

AGE-RELATED TREND OF BASIC DENSITY IN EUCALYPTUS CLONES

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Abstract

Density is a very important property related to wood utilizations and, for the pulp and paper sector, follow the increase along the time is critical for knowing yield. So, find tools that allowed predict more easily, fast and cheaper, directly in trees and in early ages is a nowadays challenge. The objective of this research was to verify the age-related trend of basic density, obtained using increment borer, and of drilling amplitude (DA), because the DA has been considered as a tool that can be well correlated with basic density. The results showed that both, Basic Density (BD) and Drilling Amplitude (DA) increase with age, but in early ages DA do not have the same behavior of the DB.

Key words: Increment borer, drilling amplitude, early ages of trees.

Introduction

Density is a very important property related to wood applications. To the paper and pulp sector, this property is very important, because is related to the yield. Follow the density of the wood is an expensive and slow process, because it is necessary to cut trees and remove discs for laboratory analysis. The increment borer is a tool very used by foresters to determine the density directly in trees, but there are controversies regarding the results. The drilling resistance (Resistograph) are also being studied as an alternative to predict the density of trees^{1,2}. The objective of this research was to evaluate, using two different clones, the age-related trends of drilling amplitude, relating the results with the density of the seedling, and of the trees obtained using the increment borer. For the tests, we used 71 seedlings and 360 trees (30 per age for each clone).

Results and Discussion

The basic density of the seedlings and of the trees (obtained using increment borer) presented the same age-related behavior for both clones (Figure 1).

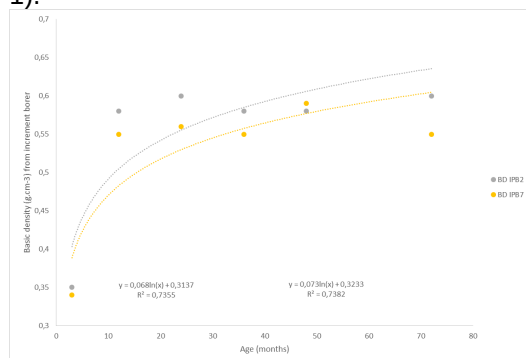


Figure 1. Age-related trend of Basic density

The basic density obtained in seedling of the clone IPB2 (0.35 g.cm⁻³) is slightly higher than the clone IPB7 (0.34 g.cm⁻³). Considering the logarithmic regression model, this difference grows over the years from 3,8% to 5,0%. The drilling amplitude also grows with age (Figure 2), but only after near 48 months the result is coherent with density – bigger for the clone IPB2. This result indicate that to use the drilling amplitude to distinguish clones by density, it is not recommended use the results of the early ages.

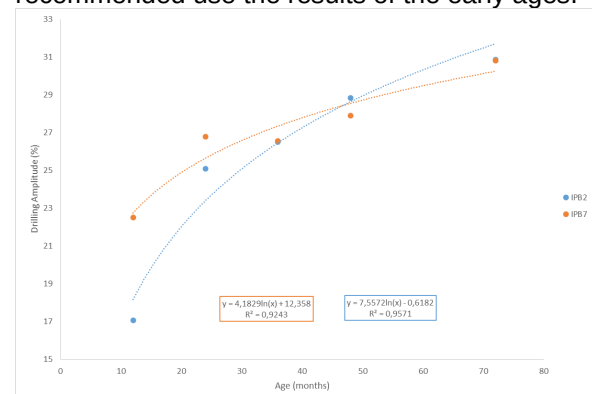


Figure 2. Age-related trend of Drilling Amplitude

Conclusions

Both, Basic Density (BD) and Drilling Amplitude (DA) increase with age, but in early ages DA do not have the same behavior of the density.

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