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PLANTING IN SMALL PITS: A COST EFFECTIVE TECHNIQUE FOR RUBBER IN DEEP SOILS

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Taking pits for planting rubber (*Hevea brasiliensis)* is one of the most labour intensive and expensive operations in rubber cultivation. A field experiment was conducted at the Central Experiment Station of Rubber Research Institute of India, Chethackal, Pathanamthitta District of Kerala (9°RR?.???• ?sS °sR?.??r RR?? ???• ????• the period 2002 to 2008 with the objective to study the effect of pit size on root development and growth of rubber. The soil of the experiment area was sandy clay loam in texture with a depth of around 1m. The treatments were pits of dimensions 45 x 45 x 45 cm, 60 x 60 x 60 cm, 75 x 75 x 75 cm (standard pit size), 90 x 90 x 90 cm, 60 x 60 x 90 cm, 90 x 90 x 60 cm and small pits just sufficient to accommodate polybag plants. Observations over a period of six years indicated that the size of planting pits had no significant effect on development of tap root or lateral roots and growth of rubber. Where the soil was devoid of hard pans, irrespective of the size of the pits, the trees developed a long tap root of length 2.2 to 2.3 m, 6 years after planting. The cost analysis data showed that planting in small pits just sufficient to accommodate the polybag plants could save about 73 per cent of labour cost for pitting compared to the current recommended method of pit size 75 x 75 x 75 cm. The study indicated that planting rubber in small pits, when the soil depth is 1 m or more, did not affect the root development and growth of the plants and by following the method, considerable saving in cost of cultivation could be achieved.

Keywords: Cost of cultivation, *Hevea brasiliensis*, Planting pit, Root distribution

INTRODUCTION

Rubber (*Hevea brasiliensis)* is a forest tree, indigenous to the tropical rain forests of Central and South America. Being a tree crop, rubber possess a well developed tap root and lateral root system, capable of exploiting a large volume of soil to enhance the absorption capacity for both moisture and nutrients (Samarappuli *et al.*,1996). A properly developed root system improves the anchorage of plants in the soil and reduces the chances of wind damage by uprooting. The development and distribution of root systems depend on soil properties to a large extent and influence the growth and yield of plants. Webster and Paardekooper (1989) reported that in deep soils without impediments, the length of tap root and lateral roots of 3 year old rubber plants were 1.5 m and 6 to 9 m, while the respective length of roots of 7 to 8 year old plants were 2.4 m and over 9 m.

Pitting operations prior to rubber planting is carried out to generate favorable conditions for the early establishment and growth of the young plants (Punnoose and

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