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## Diagnosis of nutrient deficiencies in eucalypts

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## Abstract

Mineral deficiencies in eucalypts are common in nursery-grown seedlings and during the early establishment phase in plantations. Five categories of deficiency symptoms have been observed: leaf chlorosis, leaf necrosis, leaf reddening due to accumulation of anthocyanins, leaf deformation and dieback of shoot tips. A key to deficiency symptoms based on symptoms which have been verified in pot or field trials is presented. Symptoms of nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, copper, zinc, manganese, boron and molybdenum deficiencies are described and illustrated in colour. Factors such as nutrient toxicity, air pollutants and fungicides which can result in damage to eucalypt foliage are discussed, and selected examples illustrated in colour. Understanding the behaviour and function of nutrients in the tree should facilitate diagnosis of nutrient deficiencies from the development of symptoms. Alternative procedures should be used in parallel with the documentation of symptoms to ensure a correct diagnosis. Diagnosis by biochemical and anatomical tests, by plant analysis and by tissue testing are briefly reviewed.

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Our findings about nutrient diagnosis for seedling could also be used for saplings in the practice of plantation nutritional management. Acknowledgements. This study was financially supported by Special Research Program for Public-welfare Forestry (No. 201204301-2) and National Non-profit Institute Research Grant of RITF (No. Diagnosis of macronutrient deficiency in *Erythrophleum fordii* leaf area components in *Eucalyptus grandis* trees. *Plant and Soil* 371: 19–35. DOI: 10.1007/s11104-013-1663-7. Relationships between nutrient concentrations and the growth of the fast growing tropical eucalypt *E. deglupta* were examined at two sites in Papua New Guinea. At the Gogol Valley site a predominantly... V. Diagnosis of mineral deficiencies in *Eucalyptus citriodora* seedlings. *Indian For.* 96, 787–790 (1970). Google Scholar.