

RESPONSE OF RUBBER (*HEVEA BRASILIENSIS*) SEEDLINGS TO IRRIGATION IN NURSERY

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A study on the response of rubber seedlings to five moisture regimes (0, 25, 50, 75 per cent depletion of available soil moisture and unirrigated control) indicated 50 per cent depletion of available soil moisture to be the permissible level for optimum growth of seedlings. The growth attributes such as average leaf area, total aboveground biomass, length of the internode, number of leaves per whorl and whorl number were found to be significantly affected by moisture stress. Average seasonal and daily consumptive use and crop factor for the irrigation period were also worked out for the different moisture regimes.

Key words: Consumptive use, Crop factor, Growth, Irrigation, Seedling nursery, Soil moisture depletion.

Irrigation of ground nurseries has been reported to be beneficial even under conditions of well-distributed rainfall (Webster, 1989; Haridas, 1980; 1985) when application of small amounts of water during the dry spells improved growth. In regions with distinct dry periods growth will not be satisfactory unless nurseries are regularly watered during the dry season. Irrigation is useful in rubber nurseries during the summer even in traditional areas where it is preferably given once in two to three days (Punnoose and Lakshmanan, 2000). Information available on the extent of moisture deficit that can be tolerated by the seedlings, the frequency of irrigation required, the evapotranspiration / consumptive use of water and the water requirement of rubber in seedling / ground nursery is limited. Hence a field experiment was initiated to study the response of rubber seedlings to irrigation in a seedling nursery.

The experiment was laid out in the farm of the Regional Research Station of the Rubber Research Institute of India, located at Padiyoor, Kannur District in North Kerala (11° 58'N and 75° 36'E). The experimental site was at an altitude of 20 m above MSL. Germinated seeds were collected from the germination beds and planted in seedling beds at a spacing of 30 x 30 cm during August 1999. All cultural operations as per the recommended package of practices for seedling nursery were adopted. The soil of the experimental site was clay loam with a bulk density of 1.32 Mg/m³, field capacity 28 per cent and permanent wilting point of 17.5 per cent. The treatments were imposed from the middle of December after the cessation of the North East monsoon rains. Uniform irrigation was given to all the plots on December 16th to bring the soil to field capacity level, which was followed by the imposition of the different moisture regimes.