DETERMINATION OF CORRELATION AMONG AGRONOMIC TRAITS OF SELECTED COWPEA GENOTYPES

(*Vigna unguiculata*)

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ABSTRACT

Cowpea (*Vigna unguiculata* L. Walp.) is a widely cultivated grain legume in tropical and subtropical regions of the world due to its nutritional and economic value. Improvement of cowpea yield demands comprehensive knowledge of relationships among the key agronomic traits. This study was carried out to determine the correlation among the vegetative, flowering and yield related traits of selected cowpea genotypes. The experiment was conducted from 08th of July to October 2025 at the Faculty of Technology experimental farm, Eastern University, Sri Lanka. Twenty Two genotypes (*CP 32, ANKCM 20-4, CP 169, ANKCM 20-1, CP 104, ANKCM 14-2, CP 177, CP 16, CP 50, CP 195, CP 173, ANKCM 20-3, CP 21, CP 247, ANKCM 20-2, CP 246, ANKCM 14-1, CP 158, CP 39, ANKCM 13-4* and improved genotypes *Dhawala* and *Waruni*) were evaluated using a randomized complete block design with three replicates. Each plot consists of 20 cowpea genotypes. Plant heights, number of leaves, primary branches and leaf area were recorded at four weeks after planting and six weeks after planting. Days to flowering, number of pods per plant, number of seeds per pod, 100-seed weight, grain yield, biomass yield and harvest index were recorded. The R Studio 4.5.0 version was used for correlation analysis. A moderate positive correlation (r = 0.46) was found between plant height and primary branches indicating that taller genotypes are more branched. The correlation between plant height and leaf area was moderately negative (r = –0.31). Pod length and 100-seed weight also showed a strong positive correlation (r = 0.81) while larger pods contributed to heavier seeds. However seeds per pod were found to be moderately negatively correlated with the 100-seed weight (r = –0.55) indicating a partial tradeoff between seed number and size. Biomass yield and harvest index were positively correlated at a moderate magnitude suggesting effective biomass allocation in higher yielding genotypes. In general 100-seed weight, pods per plant and vegetative vigor were the important contributing traits toward yield thus reflecting their use in breeding high yielding and stress-resistant cowpea varieties for Sri Lanka.

Keywords: Agronomic Traits, Correlation Analysis, Genotypes, Vegetative Traits

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