

RUBBER-BASED MULTISPECIES CROPPING SYSTEM UNDER RAINFED CONDITION OF NORTH EAST INDIA

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Datta, B., Dey, S.K. and Nair, N.U. (2011). Rubber-based multispecies cropping system under rainfed condition of North East India. *Natural Rubber Research*, 24(2): 220-227.

An experiment was conducted to evolve an appropriate rubber-based multispecies cropping system during the immature phase for North East India. A variety of annual and short duration intercrops (upland rice, okra, cowpea, *Amaranthus*, *Colocasia*, *Amorphophallus*, pineapple and banana) were grown in the rubber inter-row space under two different planting geometries. In the first model, rubber was planted in paired-rows 9.0 m apart. The distance within the paired-row was 5.0 m and between trees of a row 3.2 m. In the second model, rectangular system of planting (6.7 x 3.4 m) was followed. Among the diverse crops cultivated in the first year, performance of rice and cowpea was superior. The actual intercrop yield of rice was 240.5 kg/ha and 321.2 kg/ha and that of cowpea was 151 kg/ha and 160.3 kg/ha in Model I and II, respectively. In the second year of intercropping, tuber crops like *Colocasia* (192 kg/ha) and *Amorphophallus* (173 kg/ha) performed well in both models. Promising yield of banana (580 kg/ha) was also obtained from Model I. *Colocasia* had the highest benefit-cost ratio (BCR) of 2.67 followed by banana (2.47), cowpea and upland rice. The BCRs are 1.83 and 1.85 for cowpea and 1.83 and 1.80 for rice in Models I and II respectively. *Amorphophallus* was also promising with a BCR 1.64 in both models, indicating the economic feasibility of growing these crops as intercrops during the initial years.

Keywords: Benefit-cost ratio, Cropping system, *Hevea brasiliensis*, Planting geometry

INTRODUCTION

Rubber (*Hevea brasiliensis*) is a non-traditional crop for the north-eastern part of the country, but the crop has gained popularity due to its easy adaptability and high economic return. The lengthy gestation period has often served as a disincentive for investors in the business of rubber farming. However, rubber holdings provide ample scope for cultivation of a variety of intercrops having different stature, canopy

shape, size and rooting habits, thereby making use of under-utilized soil space and solar radiation in the monocrop stand.

Planting geometry is also an important factor in the determination of optimum planting density. Rubber is generally planted at a wide spacing, 4.9 x 4.9 m on level lands and 6.7 x 3.4 m on sloping and undulating lands, which usually results in an under-optimal utilization of land and other resources during the immature phase