



## ENHANCEMENT OF PRODUCTIVITY OF BAMBOO PLANTATIONS THROUGH THE SELECTION OF SUPERIOR CLUMPS AND MANAGEMENT INTERVENTIONS

PRAMOD KUMAR\*, FATIMA SHIRIN AND G. RAJESHWAR RAO

*Genetics and Tree Improvement Division, Tropical Forest Research Institute*

*P.O. – RFRC, Jabalpur- 482 021, M.P., India*

*\*Corresponding author email: pramod\_kt@rediffmail.com*

**ABSTRACT:** Bamboo provides several subsistence uses and economic growth of rural and tribal community. Different bamboo species prefer different climatic conditions for high growth rates. However, some of the sympodial bamboos are widely distributed in different climatic conditions also. New culms mostly emerge during rainy season when temperature ranges from 25-30°C and relative humidity remains high. Culm production from a clump varies by species, soil and climatic conditions, size and vigour of clump, clump cover, harvesting technique, etc. Depletion of bamboo resources due to over exploitation for various purposes necessitates establishment of commercial plantations to meet the requirement of raw material of bamboo based industries. Higher productivity for more economic gain is possible with the suitability of a species for a particular environment and propagation material from superior clumps for quality planting stock. Mixed species plantation of bamboos enhances the diversity both at species and genetic level and reduces the loss due to large scale death of clumps in case of gregarious flowering. End use categorization for different purposes like timber, pulp, edible shoots, ornamental and for soil and water conservation decides choice of a species for plantation. Species like *Dendrocalamus strictus*, *Bambusa bambos*, *B. tulda* and *B. vulgaris* (green) yields 5-10 t/ha of 3-4 yr old culms in good stocked (more than 500 clumps/ha) natural bamboo forests.

Intensive management practices yield better growth and productivity. Mounding, irrigation schedule and fertilizer application (compost 6-8 kg/clump or vermicompost 6-8 t/ha or 0.5 kg urea/clump in split doses) and pruning of branches from basal to middle portion enhance culm vigour. New culms emerge generally from the rhizome located along the periphery of the clump. Sustainable growth through selective felling of older culms in a horse shoe shape is the best practice due to less destruction of young shoots and ease of pulling out felled older culms. Harvesting of 3-4 years old culms, leaving 1-2 year old culms and scattered older culms equal to the number of felled culms in the clump provide mechanical support to the young growing culms of the clump against any abrupt weather situation. Rotational felling on block basis is advantageous for sustainable growth and management of the bamboo plantation. Extracted culms are trimmed to different cutting length depends on the types of use and also for the ease of transportation for commercial utilization. Harvesting period from October to March is best due to less chances of damage of developing culms.

**Key words:** *Bamboo clump, culm, harvesting, management practices, sympodial bamboo*

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### INTRODUCTION

Bamboo is a fast growing woody plant of family Poaceae. Worldwide, there are about 87 genera and more than 1500 species of bamboo, which are unevenly distributed in different parts of humid tropical, sub-tropical and temperate regions of the earth (Subramaniam, 1998; Ohnberger, 1999). Bamboo

grows almost in every part of India represented by 24 genera and about 130 species. According to Forest Survey of India (FSI), bamboo grows in 8.96 million hectares of forest area in India, which constitutes about 12.8% of total forest area of the country. Of this, nearly 28% occur in the North-Eastern States, followed by 20.3% in Madhya Pradesh, 9.90% in Maharashtra,