CONSERVING/IMPROVING BIODIVERSITY IN RUBBER PLANTATIONS IN INDIA: A REVIEW OF POSSIBILITIES AND ECOLOGICAL IMPLICATIONS

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Traditional rubber growing regions in India were historically under homestead farming where multiple enterprises co-existed catering to the diverse needs of the farm family. Introduction of natural rubber (*Hevea brasiliensis* Muell. Arg.) to India by British planters transformed the land use pattern considerably during the last century; a major share of home gardens was converted to monoculture rubber plantations. The history of this transformation, various intercropping practices and research carried out at Rubber Research Institute of India to conserve/increase biodiversity in rubber plantations by developing suitable intercropping systems and permitting natural flora to co-exist with rubber and the impact of crop/species diversification on soil health and resilience are summarized in this review. Conservation of soil moisture by permitting other crops and weeds in rubber plantations and subsequent mitigation of the risks associated with climate uncertainties, revenue generation in the production system and future research priorities are also discussed. Rubber intercropping systems in other South and South East Asian countries are also discussed.

Key words: Biodiversity, *Hevea brasiliensis*, Intercrops, Natural flora, Natural rubber, Soil health

INTRODUCTION

Land use systems at local and regional landscapes are dynamic and they evolve gradually with the prevailing agro-climatic conditions. Socio-political and economic factors add to the momentum of these changes often with conflicting effects on the various components of the production systems. Past century witnessed a shift from the subsistence oriented to commercial farming in many parts of the tropics including parts of India in conjunction with the socio-economic development of the farmers.

Traditional home gardens in India are need-oriented, intensive and integrated farming systems with multiple enterprises around the farm houses (Kumar and Nair, 2004). The structural and functional diversity of these production systems helped farmers to meet the food, fuel, fodder, timber and other livelihood requirements to a large extent. The multi-layered canopy and root systems and synergistic interaction of the components in the home gardens ensured most efficient utilization of natural resources and resilience of the production system.

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