

SOME AGRONOMIC PRACTICES TO OVERCOME MOISTURE STRESS IN *HEVEA BRASILIENSIS*

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The effect of moisture stress on growth and latex production of *Hevea brasiliensis* in Sri Lanka was investigated and suitable agronomic practices to overcome the adverse effects suggested. Among the different soil management practices, application of straw mulch resulted in higher girthing of plants, compared to other practices such as growing leguminous covers or natural vegetation. Similarly, tappareability and yield were much higher in mulched plots. Mulching also contributed to soil nutrients, improved CEC and raised soil pH. Mulching also improved the potassium content and the water status of both plants and soil. A quadratic response to the application of K was observed. Under conditions of moisture stress, increasing the level of K helped in restoring normal growth of rubber plants. These results were supported by observations on physiological parameters such as stomatal conductance, transpiration and leaf water potential.

Key words: *Hevea brasiliensis*, Moisture stress, Straw mulch, Potassium, Sri Lanka.

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INTRODUCTION

A uniform annual distribution of rainfall is regarded as favourable for the growth of *Hevea* plants. In Sri Lanka, dry spells are common in some months and prolonged drought periods also occur in regions with distinct dry seasons. These lead to soil moisture stress of different magnitudes, adversely affecting the growth and productivity of rubber.

Soil moisture is important for the growth of rubber especially during the immature period and leguminous cover is established as a soil conservation measure. The influence of ground covers on early growth of the rubber trees is believed to be mainly through the conservation of moisture and the turnover of nutrients

(Yogarathnam *et al.*, 1984). At the same time, ground covers may also compete for moisture and nutrients with the young rubber plants. Mulching has an advantage over these practices as it conserves soil moisture without competition (Samarappuli and Yogarathnam, 1984). Adequate supply of K has an important role in imparting tolerance to moisture stress by influencing the rate of transpiration, CO₂ assimilation and expansive growth (Hsiao and Lauchli, 1985). The objective of this study was to investigate the effects of moisture stress on growth and latex production of *H. brasiliensis* grown under Sri Lankan conditions. The effects of ground cover management and potassium fertilizers to overcome the adverse effect of moisture stress were also studied.

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