



# FOREST4EU



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ITHub 3 - Sustainable Forest Management  
and Ecosystem Services



FOREST4EU partner: UNIFI

OG: Do.Na.To

OG's country: Italy

Type of Innovation: Technological



## Creation of clonal seed orchards for the conservation of Douglas-fir germplasm

### Introduction

Many Douglas-fir stands are more than sixty years old, and traditional silvicultural approaches cannot be separated their regeneration from the availability of suitable seedlings. At present, Douglas-fir seedlings are mainly purchased from foreign nurseries, which does not always guarantee their suitability/adaptability to the Tuscan environment. For this reason, it is essential to have FRM of high phenotypic, genetic and adaptive quality suitable for the Tuscan areas. In order to qualify the regional forest nursery chain for the production of Douglas-fir planting stock, it is important to introduce innovation and quality into the Tuscan nursery chain of this species. With the technical support of CREA-FL (Consiglio per la ricerca in agricoltura e l'analisi dell'economia agraria Foreste e Legno), the Do.Na.To project has created two clonal seed orchards, located at two contrasting altitudes above sea level, for the conservation of Douglas fir germplasm starting from material selected within the best phenotypes of the IUFRO field experiment of provenances and progenies, located at Faltona (Arezzo) and Vallombrosa (Firenze), and constituting the reference for the ex-situ germplasm bank at national and international level. Scions collected from superior phenotypes were collected from the most higher branches in the crown and used for these clonal seed orchards. They were created on public land managed by the Unions of Mountain Municipalities of Mugello and Pistoia Apennines. These grafts will assure Douglas fir germplasm conservation and the medium- long term supply of genetically tested propagation materials.

### Lessons learned

Genetic conservation and production of high-quality propagation material is very important for Douglas-fir, as it is usually managed by strip clear-cutting followed by seedling plantation (strongly integrated by natural regeneration in good seed years). Instead of buying seedlings from abroad, it's very important to reduce the chance of pest introduction by FMP and guarantee the conservation of local adapted genetic material, especially in the current context of climate change.

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The information presented in this factsheet was developed by the FOREST4EU partner, drawing on the innovations and knowledge generated by the indicated operational group with their explicit authorization.

## Further information

<https://www.progettodonato.it/>



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