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A DOMINANT HEIGHT GROWTH MODEL FOR EUCALYPTUS PLANTATIONS IN PORTUGAL

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Abstract

Eucalyptus globulus Labill is one of the most important economic forest species in Portugal, occupying an area of $875.10^3 ha$ in a total forest area of $3346.10^3 ha$ (Tomé *et al.,* 2007). The main goal of this study is to develop a dominant height growth model for Eucalyptus, applicable throughout the country, representing an improve of the curves that are part of the whole stand model existing in Portugal, the GLOBULUS model (Tomé *et al.,* 2001). The dominant height growth model will be built on a biological function formulated as a difference equation (Algebraic Difference Approach) to an all possible growth intervals data structure. The dynamic model proposed, obtains non biased and efficient estimates for the parameters. Comparing to the

already available model, the last has the advantage of expressing the asymptote in weather variables functions, meaning that it is possible to reproduce the eucalyptus growth according to weather changes.

Keywords: algebraic difference equation, dynamic model, dominant height, forest planning, non linear model.

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