Leaf area estimation by linear regression modles for pigenonpea (Cajanus Cajan (L.) Millsp.)

ABSTRACT

Leaflet length (L) and breadth (B), fresh (LFwt) and dry weights (LDwt) of leaves of 50 samples (500 leaves, 10 in each sample) were used in the prediction model to estimate the leaf area (LA) in pigeonpea (Cajanus cajan cajan (L.) Millsp.). Two of the fifteen linear regression models, appeared more suitable for ease of measurement. These were LA = -17.784 + 6.823 L (Model-1) and LA = 0.5855 + 67.583 LFwt (Model-10). These regression models showed linear relationship when actual leaf area was plotted against predicted one in another 30 leaf samples (300 leaves, 10 in each sample). Moreover, models' selection indices had high predictive ability represented by high R2 value with minimum error (low means square error and smaller percentage deviation). The selected models appeared unsophisticated but accurate, easy and rapid which can be used for estimation of leaf area of pigeonpea (Morphotype 'Bogra').

Keyword: Cajanus cajan; Leaf area prediction; Linear regression.