Project Profile

1. Project Title	:	**Genomic selection for superior heartwood formation in two commercial timber species teak (*Tectona grandis*) and oak (*Quercus robur*) - FASTWOOD (DBT-17)**
2. Name of the Principal Investigator	:	Dr. R. Yasodha, Scientist G
3. Name of the funding agency	:	Department of Biotechnology, GoI
4. Date of start & end; Total duration	:	February 2022 & February 2025; 3 years
5. Total Budget	:	Rs. 130.3112 lakhs

6. Objectives

- Precise and accurate phenotyping of wood (heartwood quantity and quality) using spectroscopy for efficient GS analysis.
- Genomic characterization of teak and oak genotypes and development of customized SNP microarray sets for genotyping.
- Identification of effective trait-associated markers and implementation of GS to identify individuals with superior wood properties.

7. Outline of Research Programme (yearly plan of action):

Year	Activity
First	• Sampling of wood cores and assessment of heartwood percentage. • Spectroscopy analysis of wood cores.
Second	• DNA/RNA sampling • SNP characterization
Third	• GS modelling • Data analysis and Manuscript preparation

8. Overall progress since the implementation of the project:

- Morphometric data and leaf and wood core samples from clones across India's teak-growing regions recorded.
- Wood metabolomic features using FTIR completed.
- Genomic information generated, 1,85,712 SNP markers identified, leading to the discovery of three genetic clusters within India's germplasm.
- Genomic modelling using the GBLUP model and diverse sampling methods, is being conducted.

9. Publications made:

Adwait et al. 2024. A manual on field and laboratory data collection of teak. pp 2 (ISBN NO: 978-93-82387-27-5).