

Ranking the importance of quality variables in determination of price for plantation grown Teak (*Tectona grandis*) timber

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Tectona grandis is one of the major plantation species in Sri Lanka which was introduced in 17th century. Teak timber is preferably used for furniture, joinery, decorative and parquet industries as a super luxury timber. State Timber Corporation (STC) involves in marketing of state timber resources from Forest Department plantations. Among all other timbers, Teak round wood at STC depots shows the highest sales in every year. When buying timber, customers assess the quality by visual observation of surface characteristics such as log dimensions and visible defects. If the log is inferior in quality the buyer would bid and buy it at a lower price than the marked price at auctions. Hence, the buyers' preference is indirectly reflected by the achieved price (selling price). In the present study, an attempt was made to study the relationship between the achievable price and the quality attributes of Teak logs. Such studies are useful as there is a lack of information on the impact of timber quality on timber price in the case of high demanding species such as teak. This information is extremely important to improve financial return of Teak management through realistic timber management concepts.

A set of randomly selected logs representing a total quantity of 116079 cubic decimeters (dm³) were used as the sample. The dimensions, surface defects and end defects (size and quality variables) of each graded Teak log were measured and recorded. Length, mid girth, diameter at top end, butt end and middle of the log, total number of knots, presence of hollows and their diameter, depth and position, bend fraction, shape of the log, heartwood percentage, presence of splits, felling damages, heart rot and region where the logs were produced were the independent variables used in the study. Achieved prices for the selected logs were taken from STC records. Based on multiple linear regressions, a price-quality model was derived to explain the buyers' preference by means of log size and quality variables.

Among the seventeen independent variable classes, only the "mid girth", the "length", the "number of knots per meter", the "average knot diameter", the "hollow position", the "bend fraction", the "log shape" and the "heart rot" contributed significantly to explain the buyers' preference. Above variables were ranked according to their order of affiliation and the ranking showed that the "mid girth" is the most important timber quality variable, followed by "length", "number of knots per meter", "hollow at top end &/or middle", "bend fraction greater than 1.0", "irregular log shape", "average knot diameter" and "heart rot".

Key words: timber price, timber quality, buyers' preference, price-quality model