





**IUFRO Conference 2023****Characterization of wood properties in Montes del Plata genetic field trials**Valiero, L. <sup>1</sup>; Montouto, C. <sup>1</sup>; de Mello, S. <sup>1</sup>; Heberling, M. <sup>1</sup><sup>1</sup> *Montes del Plata, Colonia, Uruguay*

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One of the main goals of a tree breeding program is to increase forest productivity, adaptation and profitability of forest plantations. *Eucalyptus dunnii* is a main species used for pulp production in Uruguay. Montes del Plata (MdP) is one of the largest forest companies in Uruguay and has been focused on the development, testing and deployment of *E. dunnii* clones to establish commercial plantations in Uruguay. Clonal strategy for field testing clones in MdP includes a sequence of measurements for growth and wood properties traits for a kraft pulpwood objective. This poster describes the assessment of wood properties in clonal tests. How and when Basic density and Pulp yield are measured to screen every year a batch of hundreds of clones in clonal test (CT) design single tree plot to select afterwards a reduced number of clones for amplified clonal test (ACT). Wood sampling protocols differ with the age of the field trial. A non-destructive method by drilling trees is used to early predict wood properties at mid rotation age. We use NIR models developed for the species growing in local conditions. This allows for a quick characterization and enables to keep trees standing in field trials for growth measurement at older ages. Clones top 20% in volume of each trial's series are characterized by NIR. Properties predicted by NIR are Basic density, Pulp yield, content of Lignin, Calcium and Phosphorus, and Specific Wood Consumption. After that, the top 10% clones ranked in a Genetic Gain Index for tones of cellulose (ADt) that combines growth and predicted wood properties Basic density and Pulp yield by NIR are scaled candidates to be further assessed by wet laboratory analyses and established in ACT. Other activities are part of the assessment. The clones for wet laboratory sampling are previously certified by fingerprinting to be the intended identity clones. The described wood strategy allows fast screen clones in trials at early age and focuses on selections using NIR as a prediction tool.

