ESTIMATION OF RUBBER WOOD VOLUME: COMPARISON OF THREE SAMPLING METHODS

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The importance of rubber wood as the timber of the present era is on the increase and therefore accurate estimation of wood available from a large population of rubber trees in a plantation has also gained much practical significance. Sampling is the ideal approach adopted in forest tree species to estimate timber volume and availability from a population. Three sampling procedures, *viz.* simple random, systematic and stratified, were adopted for estimating wood volume in a study comprising of mature trees of five clones (RRII 105, RRII 203, RRII 208, GT 1 and RRIM 600) in five locations (on-farm trials) within Kerala. Stratification was carried out based on the stable variable, the girth at the thick end of trunk. The sampling intensity required to estimate the population mean within 10% error at 95% confidence level was determined for each sampling procedure. The average sampling intensity was found to be 10, 15 and 21%, respectively for stratified, systematic and simple random sampling procedures. Error percentage was also estimated for these three methods, *i.e.* stratified (3.5), systematic (7.0) and simple random (9.0). Since the criterion for judging a sampling procedure is minimum per cent error at a minimum sampling size, stratified sampling was found to be ideal for rubber wood estimation.

The most popular clone RRII 105 recorded a bole volume of 0.24 - 0.30 m^3/tree. The highest bole volume (m^3/tree) was recorded for RRII 203 (0.52) followed by RRII 208 (0.47) at Chittar; GT 1 (0.33) at Balussery and RRIM 600 (0.32) at Ranny. Timber output was maximum for RRII 203 irrespective of regions within Kerala. In general, the trees growing in southern Kerala recorded more bole volume than that growing in central and northern Kerala.

Keywords: *Hevea brasiliensis*, Rubber clones, Rubber wood volume, Sampling methods

INTRODUCTION

The paucity of timber due to deforestation has made rubber wood an important raw material for the timber industry. It has attained increased importance with the introduction of many value-added marketable products. Rubber wood is made available on felling after the economic exploitation of latex from the trees of *Hevea brasiliensis* for a period of about 25 years. Every year large number of rubber trees with bulk quantum of wood are cleared for replanting the area with new clones. The projected availability of rubber wood during 2001-02 from 4800 ha of replanted area was 2.1 million cubic meters (Viswanathan *et al.*, 2002; Rubber Board, 2004). The quantum of wood available from plantations varies depending on clones and locality.

The efficient estimation of timber from a rubber plantation with minimum efforts assumes importance as it helps in estimating

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