Programme & Abstracts

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O01 Preliminary Analyses: Effect of Different Irrigation Systems on Growth and Plant Nutrient Content in Rubber (*Hevea brasiliensis*) Nursery Seedlings

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The growth of rubber seedlings is greatly influenced by various conditions such as irrigation, soil or substrate quality, drainage and fertilization. BX-1 system (RB 900 and BX-1 growing media) is a new nursery planting system introduced by Humibox Sdn. Bhd, with the main purpose of replacing the traditional (polybag with soil) way of raising seedlings. The soil used was a Munchong (Tropeptic Haplorthox) soil series. Water is the main factor that controls the growth of rubber seedlings, and different water application methods will have different effects on the growth and nutrient content of the seedlings. To evaluate the effect of different irrigation systems on growth and plant nutrient content in Rubber (*Hevea brasiliensis*) seedlings; a field experiment was conducted for six (6) months under the rain shelter in field 15. Agrobio complex, Faculty of Agriculture, UPM. The study was conducted using Randomised Complete Block Design (RCBD) with three replications. The four treatments used were; BX-1 system with overhead sprinkler (SPR) as (T1), BX-1 system with drip (DRP) as (T2), Bx-1 system with capillary wick system (WCK) as (T3) and polybag-soil with capillary wick system as control (CTRL). A known amount of water was given every day. A total of 120 seedlings of RRIM 2000 were used in the experiment with each experimental unit having 10 seedlings. Destructive samples were taken every 30 days to assess growth and leaf nutrient content (N, P, K, Ca, and Mg). The soil and media analyses showed that BX-1 had more than three times the nutrients compared with Munchong (Tropeptic Haplorthox) soil series. The pH of the BX-1 was 6.4 which indicated the availability of nutrients, while the soil pH was 4.6, which is rather acidic. It also had rather higher electrical conductivity (EC) of 1.2 dS m-1, which did not affect the growth of the plant. The BX-1 media had a very low bulk density (0.135 Mg m-3) which is a good characteristic of growing media as it allows easy handling, unlike mineral soil (1.43 Mg m-3), which makes handling and transportation difficult. The available water content of this media was only 2% while the soil (Munchong) had 3%. WCK irrigation system gave the highest leaf dry weight, nitrogen content and total leaf area. This was because the WCK has higher nutrient use efficiency, lower leachate compared with SPR and DRP and consequently lower nutrient loss. The research showed that using RB 900 can be adopted in a rubber seedlings nursery with a growing media that has good water retention and adequate available nutrients (BX-1 media).

O02 Growth Performance of Cacao Seedlings Under Different Field Capacity

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