



INRA



PLANTACOMP

Genetic experimental network of the French
National Institute for Agricultural Research

Christel ANGER
INRA Orléans (FRANCE)



Activity 5
seminar

« What do large genetic field experimental networks across
Europe bring to the scientific community? »
June 22–24, 2010, Sękocin Stary (Poland)

Introduction to PlantaComp

↳ Definition and history



- « Comparative trials » : genetic experiments which are implanted in diverse ecological conditions and make it possible to compare several genetic units
- First trials of the French network installed 40 years ago by genetic breeders
- Initial aims :
 - ▣ To analyse expression of genetic variability
 - ▣ To study genetic parameters



Selection of improved varieties



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Introduction to PlantaComp



Experiments involved

- The network collates trials enabling comparisons between :
 - Species
 - Provenances
 - Progenies
 - Clones

Many species tested to differing degrees :

Larix, Quercus, Populus, Pseudotsuga, Picea, Pinus, Abies, Cedrus, ...



~1000 trials
~2000 ha

Introduction to PlantaComp

↳ Main strength



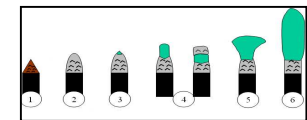
- Inter and intra specific diversity → natural variability representation
- Unique spatio-temporal dimension
 - Long-term follow-up
 - Identical genetic units installed in various environments or clines

Analysis of
genotype * environment
interactions

- Repeated and statistically rigorous experimentations

- Many traits studied by

- Standardised observation
- Sampling



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Introduction to PlantaComp

↳ Main difficulties



- Lack of organisation of network data between the different managing units
- Insufficient financing to assure a permanent follow-up of the whole network
Ex : Only ten permanent people to manage trials
- Difficulties in qualifying correctly the ecology of experimental stations (in particular for soil characteristics)



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Objectives of PlantaComp's action



- 1 post created in October 2009
 - Missions : coordination, animation, valorisation of the network
 - Collaboration with all network teams

- Main objectives :
 - Improvement of the management of the network
 - Valorisation of these experimentas by new collaborations and new projects



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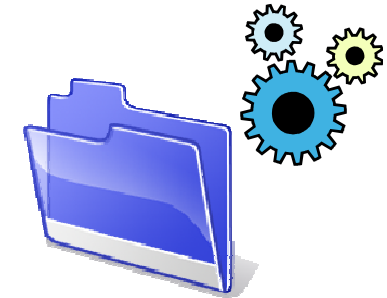
Objectives of PlantaComp's action

↳ Improvement



□ Improvement of data management

- Inventory of all the experiments and their status
- Evaluation of data
- Definition of standard data organization
- Implementation of an information system collating all information on the network
- Interoperability with other databases : opening-up to partners
- Insertion of ecological databases and geographical referencing tools



Objectives of PlantaComp's action

↳ Valorisation



PLANTACOMP NETWORK

Inter-specific
diversity

Intra-specific
diversity

Spatial
iterations

Long-term
follow-up

Auto-ecology
of species

Conservation of
genetic diversity

Adaptation to
environmental strains

Long-term impact
of climat

Search for new
forestry material

Genetic improvement and
selection of adapted material

Other thematics : forestry pest invasion,
interactions with biogeophysical cycles, etc.

Adaptation to environmental changes

In concertation with partners of several
disciplines, on a national and international
scale

Objectives of PlantaComp's action

↳ Communication



- Emphasis on the necessity of communication
 - With scientists to highlight the potential of the network and encourage the setup of new projects;
 - With the whole forestry community to inform of the results of our studies.



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**Thank you for
your attention**