

## ASSOCIATIONS OF STRUCTURAL TRAITS : YIELD, GIRTH AND OCCURRENCE OF TAPPING PANEL DRYNESS IN *HEVEA BRASILIENSIS*

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A correlation study on ten *Hevea brasiliensis* clones showed that the factors detrimental to girth increment on tapping favours the occurrence of tapping panel dryness. Laticifer area index was an exception which has positive association with both. The number of latex vessel rows, the number of intraxylary phloem groups and total volume of latex produced together contributed to 49 per cent variation in the occurrence of tapping panel dryness of which the two structural traits alone governed 39 per cent variation. The associations of characters indicated that a very high number of latex vessel rows in high yielding clones leads to high incidence of tapping panel dryness. Hence selection based on high girth, good quantity of intraxylary phloem and balanced number of latex vessel rows is suggested for sustainable yield by reducing TPD. The two structural traits mentioned above are useful parameters for early prediction of clonal susceptibility to TPD at least to some extent. The importance of laticifer area index and number of intraxylary phloem groups as selection parameters is discussed.

Key words : Anatomy, *Hevea* clones, Tapping panel dryness, Yield.

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### INTRODUCTION

Brown bast or tapping panel dryness (TPD), recognized as a physiological disorder commencing in the laticiferous system in *Hevea brasiliensis*, is highly related to exploitation for yield (Sethuraj, 1988; Vijayakumar *et al.*, 1990; Jacob *et al.*, 1994). Though not fatal to the tree, the yield loss due to this disorder is of serious concern to planters. So far, researchers could not come to a compromise on the definite genetical/ environmental factors which trigger the disorder, though various such causal factors have been suggested. High yielding clones easily succumb to this disorder (Premakumari *et al.*, 1991; Sivakumaran *et al.*, 1988) and it is presumed that extraction

of latex before replenishing the quantity drained off on previous tapping leads to the occurrence of TPD (Sethuraj, 1988). A clear link between resistance to fatigue related to TPD and sucrose content of laticifer system has been reported (Cohet *et al.*, 1997).

The influence of bark anatomical characters on yield is well known. Reports on the number of latex vessel rows (Ho, 1975), laticifer area index (the quantity of laticiferous tissue, in terms of area, per tapping cut) and the orientation of latex vessels, i.e., the extent of waviness of latex vessels in its upward direction according to the ratio of phloem ray height to its width (Premakumari *et al.*, 1988; Premakumari, 1992) are examples.