

## PROJECT PROFILE

**Title:** Studies on productivity of *Acacia mangium* plantations in Kerala

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**Start and Completion dates:** 2002 to 2005

### Objectives:

1. To study the productivity of *A. mangium* under different planting systems.
2. To study the productivity of *A. mangium* in different eco-climatic zones of Kerala.
3. To recommend management practices to increase the productivity in relation to eco-climatic variations.

**Funding Agency:** ICFRE

## SUMMARY

The study was conducted to evaluate the performance and productivity of *Acacia mangium* (Mangium) under different planting systems as well as in different agro-climatic zones of Kerala. Out of eight agro-climatic zones in the state, Mangium is grown mainly in Northern, Southern and High altitude zone both in homesteads and in block plantations. Hence, in the present study, observations are presented for these three zones.

The results on the mean growth performance of Mangium at different ages in Kerala showed that the trees registered a girth of 46 cm and height of 12 m at the age of four years, which increased to 88 cm girth and 13.5 m height at the age of ten years in farmlands of Kerala. Observation in a plantation in Palode revealed that the larger difference in site characteristics could contribute to the greater extent, the variation within an even-aged plantation, despite genetically uniform planting stock of one particular provenance is used.

With regard to the mean annual increment (MAI) in terms of girth at breast height (gbh), the results showed that high altitude zone registered greater MAI in girth (9.6 cm/year) than in southern (8.0 cm/year) and northern zone (9.4 cm/year). Generally, it is observed that within a plantation and within a zone, variation in gbh of Mangium was greater than that of between zones in Kerala.

The study has shown that Mangium performs well in humid zones, wherein higher productivity of  $> 35 \text{ m}^3/\text{ha}/\text{year}$  can be realized. In humid zone, the species is observed to be of fast growing and hence a wider spacing of 2.5 X 2.5m (or) 3 X 3 m and open sunlight condition is recommended. Further, introduction of Mangium hybrid in the humid region is suggested to manage the heart rot / root rot disease incidences. In sub-humid climatic zones, Mangium can register only half the productivity of humid zones, that is  $< 20 \text{ m}^3/\text{ha}/\text{year}$ . In this zone, irrigation can be given to enhance the productivity. Below the sub-humid climatic zone, Mangium is not suitable for commercial cultivation.

Further, non-existence of proper market channels for harvested wood of Mangium discourages the farmers to opt for this species.