

EFFECT OF STOCK PRUNING ON SHOOT AND ROOT GROWTH OF BUDDED POLYBAG PLANTS OF *HEVEA BRASILIENSIS*

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Pruning of above-ground biomass could result in cessation of root growth or partial death of the root system. This study determines the impact of stock shoot cut-back on root and shoot growth of rubber plants (*Hevea brasiliensis* Muell. Arg.) raised in polybags. Low and high vigor plants were either cut-back or not after successful grafting. Seedling or scion diameter and root lengths were measured at 2-week intervals thereafter. Shoot and root growth were significantly higher in high vigor plants than those in low vigor plants. There was a decrease in feeder and lateral root lengths of plants by 4-6 weeks after cut-back (by 60% and 40%, respectively), which could be attributed to the lack of carbohydrate supply. These increased thereafter with the supply of carbohydrates from the new scion. The root system of non-cut-back plants grew uninterruptedly. These effects were not dependant on plant vigor. Feeder root growth was more compared to lateral root growth during 6-12 weeks after cut-back. As the six weeks following cut-back appears to be a critical period for rubber plants raised in polybags due to very low root activity adequate care should be taken to protect the plants at that stage from adverse environmental conditions.

Key words: Cut-back, *Hevea brasiliensis*, Polybag plants, Root growth, Young budding.

INTRODUCTION

Polybag plants raised by young budding technique are the most preferred planting material in Sri Lankan rubber (*Hevea brasiliensis*) plantations (Seneviratne, 1995). In young budding, germinated seeds are placed directly in polybags and the plants that emerge are allowed to grow until one or two leaf whorls are formed. The plants are then budgrafted and successfully grafted seedlings are cut-back leaving only a snag of 15 cm above the bud, in order to promote the growth of the scion (Seneviratne, 2001). However, it has been observed that scions of some plants die back

about 6 weeks after cut-back, particularly under hot and dry weather conditions.

The die back (wilting) may be due to the failure of the root system to meet the evapotranspiration demand of the shoot. In tea plants it has been reported that during high temperatures, the root system fails to provide sufficient water to the shoot even when the soil moisture levels are adequate (Fordham, 1971). Reduction in root growth after pruning has been observed in tea (Fordham, 1972) and apple (Head, 1969) which has been attributed to the diminished supply of assimilates to the roots. According to Kandiah and

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