

Summary of completed projects –

Studies on photosynthetic efficiency, biomass production and carbon sequestration of bamboo in plantation forests.

- Moisture was recorded between 50.89 to 69.81% (Avg. 58.6) in stem, 31.54 to 51.05% (Avg. 42.4) in leaf, 42.86 to 62.95% (Avg. 54.2) in rhizome and 69.77 to 78.26% (Avg. 72.7) in litter of all the plantations in the studied area.
- Decayed culm was recorded nearly 7% (6.82% to 7.08%) in all the studied plantations.
- Carbon per culm was also evaluated and recorded between 0.02 to 2.96 kg in Chhattisgarh Plain, 0.4 to 3.0 kg in Kymore Plateau & Satpura Hills, 0.09 to 1.49 kg in Satpura Plateau, 0.98 to 3.95 kg in Northern Hills Zone of Chhattisgarh and 0.1 to 2.81 kg in Central Narmada Valley. These values are statistically analysed at 95% precision level through SPSS software and found significant with 2.96 kg (1985) in Chhattisgarh Plain, 3 kg (2011) in Kymore Plateau & Satpura Hills, 1.49 kg (2000) in Satpura Plateau, 3.95 kg (2011) in Northern Hills Zone of Chhattisgarh and 2.81 kg (1989) in Central Narmada Valley over other values recorded for different year in the respective zones.
- Carbon sequestration was evaluated between 0.07 to 27.51 Mg ha⁻¹ in Chhattisgarh Plain, 0.79 to 24.08 Mg ha⁻¹ in Kymore Plateau & Satpura Hills, 0.15 to 34.17 Mg ha⁻¹ in Satpura Plateau, 0.33 to 50.99 Mg ha⁻¹ in Northern Hills Zone of Chhattisgarh and 0.10 to 29.06 Mg ha⁻¹ in Central Narmada Valley. Average sequestration for all the studied zones ranges 9.6 to 23.4 Mg ha⁻¹.
- Carbon in litter was measured between 11.8 to 361.8 kg ha⁻¹ in Chhattisgarh Plain, 82.7 to 610.1 kg ha⁻¹ in Kymore Plateau & Satpura Hills, 9.4 to 360.5 kg ha⁻¹ in Satpura Plateau, 16.2 to 1076.1 kg ha⁻¹ in Northern Hills Zone of Chhattisgarh and 32.9 to 592.3 kg ha⁻¹ in Central Narmada Valley. Average carbon in litter for all the studied zones ranges between 146.9 to 309.9 kg ha⁻¹.
- Soil organic carbon (SOC) was evaluated between 20.0 to 28.5 Mg ha⁻¹ in Chhattisgarh Plain, 21.6 to 35.7 Mg ha⁻¹ in Kymore Plateau & Satpura Hills, 29.3 to 38.5 Mg ha⁻¹ in Satpura Plateau, 22.3 to 35.0 Mg ha⁻¹ in Northern Hills zone of Chhattisgarh and 42.6 to 168.3 Mg ha⁻¹ in Central Narmada Valley. Average soil organic carbon for all the studied zones ranges between 25.5 to 88.3 Mg ha⁻¹.
- Carbon pool was estimated between 20.96 to 56.88 Mg ha⁻¹ in Chhattisgarh Plain, 22.74 to 61.36 Mg ha⁻¹ in Kymore Plateau & Satpura Hills, 35.7 to 53.01 Mg ha⁻¹ in Satpura Plateau, 22.82 to 76.35 Mg ha⁻¹ in Northern Hills Zone of Chhattisgarh and 47.71 to 176.11 Mg ha⁻¹ in Central Narmada Valley. Average carbon pool for all the studied zones is estimated between 37.4 to 99.6 Mg ha⁻¹.
- Annual carbon sequestration was recorded between 209.3 to 2552.4 kg ha⁻¹ yr⁻¹ in Chhattisgarh Plain, 170 to 3904 kg ha⁻¹ yr⁻¹ in Kymore Plateau & Satpura Hills, 67.3 to 1975.2 kg ha⁻¹ yr⁻¹ in Satpura Plateau, 119.3 to 6538.2 kg ha⁻¹ yr⁻¹ in Northern Hills Zone of Chhattisgarh and 35.9 to 1606.1 kg ha⁻¹ yr⁻¹ in Central Narmada Valley. Average annual carbon sequestration for all the studied zones is recorded between 519 to 1827.5 kg ha⁻¹ yr⁻¹.
- Carbon potential was also evaluated for all studied agroclimatic zones. Carbon potential is expected between 0.08 to 34.3 Mg ha⁻¹ in Chhattisgarh Plain, 1.3 to 46.6 Mg ha⁻¹ in Kymore Plateau & Satpura Hills, 0.28 to 44.6 Mg ha⁻¹ in Satpura Plateau, 0.60 to 115.9 Mg ha⁻¹ in Northern Hills Zone of Chhattisgarh and 0.18 to 92.9 Mg ha⁻¹ in Central Narmada Valley.

Photograph



View of Bamboo plantations of Kymore Plateau & Satpura Hills





view of weight measurements of bamboo parts



View of length measurement of bamboo



View of litter sampling



Collection of soil samples from bamboo plantation



View of circumference measurement of bamboo clump