Transnational Access Report

1. General Information

Project Acronym (ID):	FastWOODII
Project Title	Evaluation and improvement of essential anatomical and physiological parameters for breeding of fast growing trees
Installation used	Screen Glasshouse
Name of Group Leader	Doris Krabel
Name of organization	Dresden University of Technology

2. Access to the Installation

ScreenGlasshouse, University of Nottingham, Sutton Bonington Campus, John Foulkes

3. Project summary (max. 250 words)

The aim of FastWOOD is giving access to improved poplar genotypes for agricultural cultivation and industrial utilization. One working package is focused on early root development of poplar hardwood cuttings. The rooting capacity and the development of an efficient root system of young plants in the very early phase of establishment of a plantation is a precondition for a fast and successful (economically) biomass production. Therefore different genotypes have to be characterized and compared due to their root specific traits. Especially under drought conditions the rooted hardwood cuttings show significant genotype specific differences. Up to now a systematic phenotyping of root traits of various poplar genotypes under conditions is missing.

4. Main achievements (max. 250 words)

In our study we tried to quantify the performance of shoot and root growth as well as below- and aboveground biomass development within the early phase of plant development under greenhouse conditions. Already during the first 65 to 70 days of growth the investigated hybrid poplar genotypes showed individual growth characteristics, which are closely related to the genetic group to which the plants belong to. We compared growth characteristics of roots and shoots under drought and full irrigated conditions. The results give us hints that genotype “Hybride 275” pursues the ‘strategy’ to accumulate biomass in coarser roots under deficit water conditions, whereas this strategy is not obvious for the other clones. For phenotyping Poplar plants cultivated from hardwood cuttings pot and column experiments seem to be suitable. The effects of different irrigation treatments on the plants emerges already after a period of few weeks and they seem to be more obvious in systems with limited soil volume. Based on the results it should be possible to elaborate a robust method for high throughput phenotyping of trees in an early developmental stage.

5. Publications related to the access granted, acknowledging the support by EC.

Krabel D,′ Meyer M, Solger A, Müller R, Carrvalho P, Foulkes J (2015) Early root and aboveground biomass development of hybrid poplars (*Populus spp*.) under drought , submitted to Journal of Experimental Botany (Special Issue)