

RESULTS FROM A QUANTITATIVE GENETICS STUDY OF PHYSICAL WOOD PROPERTIES OF *PINUS PATULA*

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Tree improvement programmes for forestry species started in Southern Africa during the 1950s. In the first two generations of breeding, volume improvements of between 10 and 30% have been achieved, and the future focus of many programmes has moved to the improvement of wood properties. This study utilized half-rotation age *Pinus patula* material grown in Zimbabwe by the Zimbabwe Forest Commission from a full diallel mating design and additional factorial crosses. The sampled progeny trials were planted on several sites with a range of altitudes. This presentation provides some background to this wood and fibre properties project and present results from the diallel mating design. Physical wood properties such as pith-to-bark wood density, cell anatomy and fibre properties were studied and their genetic control was quantified. Wood density was determined using x-ray densitometry and cell anatomy was studied with image analysis, while fibre properties were determined using the MorFi© fibre analyzer system. Genetic parameters for density, cell anatomy and fibre properties are presented. This study forms part of a bigger project which aims to identify the physical wood and fibre properties under genetic control, and identifying an early screening method to include selection for these properties at half-rotation age.