

Performance of *Casuarina equisetifolia* (Forst.) in Farm forestry Plantation in Tamil Nadu, India

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Abstract

Distribution, tree growth, biomass, litter fall, litter decomposition, nutrient return through litter, nutrient cycling and litter decomposing microorganisms were quantified in an age series of 1-, 2- and 3-year-old trees in high density plantation (10,000 trees/ha) of *Casuarina equisetifolia* in farm forestry in coastal zone of Tamil Nadu, India. The growth of trees had 2.6 cm DBH with a total height of 3.8 m, basal diameter and volume of the tree recorded as 12.4 cm, 0.0017 m³ respectively at 12 months after planting. Three-year-old trees had 6.5 cm DBH with a total height of 13.3 m, basal diameter and volume recorded as 26.4 cm and 0.0372 m³ respectively. Litter fall was recorded at the rate of 0.64 in one-year old plantation, 4.69 in two-year and 5.19 t⁻¹ h⁻¹ year⁻¹ in three-year-old plantations. Nutrient turnover through litter was in the order of Ca > N > K > Mg > Na > P > Fe > Zn > Cu > Cr in all age series. The constant value of annual decomposition (k) was 1.83 and higher values for decomposition rate were recorded during rainy season. Seven fungal species were isolated and identified in litter accumulated in the three year old plantation.