

ESTIMATION OF BIOMASS IN HEVEA CLONES BY REGRESSION METHOD : 2. RELATION OF GIRTH AND BIOMASS FOR MATURE TREES OF CLONE RRIM 600

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Determination of biomass in tree crops like *Hevea* is cumbersome and a most viable alternative method is to estimate the biomass as a function of a common measure of growth, like girth. In the present study relationships were worked out with girth at 150 cm from bud union and above ground biomass for trees of clone RRIM 600. Both power as well as exponential regression equations fitted were found to be reliable in all classes of girth from 45 to 93 cm. The relationships are $W = 70.0202 G^{2.240}$ (power) and $W = 24.8486 e^{0.0319G}$ (exponential).

Key words : *Hevea brasiliensis*, girth, biomass, regression

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INTRODUCTION

Determination of biomass is an essential part of crop response studies. In field crops, this can easily be done by the destructive method of harvesting the entire plant and recording its weight. Biomass determination in tree crops like *Hevea* by destructive sampling is not feasible since the labour, space and time requirement for actual biomass determination is considerable. The best and most viable alternative is to identify an easy method to determine any growth component which can be related to the biomass. Such method can be used to estimate the biomass of any number of trees at any time without destroying them.

Some growth components are reported to have direct relationship with

biomass in many tree crops including *Hevea*. The relationship between girth and biomass, the most commonly used growth measurement in *Hevea* research, has already been proved (Constable, 1955; Shorrocks, 1965; Shorrocks *et al.*, 1965). The relationship is expressed as :

$$\text{Shoot weight in kg}(W)=0.002604 G^{2.2426} \dots\dots\dots(1)$$

where, shoot is defined as all above ground parts of the plant and G is the girth in cm at 150 cm height.

However, this generalised equation has limitations when different agroclimatic conditions are taken into consideration (Mo and Liang, 1980; Chaudhuri *et al.*, 1995). It is therefore more appropriate to develop clone specific and region specific relationships. Moreover, Shorrocks *et al.* (1965)