Effect of design and planting density on the agrophysiological parameters of clone GT 1 *Hevea brasiliensis* Muell Arg in southwestern Côte d'Ivoire

Kouadio Espérence BALLO(1)*, Francis Eric SOUMAHIN(1), Jean Lopez ESSEHI(2) Justin Yatty KOUADIO(1), Samuel. OBOUAYEBA(3)

1University Jean Lorougnon Guédé, UFR (Faculty) of Agroforestry, Laboratory for improving agricultural production BP 150 Daloa, Côte d'Ivoire
2University Félix Houphouët Boigny, UFR Sciences de la Terre et des Ressources Minières, 01 BP V34 Abidjan 01 Côte d'Ivoire
3National Center for Agronomic Research (CNRA), Research Station of Bimbresso, Laboratory of Agronomy and Plant Physiology, 01 BP 1536 Abidjan 01, Côte d'Ivoire

*Corresponding author (e-mail: esperenceballo@gmail.com; Tel: +225 49732364)

Original submitted in on 23 November 2018. Published online at www.m.elewa.org on 31 January 2019

https://dx.doi.org/10.4314/jab.v133i1.5

ABSTRACT

The design and planting density can influence certain agronomic parameters. To enable *Hevea brasiliensis* clone GT1 to better express their agrophysiological potentialities and sensitivity to the tapping panel dryness a study, of the design and planting density was undertaken at the SCASO experimental site in southwestern of Ivory Coast. The experimental design applied, split-plot of three treatments (designs in lines separated from 6 or 7 m and staggered) and three sub-treatments (350; 510 and 650 trees/ha) with four repetitions, was installed on 12, 22 ha. Only one latex collection system was applied (S/2 d/4 6d/7 ET 2.5 % Pa 1 (1) 6/y). The parameters measured were rubber production, circumference increase, physiological profile and tapping panel dryness sensitivity. The rate of trees present in the plots was good (87.27 %) and have not varied with the design and planting density. Vegetative growth tapping (2.69 cm.year⁻¹), and mean yield (1926 kg.ha⁻¹.year⁻¹) were influenced by density unlike design. Despite good productivity, the physiological state of the rubber trees was good, characterized by a well-balanced physiological profile and a low tapping panel dryness rate (2.73 %), independently of design and planting density. The density and the suitable planting design were planting in separate rows of 6 m / 650 t/ha.

Keywords: *Hevea brasiliensis*; density and planting design; Rubber production; GT 1; Vegetative growth tapping