

Forest growth modelling in agroforestry systems

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Forest modelling is a concept that has gained importance in recent years and is emerging as a vital respect of forest management. It enables us to predict the development of stands of trees over time. Through forest modelling, we have derived the growth and yield prediction models for silver oak grown in coffee plantations. By using diameter at breast height and commercial bole height simultaneously, along with estimates of commercial timber volume calculated in coffee plantations, we have developed a new growth model. This model will allow us to utilize these derived values and formulas to draw conclusions in the near future.

Keywords: Coffee, different age, forest models, *Grevillea robusta*, growth and yield prediction, volume.

WITH 261 species, *Grevillea* is the largest genus in the

Anamalais in Coimbatore district⁴. It is the best suitable shade tree in tea and coffee plantations^{5,6}.

In Tamil Nadu, *G. robusta* is grown as a shade tree, in the coffee and tea growing areas at moderate elevations (1220–1830 m). It was existed for 15–20 years⁷. Its durable wood is used for pencils, slate, picture frames, sofas, cots, scaffolding, lorries, trailer cladding, coffee trays, plywood and other softwood industries⁸. It is a good agroforestry species⁹ and is a compatible tree to grow as mixtures¹⁰. The seed is sold at an exorbitant price (Rs 2500–4000/kg) due to the difficulties in harvesting and processing seeds^{11,12}. Wanyondu¹³ stated that silver oak seeds could retain their germination capacity over a wide range of temperatures (–18°–20°C) for a period of two years. Poor and delayed germination is the major problem in fresh and aged seeds because of their seed coat dormancy¹⁴.

Models are equations for predicting dimensional growth.