

Characterization of Casuarina cunninghamiana growth in Portugal

Introduction: The properties of the wood of the Casuarina cunninghamiana or she-oakspecies

(http://www.worldagroforestry.org/treedb/AFTPDFS/Casuarina_cunninghamiana.PDF) allows it to be used for shingles, fencing, or hot-burning firewood. Due to its ability to fix atmospheric nitrogen, it is referred in the literature for its potential in soil conservation and for usage in Agroforestry practices. In Portugal the species is present in urban gardens as an ornamental, and in a few number of plantations, but very few information is available regarding its growth.

Objective: The master thesis will focus on the collection, by stem analysis techniques, of data regarding the tree growth of Casuarina individuals. The collected data will allow to characterize Casuarina growth, and to compare to growth data from other countries were the specie is more present.

Skills acquisition an increase knowledge: This subject will allow the student to increase its knowledge on casuarina species growth and potential and to gain field and team work experience.

Requirements: Availability and will to carry out field work (distant from Lisbon); time and availability to fulfill chronogram commitments; Practice in using MS Excel.

Location: ISA (Lisbon) and field work in Alentejo (Portel)

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Characterization of young *Paulownia tomentosa* plantations growth in Portugal

Introduction: The *Paulownia tomentosa*, an exotic tree species in Portugal, is a deciduous tree of height of 9-21 m at maturity, depending on site and management. It is a vigorous colonizer that prefers warm climates, tolerates a wide range of soil pH values and prefers deep medium loamy well drained soils and highly susceptible to waterlogging. The usages for this species are diverse and include both forest and agroforestry management purposes. For instance, leaves are a good tree fodder source, rapid growth rate and fibre characteristics can make it interesting for the paper industry and biomass production, and timber may be used for furniture wood, veneer or carving. No characterization of the species growth has been previously made in Portugal. Recent interest in the *Paulownia tomentosa* species by Portuguese farmers makes this an opportune topic for a master thesis.

Objective: The master thesis will focus on the installation and measurement of permanent plots in two young *Paulownia* plantations. Tree measurements and biomass quantification at tree level will be carried out. The collected data will allow to characterize plantations growth, and to compare to growth data from other countries where the species is more present.

Skills acquisition and increase knowledge: This subject will allow the student to increase its knowledge on *Paulownia* species growth and potential, and to gain field and team work experience.

Requirements: Availability and will to carry out field work (distant from Lisbon); time and availability to fulfill chronogram commitments; Practice in using MS Excel.

Location: Lisbon and field work in North and Central regions

Advisors: Joana Amaral Paulo and João Palma