



## Evaluation of Subabul (*Leucaena leucocephala*) genotypes for shallow vertisols of northern dry zone of Karnataka

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### ABSTRACT

The field experiment was carried out at Regional Agricultural Research Station, Bijapur (Karnataka) during 1999 to 2009 to evaluate the subabul (*Leucaena leucocephala*) genotypes for shallow vertisols of northern dry zone of Karnataka. Results of study indicated that, among eight subabul genotypes, S-10 recorded higher tree height (10.09 m) and diameter at breast height (10.15 cm) which were at par with K-636 and S-24. The lower values were produced by genotype K-29. The data on total woody biomass production of three years revealed that genotype S-10 produced highest total woody biomass in all the three years (8, 9 and 10<sup>th</sup> year of plantation) as compared to all other genotypes followed by K-636 and S-24. Hence, considering all these parameters, it may be inferred that *Leucaena* genotype, S-10, was the most promising to grow in shallow black soils of northern dry zone of Karnataka for minor timber purpose.

**KEY WORDS :** Quotient, Subabul genotypes, Vertisols, Wood volume

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### INTRODUCTION

Subabul [*Leucaena leucocephala* (L.) dewit] is a miracle tree with a wide assortment of cultivars for different uses like forage, timber, wind break, nitrogen fixing multipurpose tree recommended for shallow marginal Vertisols. Subabul has been introduced in India during seventies mainly as an agroforestry crop to meet the increasing demand for fuel, fodder and timber for poles and posts. Subabul is known for its fast growing rate. It can be grown in variety of soils and climatic conditions due to its tolerance to high temperature and extended drought and remarkable regenerative capacity. The northern dry zone of Karnataka is characterized by hostile environment conditions like low and erratic rainfall, intense solar radiation and poor fertility status of the soil. Therefore, cultivation of field crops in the shallow black soil is uneconomical and it has become necessary to adopt alternative land use systems in such soils. Now it is an established fact that the cultivation of arboreal crops in

place of aerial crops is appropriate, particularly nitrogen fixing tree species like subabul are preferred. Considering all these factors, an experiment was conducted to identify the fast growing and high wood yielding subabul genotypes.

### MATERIALS AND METHODS

The field experiment was carried out at Regional Agricultural Research Station, Bijapur (Karnataka) during 1999 to 2009. The soils of the experimental site were analyzed for various physico-chemical properties viz., Sand 25%, Silt 23%, Clay 52%, bulk density 1.43 g/cc, pH- 8.5, EC- 0.34 dSm<sup>-1</sup>, CaCO<sub>3</sub> 18.5% and soil depth 30-35 cm. The average rainfall of the site is 585 mm with 39 rainy days.

The experiment was laid out in Randomized Block Design with three replications during July 1999, having eight genotypes viz., K-8, K-28, K-29, K-67, K-409, K-636, S-10 and S-24 planted in pit (1 cu. ft). In each replication the treatment was represented by 25 plants of same species. Plantation was done with spacing of 2 x 2 m in five rows, of which only the middle 9 plants were used for recording various observations, viz., tree height (m), clear bole height (m), diameter at breast height (DBH)(cm) and crown spread (m) which were recorded in the last three years by using standard techniques and the at the end of 10<sup>th</sup> year (2009) for interpreting results. The total height of the tree was measured from the base

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