



Effect of mineral fertilization on agrophysiological parameters and economic viability of clone PB 235 of *Hevea brasiliensis* in the region of GO in south western Côte d'Ivoire

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1 ABSTRACT

In order to determine the significance of mineral fertilization on rubber trees, a twenty-year study on both agrophysiological and economic viability aspects was conducted in a plantation of clone PB 235 of *Hevea brasiliensis*, in south western Côte d'Ivoire. The effects of six treatments at different doses (Control 0D, ½ D, 1D, 2D, 4DT and 4DP) of nitrogenous, phosphatic and potassic fertilizer on yield were assessed. The experimental design was completely randomized blocks (CRB) with four repetitions. Mineral fertilization significantly improved the radial vegetative growth of the trees at immature and mature stages. It thus enabled tapping to start early and to have a number of tappable rubber trees, statistically higher than that of the control. It was also probably responsible for the significant loss of tapped trees compared to the control. Mineral fertilization at immature stage, for 5 years, followed by a dozen years of potassic fertilizer at ½ D, 1D and 2D doses, had a positive effect on the productivity of the rubber ($\text{g.t}^{-1}.\text{t}^{-1}$, g.t^{-1}) of rubber trees. This effect is strongly influenced by the density of tapped trees, limiting to 5.3 % the productivity gain in rubber (kg.ha^{-1}) of the half-dose compared to the control. Only the application of the half-dose of fertilizer gave convincing agrophysiological results and a positive profit margin. The latter, with a yield gain of 1240 USD.ha⁻¹ and a productivity gain of 779 USD.ha⁻¹, is profitable and likely to be recommended in rubber tree plantations.
