

LAND SUITABILITY CLASSIFICATION AND INTERCROPPING COCONUT SOILS AND POSSIBILITIES FOR INTERCROPPING

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Intercropping and animal husbandry are strategies for optimum utilization of coconut lands. These production alternatives may be in the form of a single intercrop, a mixture of intercrops, or crop - livestock systems which are compatible not only with the coconut but also with other bio - physical and socio - economic environmental conditions which are unique in coconut lands. Intercropping in coconut lands consists of a complex set of interacting and interdependent components of crop type, soil and water, climate, status of coconut (eg. age, yield etc.), land slope, marketing, management, labour availability and environmental and social influences which together will ultimately determine the feasibility of intercropping in coconut lands. Over 30 different intercrops are grown in coconut lands. Among those popular intercrops are: (1) perennials (cacao, coffee, pepper, clove, cinnamon, rambutan, lime, mango, arecanut, pasture and fodder for animals); (2) semi - perennial (banana, pineapple, passion fruit, papaya, betel); and (3) annuals (cowpea, mung bean, cassava, sweet potato, yams, ginger, turmeric and vegetables). Although general information on the performance of intercrops under coconut is available, the influence of soil conditions has not been adequately considered so far.

Although coconut grows on a range of diverse soil types, other crops do not possess the same adaptability, and in most cases, require specific soil conditions for optimum growth. It is therefore necessary that in coconut - based farming systems, intercrops should be chosen on the soil types and that they should not compete with coconut for nutrients and moisture. Moreover, intercrops by their growth and management should not deteriorate soil conditions.

Coconut performs well in Class 1 (S1) lands where priority should be given to maximize

the production of coconut. In such lands, the dominant limiting factor affecting growth of intercrops would be the shade. Therefore, either shade - tolerance (eg. banana) or shade loving (eg. coffee, ginger) should be the major crop character for intercrops for S1 coconut lands. Most annual crops are adversely affected by shade (eg. peanut, cassava) and therefore are not suitable for such lands. Where loose soil is a crop requirement, crops such as yams and cinnamon are also suitable. As S₁ soils are very deep, root competition between coconut and intercrops for moisture is expected to be less, and therefore, some shade - tolerant fodder (eg. Guinea B) could be grown on such lands provided sufficient moisture is available in the surface soil.

Due to good performance of coconut in Class 2 lands (S2), the shade is again the limiting factor as in the case of S1 lands and therefore shade - tolerant or shade - loving crops are suitable for those lands too. Class 2 lands have soils of variable physical properties (sandy to sandy clay loams; imperfectly drained to well drained) and are located in different agro - ecological regions (WL₃, IL₁ and IL₃). Therefore, adaptability of different intercrops depends on individual land characteristics and qualities. For example, suitable crop characters other than shade tolerance in crops for class 2 lands in the Wet zone (Pallama series) are erect tree shape (eg. arecanut) a deep root systems (eg. Cinnamon), requirement of a loose soil (eg. yams) and requirement for irrigation (eg. betel, vegetables). Scope for intercropping in *Kurunegala Series* (IL₁) appears to be limited due to its imperfectly drained nature and high shade of coconut plantation. Pasture,

