



**Climate resilient farming
and forestry systems
and water management**

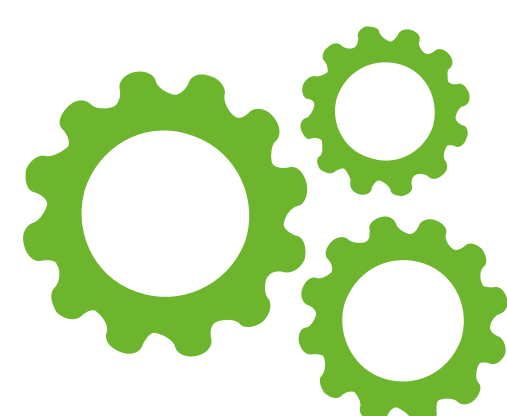


**AGRI
Innovation** summit 2019

Operational Group

Network of Adaptations and Forestry Innovations in Normandy

Réseau d'Adaptations, d'Innovations Sylvicoles
Originales de Normandie



Practical problem

Normandy: What species/provenances to introduce
in the context of global warming? How to boost
juvenile forestry? What future for Douglas fir?



Partners

Leader: Centre régional de la propriété forestière
de Normandie.

Partner 1: Centre d'Etudes Techniques
et Economiques Forestières de Normandie Sud



Calendar

Start: 01/01/2018
End: 31/12/2020



Budget

Total amount:
€116,564

Objectives of the project

Giving management recommendations for mature douglas fir stands versus the wood quality (pruned trees, width of growth ring): Clear cutting and forestry plantation? Natural regeneration? Producing huge diameter categories? Knowing the variations of fertility and the decline's risk douglas fir stands. Creating a local network of site and experiments on species/provenances able to adapt to global warming. Defining species able to adapt to future climate changes for different forest stations. Creating a local forestry experiment network to have more efficient plantation practices and to boost forestry of juvenile broadleaved trees.

Main activities

Define a list of tree species which can adapt to global warming in Normandy. Find and describe the stands of these tree species in Normandy. Start scientific experimentation on these new species/provenances with a forest garden. Review guidance on Douglas-fir forestry in Normandy, especially the basal area compared with top height of the stand. It will be tested on the forest of "CETEF Normandie Sud". Likewise, equations on the Douglas-fir production or their risk of decline will be confirmed through some forest stands description representing the diversity of stations in Normandy. We will test plantation technics in specific soils to decrease their cost.

Expected results

We hope to define potentiality of tree species/provenance adapted to global warming for each forest station in Normandy. The potentiality is wood quality, fertility, eventual diseases... We will carry on arboretum plantation to experiment tree species resistance to global warming... We will produce a forest private owner guide to douglas-fir stands management including technics to regenerate these trees... We will showcase experimentations and technics to lower the cost of forest regeneration, to have more efficient plantations on water-logged or dry soils. Through these experimentations, we aim at showing how dynamic the juvenile broadleaved trees forestry can be.

Results so far/first lessons

This project is just beginning. "RAISON" is following the ECOGEODYN project which defined the forest stations through Normandy and adaptation of tree species in each of them in the context of global warming. For each forest station, recommendations were given on forestry management. During this project, a predictive map on forest station spatial variation was created. So we have technical bases to work on the tree species capacity (growth, risk of decline, quality of wood) to adapt to global warming in Normandy. One of the goals of "RAISON" project is to have technical and economic examples of regeneration management in specific forest stations (waterlogged soils, little available water).

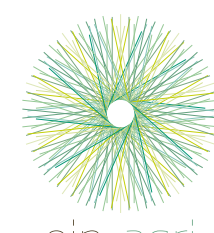
Who will benefit

Private forest owners will benefit of this project: They have many queries on Douglas fir management: Should they prune the trees? What is the ideal plantation density? What will be the production of Douglas fir stands? Do they have delay for thinning Douglas fir stands? A lot of broadleaved stands reach their maturity and have to be regenerated. However, the regeneration rate with broadleaved trees in private forest stands is low, especially because of the uncertainties linked to global warming and because of the lack of knowledge on new species or provenances. Another reason for this low rate is also high the cost of regeneration with broadleaved trees with traditional technics.

Supported by:



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