

SESSION 7A  
BREEDINGIntraclonal variability in growth and yield of *Hevea brasiliensis*:  
role of age of source bush nurseries

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## Abstract

*Hevea brasiliensis*, the Para rubber tree, is generally propagated vegetatively by patch budding. However, trees exhibit intra-clonal variation in growth and yield which reduces the uniformity of plantations. Most often, scion-buds were collected from budwood stocks maintained and regenerated every year from the same source bush nurseries. The age of source nurseries generally may vary from one to 20 years. Present study examines the effect of age, juvenility of buds source and stability of buds collected from seven source bush nurseries on long term growth and yield of clone RR11 105. Healthy buds from (a) one, (b) four, (c) twenty years old budwood nurseries and (d) buds from 10 year old mature trees were collected and generated budded plants by grafting onto seedling stock of same age and size in the ground nursery. Poly bagged plants were developed, field planted in a statistical lay out and being evaluated for major agronomic traits since 2006. Results demonstrate that, there is no significant difference of trunk girth among the treatments (a) (b) and (c) in the 11<sup>th</sup> year after planting, while plants raised from the buds harvested from the mature trees (d) remained significantly inferior. Trees raised from young budwood source aged from one to twenty years showed tappability of 58 to 62% when compared to that originated from the tree buds (8.0 to 11.0). Uniform growth was reflected in the girth of trees raised from bud wood nurseries aged one year, four year and 20 years. Girth of trees ranged from 61.0 to 67.0 cm. The results indicated that those trees originated from buds of mature trees registered significantly ( $p < 0.05$ ) inferior growth (49cm), tappability (8%) at the time of opening and lowest dry rubber yield (48 g/t/t) over four years. Whereas, trees originated from all rejuvenated bud sources viz., one, four and 20 years old budwood stocks registered significantly higher rubber yield (ranging from 53.7 to 58.0 g/t/t). In addition to this, trees originated directly from buds of mature tree branches sustained higher intraclonal variation in girth and yield. Results of this long term study demonstrate that the age of budwood sources ranging from one to twenty years does not appear to have any significant role in determining intraclonal variability in the growth and yield of rubber and the study strongly suggest avoiding use of buds directly from mature trees.

**Keywords:** Intraclonal variability, source bush nursery, clonal stability, juvenility of scion

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**Dry rubber content in natural rubber latex:  
A quick and accurate method for estimation**

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**Abstract**

*A simple, accurate and quick method for determination of dry rubber content (DRC) in the latex of *Hevea brasiliensis* was developed and standardised. This method is applicable for determination of DRC of fresh and ammoniated field latex. The new procedure uses a coagulant mixture constituting ethyl alcohol (70 %) and acetic acid (5 %) in 1:1 ratio. About 15 ml of the coagulant was taken in a petri dish (approx. 9 cm diameter), and a known weight (about 10 g) of fresh field latex was added drop by drop into the coagulant and swirled till it coagulated into a mass. Dilution for latex by 10 percentage was given for ammoniated field latex before coagulation. The instantly formed coagulum for both fresh and ammoniated latex were pressed using a flat glass plate ensuring that the serum was transparent. After washing and rolling, the thin coagulum required 60-90 min. at 70 °C for obtaining constant weight. On the contrary, the standard procedure for DRC estimation using dilute acetic acid as coagulant followed by placing in water bath and then filtering the serum took 1-2 h for coagulum formation and ≈16 h for drying. Major advantages of the new method over the conventional one are: being simple, accurate, less expensive and quick. The quick delivery of results benefits stakeholders.*

**Keywords:** DRC estimation, field latex, *Hevea brasiliensis*, instant coagulation, latex coagulant

