

STUDY OF SOILS IN NON-CONVENTIONAL AREAS OF RUBBER CULTIVATION IN KERALA AND THEIR EFFECT ON GROWTH AND YIELD OF *HEVEA BRASILIENSIS*

P. Prasannakumari, D.V.K.N. Rao, Elsie S. George and K.I. Punnoose
Rubber Research Institute of India, Kottayam – 686 009, Kerala, India.

Submitted: 07 August 2002 Accepted: 30 June 2005

Prasannakumari, P., Rao, D.V.K.N., George, E.S. and Punnoose, K.I. (2005). Study of soils in non-conventional areas of rubber cultivation in Kerala and their effect on growth and yield of *Hevea brasiliensis*. *Natural Rubber Research*, 18(1) : 38-45.

Rubber (*Hevea brasiliensis*) is being cultivated in non-conventional areas *viz.*, upland paddy fields, lowlands and coastal sand belts within the traditional region of Kerala, India. These areas differ in soil characteristics and production potential among themselves as well as from the traditional rubber growing slope lands. Present study examines the difference in soil characteristics and yield of rubber plantations raised in these land forms and their relationships besides leaf nutrient content. The texture of soil of upland paddy fields varied from sandy loam to clay while low land soils were sandy clay loam to clay loam. Coastal sandy soils contained higher amount of sand throughout the profile. Moisture content at field capacity (FC), permanent wilting point (PWP) and available water content showed wider variations between land forms. The silt and clay had a significant positive influence on FC and PWP. The study showed that the performance of rubber in upland paddy fields and low lying areas is appreciable with respect to growth (gestation period) and yield. With appropriate agromanagement practices, good growth of rubber was observed in sandy soils also, though conventionally sandy soils are considered unsuitable. Significant difference between group variability in mean yield was observed indicating the difference in production potentials of land forms studied.

Key words: Growth, *Hevea brasiliensis*, Non-conventional area, Soil characteristics.

INTRODUCTION

Rubber (*Hevea brasiliensis*) can grow in a vast majority of the soils of the humid tropics. However, its performance and economic viability can be severely restricted where deep, very acidic, rocky parent material is present and drainage is excessive or impeded.

In Kerala, rubber is being cultivated in different landforms *viz.*, midhill slope lands, upland paddy fields, low lands and coastal sandy soils. In upland paddy fields, rubber is usually planted in raised bunds so that rainwater is allowed to retain in the fur-

rows for most part of the year. Low lands are mostly inundated during rainy season and therefore, sub-soils are moist throughout the year. Rubber is also being cultivated in coastal sandy soils where the soil is deep, excessively drained and less productive. Information on soil characteristics and rubber yield in these areas is lacking. The present study, therefore is an attempt to examine the difference in soil characteristics and yield of rubber plantations raised in these landforms and also to know the relationship of soil characteristics with leaf nutrient content and yield.