THE USE OF NITROGEN FIXING TREES FOR INTENSIVE FUEL WOOD PRODUCTION IN SRI LANKA

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An experiment has been designed to study the suitability of different fast growing trees (Leucaena leucocephala, Sesbania grandiflora and Eucalyptus camaldulensis) as energy crops for fuel-wood production in Sri Lanka.

Studies on rhizobial populations showed low numbers of indigenous rhizobia for these three legumes. Inoculation with effective rhizobia was found to be necessary for rapid nodulation and plant development at the nursary stages for both L. leucocephala and S. grandiflora. Inoculation and repeated additions of small doses of fertilizer stimulated growth. No effect from inoculation was observed in the field.

Although N-fertilizers alone and rhizobial inoculations did not have a positive effect on the final biomass harvested, split application of N P K fertilizers produced a significant increase in production. Mean overall wood production of L. leucocephala varied from 1.9 to 2.9 Kg/m2. The overall production of biomass in the experimental area equalled 22.6± 0.1 tons/ha^{-1} per 15 years. When density of trees was increased from 1 tree to 3 trees m^{-2} the production was 12.4 and 18.3 tons dw/ha/yr respectively. This showed that production could be enhanced by 50% by increasing the planting density from 10,000 to 30,000 ha^{-1}.

The non legume E. camaldulensis was found to be unsuitable to this location and its height and basal girth were much less than those of Sesbania and Leucaena.

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