

Fibre Losses along the Roundwood Softwood Sawtimber Supply Chain in South Africa

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Abstract:

A study of both fibre balance and fibre cost was done across the South African softwood saw timber industry to gain information regarding the utilisation of useful fibre and the potential loss/gain opportunity in terms of cost and revenue from both field practices and policy (log allowance). The study quantified volume losses from high stumps, felling and crosscut saw kerf, log allowances, excessive removal of merchantable wood, incorrect log allowance allocation, and utilisable wood left in field. Eight separate treatments were examined; four terminated with merchandising at roadside landing and four at merchandising yards. Within the treatments, felling was either by motor-manual or mechanised methods and compartments were classed based on average compartment tree size class (less than or greater than 1m³). Overall, total wood utilisation was found to be 92.06%. Using Simsaw6 simulations, it was determined that this loss translates into an additional harvested volume of 421 722 m³ or additional 1 278ha harvested area. This amounted to a log value loss of US\$16.6 million or a net lumber value loss of US\$39.3 million. Total volume loss was lowest (6.49%) regardless of merchandising location in compartments which had an average tree size class less than 1m³ that were mechanically felled. For the majority of volume loss categories, motor-manual felling resulted in the greater volume loss when compared to mechanical felling methods. The mandatory log allowance on all sawlogs was found to consume approximately 80 604m³ annually. Ultimately, the study found that the human element had greater impact on fibre and value losses rather than the system choice decision. Good training, planning, implementation and operational control were imperative to ensure supply (or value) chain goals were met.

Keywords: timber harvesting, fibre-loss, merchandising, log allowance, mechanisation, economic analysis