EFFECT OF TREE DENSITY ON GROWTH, YIELD AND PROFITABILITY OF RUBBER (HEVEA BRASILIENSIS MUELL.ARG.) IN PLANTATIONS

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ABSTRACT

Three rubber (Hevea brasiliensis Muell. Arg.) clones, PB 86, RRIC 101 and RRIC103, were tested for their performance under six tree densities viz: 400, 533, 666, 771, 800 and 920 trees/ha. The clone PB 86 was significantly a slow grower than the other two clones and had a lower percentage of tappable trees throughout. Tree density has influenced the growth and grams/tree/tapping (g/t/t) yield irrespective of the rubber clone. All three clones showed reduced growth under high densities, the extent of which has increased with the increase in tree density. Trees under lower densities of 400 and 533 trees/ha have performed better than those under high densities and had a greater percentage of tappable trees even in the 6th year. Bark thickness in trees under these two treatments was higher than in others. Grams/tree/tapping yields were also high in these treatments with the 400 trees/ha treatment yielding the highest. The four higher density treatments have behaved similarly in most instances with respect to the parameters investigated. Kg/ha yield calculated using the actual number of trees in tapping in each treatment was similar in all density treatments in the 1st and 3rd years of tapping and the differences in other years were also not large. The cumulative net revenue in the 400 trees/ha treatment of RRIC 101 and RRIC 103 at the end of the 4th year of tapping only showed a gain while all other treatments showed a deficit that has increased with the increase of tree density. The pay back period of clones RRIC 101 and RRIC 103 was 4 years after commencement of tapping when the tree density was 400 trees/ha and was 10 years for PB86 under the highest density of 920 trees. This data shows that all three clones have performed better under low densities with respect to growth yield and profitability during the first 10 years of establishment.

Key words: tappable rubber trees, bark thickness, Hevea brasiliensis.