ONGOING: EXTERNALLY AIDED PROJECT

Project 1: Establishment of Bamboo model Plantations in different Agroclimatic Zones of Tamil Nadu using Quality planting Stock [IFGTB/EF-RP 21/2005-2008]

Status: Bamboo model plantations were created in 20 ha area during 2006-07, 40 ha in 2007-08 and 30 ha in 2008-09 using quality planting stock raised through seedling, macropropagation and tissue culture of *Bambusa bambos*, *Bambusa nutans*, *Bambusa tulda*, *Bambusa vulgaris*, *Bambusa balcooa*, *Dendrocalamus strictus* and *Dendrocalamus stocksii*. The plantations were raised in different locations covering six agroclimatic zones of Tamil Nadu namely North Western Zone, North Eastern Zone, Northern zone, Cauvery Delta Zone, Western Zone and High altitude Zone. A total of 90 ha plantations have been created as against the target of 100 ha. Preparatory works are on in remaining 10 ha area and planting will be carried out during monsoon. Bamboo Planting stocks of various species (seedling, macropropagated and Tissue Culture) are maintained in the nursery for planting out in the field. The growth performance of bamboo species within a location and across locations have been assessed periodically. Data on rainfall, temperature, humidity have been collected and soil analysis both for macro- and selected micro-nutrients were completed for all locations. *B. tulda, B. nutans, B. balcooa* grow well in all the zones. *B. vulgaris* produces more culms while *B. tulda* produces moderate number of culms in all the zones. *B. bambos* grows well in plains with moderate culm production. Further observations are required to arrive at definite conclusion. The project has been extended till 2010.

Project 2: Bamboo Location Trial (BLT) – Funded by NMBA, TIFAC, DST [IFGTB/EF-RP 23/2005-2007]

Status: This is a coordinated project carried out throughout the country, funded by the National Mission on Bamboo Applcations, through the Bamboo Coordinating Centre, GB Pant University of Agriculture and Technology, Pant Nagar. In Tamil Nadu, the trials were laid out at IFGTB Field Station, Bharathiyar University Campus, Coimbatore during September – October 2007. The trials include Species trial and Irrigation trial, Fertilization trial and Spacing trial with one species. The trials are not yet due for assessment. The project has been extended till 2010.

Project 3: Ecorestoration for Tsunami devastated coastline of Andaman Group of Islands. [IFGTB/EF-RP 20/2004-2008 (Extended upto June 2009)]

Status: The objective of the project is to create "bioshield" in 60 ha along the vulnerable coastal area of different islands of Andaman group of Islands. Out of the total target, an area of 50 ha. has been completed so far in Sippighat, Chouldari, Kadakachang, Adajig, Rangat, Long Island and Casuarina Bay. About 300 Forest Department staff of Andaman have been trained in the establishment and management of nurseries and plantations. Insect pest problem on the younger plantation was addressed. The nursery and planting activities has provided opportunities for the local people to improve their economic status.

Project 4: Bio-production of secondary metabolites from *Aegle marmelos* [IFGTB EF-RP 28/2007-2009]

Status: Metabolite profile of roots, stem, leaves, and primary branches of the wild plants was developed. Compact callus aggregates for callus obtained from different explants was optimized for increased growth in suspension cultures. Analysis of secondary metabolites in suspension cultures was carried out. Plant and human pathogens were tested with extracts from callii obtained using different explants to assay the efficacy of the active principles in the callii. Active principles present in the callii showed inhibitory effects on the pathogens.

Project 5: Differential Analysis of Transcript Expression In *Casuarina* – *Trichosporium* Interaction to Isolate Defense – Related Genes [IFGTB EF-RP 26/2006 - 2010]

Status: The project aimed at isolating defence–related genes from *Casuarina equisetifolia* during pathogen elicitation. Profiling was conducted in untreated and elicitor treated tissues of *C. equisetifolia* and differentially expressed transcripts were identified. The transcripts showing significant similarity to existing genes in public domain database included chitinase, glucanase, Resistance genes, nodulin, arabinogalactan, proteasome and cytochrome oxidase. Presently, full length gene isolation is in progress for chitinase, glucanase, R gene, arabinogalactan and cytochrome oxidase. A simple and cost effective protocol for isolation of total RNA from different tissues of tree species using non hazardous chemicals and the downstream synthesis of DNA synthesis using un purified RNA has been developed and is in the process for filing of patent.

Project 6: Developing strategies for describing, testing and registering varieties of forest tree species in India (IFGTB/EF-RP-30/2006-2008; Extended up to 2009)

Status: The project aims at development of descriptors for genetically superior genotypes of Eucalyptus and Casuarina for the purpose of testing and registration of varieties. IFGTB has developed genetically superior clones of Eucalyptus and Casuarina through the systematic breeding programmes implemented during the past decade. These clones were studied for their unique characters to discriminate each of them. Leaf samples were collected from the trial plots of *Eucalyptus camaldulensis, E. tereticornis, Casuarina equisetifolia* and *C. junghuhniana* and characterized for their leaf morphology. Flower samples were also collected from these clones and subjected to image analysis. Probable characters which can be used as descriptors for these species were identified. These characters include both vegetative and reproductive characters. About 30 clones of Eucalyptus were characterized using morphological descriptors and Image Analyser data. The characteristic features of cladodes of Casuarina clones were recorded. The needle colour, number of scaly leaves per node and cladode thickness was studied to distinguish the clo