

B-12: Effect of root distribution and age of rubber on the growth of intercropped cacao

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An experiment was carried out to evaluate the effect of root distribution of different aged rubber (*Hevea brasiliensis* Muell. Arg.) trees on the growth of cacao (*Theobroma cacao* L.) intercropped with them. Field planting of cacao as an intercrop under 1,2,4 & 6 year old rubber trees was completed in Yala 1997 at farmers' fields in Kegalle district.

Spacing of rubber trees was 8.1 x 2.4 m and one row of cacao at 2.4 m distance was planted along the centre of each avenue of rubber and each cacao plant was located in centre of rubber trees. Four varieties/selections of cacao namely Millawana bulk, W5/5, A10, and ICS6*SCA6, were tested. Root sampling was carried out in both horizontal and vertical directions from the base of rubber tree to measure the root length densities (mm/cm³).

Root distribution of rubber trees was most prominent at depths between 0-50 cm, irrespective of the age of trees. Roots were not observed beyond 2.5 and 3.0m from the base in 1 and 2 year old trees. The root distribution was more extensive in the 4 and 6 year old rubber trees. Root length densities of the 6 year old rubber trees were greater upto a distance of 4.0m than that of the

other age classes of trees, thereby indicating a well developed and extensive root system.

Statistical analysis indicated that the effect of age of rubber was significant for the early growth of cacao and the best growth was observed under 4 year old rubber and the poorest growth was under 6 year old rubber. Mortality percentages of newly established cacao plants were 46%, 35%, 6% and 9% under 1, 2, 4 and 6 year old rubber respectively at the end of Jan/February intermonsoonal dry spell.

In conclusion, field planting of cacao as an intercrop appears to be suitable during the first 4 years of rubber planting, Since, cacao is a shade loving plant field planting of cacao under 4 year old rubber would be more appropriate when cacao is grown as an inter-crop with rubber.