

Title	:	Agroforestry Interventions and Conservation of Tree Genetic Resources of <i>Acacia leucophloea</i> in traditional 'Korangadu' Silvi-pasture system towards fodder security
Principal Investigators	:	1. Dr. C. Buvaneshwaran 2. Dr. R. Anandalakshmi
Co-Investigator	:	Dr. A.C. Surya Prabha
Duration	:	3 Years (2017 to 2020)
Objectives	:	1. To study the potential of windbreaks as water conservation measures to enhance the fodder productivity in traditional silvipasture system of western zone of Tamil Nadu 2. To study the variation in growth and pod yield of <i>Acacia leucophloea</i> and conservation of potential tree genetic resources of traditional silvipasture agroforestry system
Funding Agency	:	ICFRE
Summary/Achievements	:	<p>The shrinkage of a traditional 'Korangadu' Silvi-pasture system in Tamil Nadu will lead to loss of tree genetic resources of <i>Acacia leucophloea</i> (Reonja) and will also have bearing on 'fodder security' issues. This project aimed to enhance the productivity of the system and also to conserve important tree genetic resources of the system. In this effort, selected 78 CPTs of <i>Acacia leucophloea</i> and the progenies of these selected CPTs were raised and established a germplasm bank in 1 ha in Tuvarankurichi field station during August 2019 in 4 m x 4m spacing. The germplasm comprised a total of 546 plants representing 11 different populations. Evaluation of performance of progenies will be carried out and superior seed sources for the fodder tree - <i>Acacia leucophloea</i> – will be identified in near future</p> <p>Meanwhile, out of 78 CPTs identified, 28 high fruit yielding candidate trees of <i>Acacia leucophloea</i> were selected for half-sib progeny evaluation for three consecutive years at seedling stage. The results showed huge variation in germination percentage and which ranged from 2% in Half-sib family no. 24 to 71% in Half-sib family no. 2. The biomass production was also greater in Half-sib family No. 2 and least biomass production was recorded in Half-sib family No. 28. The variation in germination percentage was similar in the subsequent two years as well. Half-sib family no. AL-02 recorded greater germination consistently for three subsequent years by registering germination of 64 to 71%. Further, biomass sampling of seedlings was done and estimated dry weight of leaf, branch, shoot and root. Statistical analysis of data through ANOVA revealed that there exists significant variation in dry matter production of biomass components among different half-sib families of <i>Acacia leucophloea</i>. While comparing the total dry matter production, again half-sib family AL-02 recorded highest grand mean value of 8.676 g per seedling. This huge variation observed in germination and growth among</p>

half-sib families of *Acacia leucophloea* warrants the need for conservation of superior phenotypes for enhancing fodder productivity in the traditional 'Korangadu' silvi-pasture system in Tamil Nadu.

The present project also attempted to study the potential of windbreaks as water conservation measures to enhance the fodder productivity in this traditional silvipasture system. The results clearly showed that wind speed was less inside the windbreaks when compared to open field and in turn aided in reducing water loss through evapo-transpiration and in turn will enhance the pasture productivity in the field with windbreaks.