

Casuarina Leaf Litter

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Abstract

Casuarina species are grown extensively in forestry programmes, particularly in China and India. Large quantities of litter (79% deciduous foliage with the rest being fruits and dead branches) from these trees release significant amounts of nutrients, particularly organic nitrogen during decomposition. Up to 30 tonnes of litter/ha/year from *C. equisetifolia* is reported. Litter typically forms a thick blanket (up to 12cm depth) on the plantation floor. Approximately 92% of the nutrients released from the litter are from the foliage. Each tonne of litter contains approximately 470 kg of total carbon, 13.5 kg of nitrogen and 20.4 kg of more stable lignin. Leaf litter has the highest concentration of NPK and Mg compared to other parts of the tree. The carbon and nitrogen contents increase during decomposition whereas potassium and calcium decrease. Litter decomposition significantly increases the soil organic carbon, nitrogen and mineral nutrients, enhancing the ability of casuarinas to act as pioneer species in sandy soil. The gathering of litter for fuel in the developing countries deprives the soil of added nutrients and could potentially cause reduction in the yield of these plants in subsequent generations. The phenolic compounds released during decomposition can have an allelopathic effect on plants beneath *Casuarina* trees. The litter blanket interferes with the food chain and the nesting habits of fauna in the introduced regions, thus changing the ecology of that region whereas it is beneficial to the fauna and other microorganisms in its native habitat. Further investigation is needed to study the leaf litter in environment protection.