



**PREDICTION OF BASAL-AREA OF *AZADIRACHTA INDICA* GROWING IN  
JODHPUR, RAJASTHAN (IN INDIA)**

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**ABSTRACT**

Basal-area of trees taken at breast height is generally used to estimate stand volume, measure the degree of competition in the stand and other useful parameters for quantifying a forest stand. Basal-area growth prediction describes forest dynamics over time (i.e. growth, mortality, reproduction and associated changes at the stand level) and is hence widely used in forest management for its ability to update inventories, predict future yield and to explore management alternatives [1]. In this context four well-established sigmoidal growth models were selected, fitted and compared to establish relationship between basal-area against age on the basis of fit statistics for *Azadirachta Indica* planted in and around Jodhpur, Rajasthan (in India). They can be used to predict future basal-area as a function of age. A model performing best for a site may not work well for other sites. In this regard all types of the plantations, which may be considered as site index, were analyzed separately. Results have shown the best model for each type of the plantation for estimating basal-area growth of *Azadirachta Indica* in the study area. The relationship of tree size to age and increment to age are also important to the forester particularly in predicting future growth and therefore Mean Annual Increment (MAI) is also calculated and compared for types of the plantation in the area.

**Keywords: Growth Model, Diameter at Breast Height (dbh), Basal Area, Akaike's Information Criterion (AIC), Mean Annual Increment (MAI)**

**INTRODUCTION**

The arid regions of India cover an area of 317,090 km<sup>2</sup> (nearly 40 per cent). The region is spread over seven states viz. Rajasthan, Gujarat, Punjab, Haryana,