Contribution 208 in session “Measuring and tagging logs along the supply chain“

The impact of mechanical log surface damage on fibre loss and chip quality when processing Eucalyptus pulpwood using a single-grip harvester

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Mechanised CTL harvesting operations are growing in popularity in South Africa. Potential damage inflicted by single grip harvester feed rollers and delimbing knives on the log surface during debranching and debarking eucalypts may affect fibre recovery and chip quality. The study investigated the influence of two mechanised debarking treatments (three and five feed roller passes along the stem surface) and related feed roller and delimbing knife induced log surface damage on the resultant chip uniformity, size, purity and wood fibre loss. The two mechanised treatments were compared against chips produced from manually debarked logs which experienced no log surface damage. In addition, the effect of two log drying periods (one week and two weeks) and three log sections (base, middle and top logs) on chip quality were also analysed. An economic evaluation was done to quantify potential recoverable pulp value losses associated with debarking treatments and log drying periods.
Wood chip uniformity and fibre loss was related to feed roller induced log surface damage, with manually debarked logs producing significantly less undesired sized chips than both three pass and five pass mechanically debarked logs. Log drying period also influences wood chip uniformity. Wood chip uniformity and subsequent pulp recovery also decreases with decreasing log size. Significant value was lost in terms of both the value of the recovered pulp and in the loss of fibre during debranching and debarking by feed rollers and delimbing knives of the single grip harvester.