ON-FARM EVALUATION OF *HEVEA* CLONES IN HUMID SUB-TROPICAL MEGHALAYA WITH SPECIAL REFERENCE TO RRII 400 SERIES CLONES

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Six clones *viz*. RRII 203, RRII 417, RRII 422, RRII 429, PB 235 and RRIM 600 were planted in 2009 at Mendipather, North Garo Hills, Meghalaya in block trials. All the clones except RRIM 600 attained tappability in seven years. The trees were opened for tapping in 2016 under S/2 d2 6d/7 tapping system. The highest tappability was recorded in RRII 429 (94%) followed by RRII 203 (88%), RRII 417 (86%), RRII 422 (83%), PB 235 (82%) and RRIM 600 (66%). Rubber yield over eight years showed the highest value for RRII 429 (52.9 g t^{-1} t^{-1}) followed by RRII 422 (43.3 g t^{-1} t^{-1}), RRII 417 (42.4 g t^{-1} t^{-1}), PB 235 (37.2 g t^{-1} t^{-1}), RRIM 600 (34.5 g t^{-1} t^{-1}) and RRII 203 (34.2 g t^{-1} t^{-1}). The estimated yield in terms of kilogram per hectare per year showed about 2500 kg for RRII 429 and over 2000 kg each for RRII 417 and RRII 422. The estimated yield was over 1700 kg for PB 235 and about 1600 kg each for RRII 203 and RRIM 600. The highest timber volume was recorded in PB 235 (0.19 m^3) followed by RRII 203 (0.18 m^3), RRII 417 (0.16 m^3), RRII 429 (0.14 m^3), RRII 422 (0.12 m^3) and RRIM 600 (0.09 m^3). The tree biomass growth was estimated for the above ground biomass (AGB) of the clones. The highest value was recorded for RRII 203 (395 kg $tree^{-1}$) and the lowest in RRIM 600 (288 kg $tree^{-1}$). Carbon stock and carbon sequestration potential of the clones showed the highest value for RRII 203 followed by RRII 429, PB 235, RRII 417, RRII 422 and RRIM 600. In the present study RRII 429 and RRII 417 showed superior performance to RRIM 600 for all the growth and yield parameters studied. Clones RRII 203 and PB 235 showed superiority in terms of all growth parameters over RRIM 600 with comparable yield performance.

Keywords: Biomass, Block trial, Carbon sequestration, Girth, On-farm trial, Timber, Yield

INTRODUCTION

Ever since the first introduction of Para rubber *Hevea brasiliensis* (Willd. ex A. Juss.) Muell. Arg. from the tropics of South America to the tropical South East Asia in the late 19th century, rubber cultivation gradually progressed reaching even the sub-tropical climates of the Indian sub-continent. Rubber being one of the crops that can provide income every day, expansion of rubber cultivation to other non-traditional areas was essential. Meghalaya in North East India (NE) is a non-traditional area for rubber cultivation. Meghalaya is characterized by a humid sub-tropical climate. Low temperature, occasional cyclonic storms, region specific rainfall pattern *etc*. are not

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