

PROJECT PROFILE

Title: Investigations on wood properties of teak in relation to variation in age and site factors.

Principle Investigator: Dr. C. Buvaneswaran, Scientist- C

Project Associates: Dr. M.George, Scientist-F
Shri. K.Rajagopal, RA-I
Shri. V.Subramanian, RA-I

Start and Completion dates: 1998 to 2003

Objectives:

1. To study the effect of age on wood properties of teak growing in different agro-climatic regions in Tamil Nadu.
2. To estimate the influence of site factors on wood properties of teak.

Funding Agency: ICFRE

SUMMARY

The project on “INVESTIGATION ON WOOD PROPERTIES OF TEAK IN RELATION TO VARIATION IN AGE AND SITE FACTORS” in Teak plantations was carried out in two agro-climatic zones of Tamil Nadu namely southern and western zones represented by Tirunelveli and Coimbatore forest division. The plantations were of different age groups. Basic data on growth attributes (diameter at breast height-dbh, height), wood traits (Heartwood-HW, Sapwood-SW content and wood density) and soil properties (physical properties - EC, pH and bulk density as well as chemical properties – N, P, K, Ca, Mg and Organic carbon content) was collected from these plantations, correlation/regression studies were performed and the results were presented. Results on relation between dbh and Quadratic Mean Radius (QMR) of HW and SW revealed that there is a tendency to restrict formation of sapwood beyond 2 to 3 cm, irrespective of dbh for a region/plantation. As the dbh increases, there is a proportionate increase in HW for a given region/plantation. The statistical analysis in respect of relation of Quadratic Mean Radius of HW with Girth classes showed that the differences in Mean QMRs for different girth classes were statistically significant and it was increasing with increase in girth within a plantation. Differences in Mean QMRs for different ages were also statistically significant both in Tirunelveli and Coimbatore. But there was no definite trend in QMR with increases in age and varied with respect to site conditions.

Observations made on range in wood density (g/cc) at different ages of teak exhibited that differences in mean density for different ages were statistically significant in Coimbatore, though there was no definite trend in increase in density with increase in age, and varied with respect to site conditions. Similar observation was made with reference to plantations in Tirunelveli. It is also observed that QMR of heartwood gradually decreased from bottom to top of the trees. SW % gradually increased up to 3/4th of tree height and rapidly increased at the top 1/4th height. Correlation studies were performed to establish the influence of soil on wood properties. The studies showed that among physical properties of soil, electrical conductivity and bulk density were found to have significant correlation with wood properties. Among various chemical properties of

soil, Nitrogen, Potassium and Calcium registered significant correlation with wood properties.