Rapid Improvement of Casuarina and Leucaena to Enhance Pulpwood Production from Farm Forestry Plantations

### **IFGTB - IPMA Collaborative Project**





Project Period: 2012-2018

Budget:24.04 lakhs

#### **Broad Area of Research**

Securing raw material supply through production of genetically superior planting stock and enhancing wood production from farm forestry plantations.

### **Project Team**

Principal Investigator (IFGTB)	Dr Kannan C.S. Warrier, Scientist F
Co-PIs (IFGTB)	Dr B. Gurudev Singh, Scientist G
	Dr A. Nicodemus, Scientist F
	Shri A. Durai, Research Officer
Principal Investigator (IPMA) and Co-ordinator for IPMA Members	Shri Kamal Netra Mishra (IP-APPM)
Co-PIs	Selected members of IPMA member Mills Shri R.K. Chopra (WCPM) Dr P. Chezhian (TNPL) Dr S.V. Patil (JK) Dr Satish Chandra (JK) Dr Suchita Bhandary (BILT)

### **Objectives**

- To assess the performance of seeds from first generation orchards of Casuarina and to select site-specific source / families based on interim data for large scale planting programmes of IPMA member Mills.
- To infuse new germplasm of Casuarina from selected seed sources outside India and test them in multi locations.
- To field test available Casuarina clones in different agro-climatic conditions for identification of suitable clones.
- To initiate long-term genetic improvement of Leucaena Spp. through infusion of seed sources / varieties and provenances from other countries for creating seedling / clonal orchards with the new germplasm in future.



- The official launch of this collaborative project between IFGTB and Indian Paper Manufacturers Association (IPMA) was held at IFGTB on 3<sup>rd</sup> December 2012.
- Convened a meeting with the scientists from CSIRO Australia at IFGTB on 1 November 2012 regarding the availability of superior germplasm of *Casuarina equisetifolia*. Mr Khongsak Pinyopusarerk, Mr David Bush and Mr Aljoy took part in the discussions. Dr B. Gurudev Singh, Dr A. Nicodemus and Dr Kannan C.S. Warrier represented IFGTB.
- Subsequent to these deliberations, obtained information on the available seedlots of *C. equisetifolia* at Australian Tree Seed Centre, CSIRO. Obtained the registration certificate from the Director of Horticulture and Import Permit and imported 39 seedlots of casuarina from CSIRO.



- Collected seeds of Casuarina equisetifolia from the IFGTB clonal trial established at TNPL with their assistance and the germination tests were completed.
- The Institute requested the member industries to provide details on the captive plantations of Leucaena for selection of candidate plus trees. Among the Mills, WCPM and APPM have provided details on Subabul plantations.
- Based on the inputs provided by WCPM, IFGTB team visited Koppal in Karnataka and selected 265 CPTs of Leucaena from plantations covering 52 ha during January 2013.
- Visited Andhra Pradesh and selected 167 CPTs from Prakasham district.

### Progress

- IFGTB has obtained 22 seedlots of Leucaena from BAIF Foundation, Maharashtra. Initiated the nursery activities for production of seedlings / ramets of clones and produced the required number of seedlings / ramets.
- All the field experiments were established during 2013-14
- Provenance trials of Casuarina (6)
- Clonal trials of Casuarina (5)
- Seed Source trials of Leucaena (5)













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## Top Ranking Stable Provenances of Casuarina

18160 MALAYSIA Mixed Seedlot INDIA ✤ 18268 CHINA Palacharla-A INDIA Karunya INDIA **\***18298 THAILAND Palacharla-B INDIA 18298 THAILAND ✤ 18122 EGYPT ♦ CE-C30 INDIA

### Top Ranking Stable Seed Sources of Leucaena

1 BAIF, Maharashtra ✤15 CFRHRD CHINDWARA, MP 2 BAIF, Maharashtra 12 NAVSARI, Agri Univ. Gujarat \*6 TNAU, Tamil Nadu 14 NAVSARI, Agri Univ. Gujarat ✤18 CFRHRD CHINDWARA, MP

## Recommendations

- The industries may clonally multiply them for future use.
- Ramets from all the provenances and seed sources may be preserved in the germplasm bank.
- Seeds may also be collected from the trials as they are from a wide genetic base.
- Rooted cuttings from the select provenances and seed sources could be used to form clonal seed orchards.
- All the Casuarina trees infected with Blister Bark Disease need to be removed carefully.

## Thank You