

## STSM - REPORT

Short Term Scientific Mission, COST Action FP1106

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### International Beech Provenance Trials:

New measurements and analysis of obtained data -height, root collar and survival- in the last measuring -2007- located in "Burguete Beech Provenances Experimental Trial Site".

#### 1. Purpose of the visit

The main purpose of my Scientific Mission was centred in working with the data of the trees in located in "Burguete Beech Provenances Experimental Trial Site" in north of Navarra -Spain-. The aim of this work consists on analysing the total variability and comparing the adaptability of different European beech provenances to different climatic conditions as well as establishing an updated database with current data. The planned work was focused on two related aspects:

- First, to get and order the data of every measurement -height, root collar and survival- that was done in the years: 2000, 2003 and 2007. Analyze the data of the last measurement -2007- and develop a statistic analysis of them.
- Second, to take new measurements, directly in the field, of the surviving trees: height, normal diameter, survival and growth form. To do it different measurement instruments were used: tape measure, tugs, calliper, measuring pole and hypsometer (Vertex).

#### 2. Description of the main work carried out during the visit:

Due to the extreme weather conditions in the Spanish Pyrenees, during my STSM stay in north Navarra, at altitude over 900 metres and the impossibility to access to the plots many of the days and work there -the snow had a depth of 1,5 m- I could not take any measurement directly in the field. Thus it was not possible to start the second point of the initial aims and I had to work with the existing data of the last measurements and analyze the data of 2007.

Despite this inconvenience, I am satisfied with the collaboration that I could achieve during the time of my visit. I could carry out successfully the first part of the planned points and some other works related to the second point, like authorized visits to them in several days in which they were accessible. In order to get better knowledge about the trial sites and the original COST Action in which this STSM is included, I reviewed literature and different articles disposed by my research director at Host Institute in Pamplona: Ms Carmen Traver. This part of the work has involved self-learning in order to get acquainted with the computer program and remember concepts on statistical analysis.

The visit of my STSM has elapsed with good work conditions due to the collaboration of the Host Institute as they have provided me in every moment material, help, required information and permissions to develop my work. It has been really notable the behaviour of the Host Institute that I have received in every moment during my stay. Particularly I am grateful to my scientific director by her help and provided clarifications in every moment that I needed them.

### 3. Description of the main result obtained:

Before describing the main results that I obtain, it is really important to clear up that all the used data as well as all the related information about the sites belong to the Government of Navarra. They have been used under its express authorization. Also the different visits to the plots have been benefited with the appropriate permission of the Government, which has been really interested in this STSM and its collaboration is essential to be taken into account to the correct development of the work.

All the statistic analyses were performed using the statistic program SPSS 17.0.

I have calculated, ordered and analysed mean values per provenance of the following parameters: total Height in cm, root collar diameter in mm and survival, I evaluated the growth and development of these provenances, planted in 1995, which of them had a better development in these years and which worse. I have compared the results of those provenances with the best and with the worst rates of growth and survival with those of the two Spanish provenances, also planted in this trial site. To be able to carry out this analysis, different statistic tools were used: non parametric Test for several independent samples to compare means, *Post Hoc* analysis to group values and analysis of correlation between two parameters.

By this comparison, with provenances already adapted to the local climate conditions, it is able to find out the adaptation of beech provenances, coming from central and north European regions, to stress climate conditions such as drought, as it is expected to occur more frequently in Europe in next years due to Climate Change.

#### 4. Future collaboration

I strongly hope to maintain collaboration with Thünen Institut for Forest Genetics in future projects in order to deepen in the study of differences among European beech provenances. This collaboration can be enlarged with the study of the adaptation and response to climate change of other forest species with important commercial and environmental value.

I would like to express my sincere thanks to the COST Action and to my hosts, Federal Research Institute for Rural Areas, Forestry, and Fisheries -Thünen Institute for Forest Genetics- and Gestion Ambiental de Navarra- for facilitating in every moment a productive and stimulating work.

You can find attached to the email the letter of the Host Institution that confirms the successful execution of the mission.