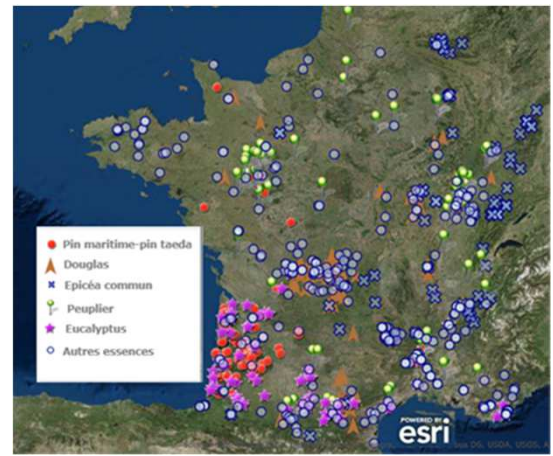
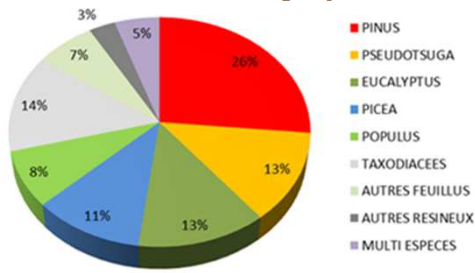
- **To increase wood harvesting and make easier industrial wood supply**

Research projects are focused on wood supply chain, mechanical harvesting, logging, workers training, harvesting soil impacts, social acceptability of wood harvest



✓ Network of field trials

- **6 main species** : maritime pine, Douglas fir, poplar, loblolly pine, eucalyptus, chestnut
- **Some further secondary species...**



- **BAOGREFF Website** <http://base-sylviculture-genetique.fcba.fr>

BAOGREFF
Base des Origines Génétiques et du Réseau
Expérimental Forestier FCBA

Depuis les années 1960 FCBA mène des travaux de recherche dans le domaine forestier. Plus de 3000 expérimentations ont été mises en place. Un millier, est toujours suivi actuellement. Deux thématiques majeures sont étudiées: la sylviculture et la génétique. Toutes les informations relatives à ce patrimoine expérimental sont regroupées dans une base de données unique contenant le descriptif:
- Du matériel génétique testé (plus de 40 000 références)

Over 3000 tests were installed and a thousand is still actively maintained and followed today.
All information concerning these experiments are combined into a single database containing the description of :

- [Tested Forest Reproductive Materials \(over 40 000 references\)](#)
- [Experimental tests \(3 000 tests, 2 million trees\)](#)



✓ Biotech R&D and services to support tree breeding

- **FCBA biotech facility**, part of the INRA-FCBA Research & Innovation cluster involving XYLOBIOTECH (<http://biotech.xyloforest.org/en/>), a platform dedicated to forest biotechnologies coordinated by FCBA and operated in the frame of the XYLOFOREST project "Investment for the Future"
- **In vitro vegetative propagation** as powerful tools for scaling-up the cost-effective production of new varieties (micropropagation, somatic embryogenesis)
- **Secured, long-term cryopreservation** of selected or wild genetic resources at ultra low temperature
- **Genetic transformation tools** (reverse genetics for functional genomics studies)
- **Molecular screening with DNA markers** for genotyping, pedigree reconstruction, provenance certification, analysis of genetic diversity ...
- **DNA wood traceability**



✓ International

- **Partnerships** with Universities teams in New Zealand, Europe, US, Brazil..., with tree breeding cooperative (New Zealand, US...) with national and international research organizations IUFRO, EFI, CIRAD, CSIRO...
- **Support in eucalyptus researches** for paper companies in Morocco, Congo...
- **Opportunities to delegate abroad experts in planted forest**



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