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Leaf area estimation of Embul banana (Mysore-AAB) at flower emerging stage by a non-destructive method

The leaf area of a plant is a vital component determining the physiological processes controlling yield and dry matter production. For assessment of crop growth, radiation interception, water and energy exchange, crop loss due to phytopathological incidences, leaf area is frequently measured. Several methods are available for this purpose. The most frequently used methods require destructive plant sampling which often cannot be afforded since leaf area of banana is comparatively large. Therefore, removal of even a few leaves may thoroughly affect on the final yield. Also an accurate, easy, rapid and non-destructive method for leaf area determination is required. This study was designed to determine the feasibility of using different leaf parameters or their combinations, to estimate leaf area. Plant material for leaf area determination included fully expanded and matured leaves, which contributed to the photosynthesis of the plant.

At the time of data collection, the grid method was adopted. Maximum length, width and actual leaf area of each leaf were determined as parameters. The highest correlation ($r2 = 0.91$) was observed from the 9th leaf, which is represented by the regression formula of Log LA = {-100499 + [11732 Log (LW)]} where, LA is the leaf area per leaf and LW is the product of maximum length and width of the leaf. Equation of Log LA = 6.1241 + 0.6090 Log {-100499 + [11732 Log (LW)]} represent the total leaf area of the plant. Therefore, this formula can be utilized for leaf area estimation of Embul banana and for further physiological studies.