Heterosis Among Pole Bean Genotypes for Yield and Yield Associated Traits

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Heterosis or hybrid vigor refers to the enhanced phenotype of hybrid progeny relative to their inbred parents. In Sri Lanka, no information is available on better parents in relevance to heterosis for used in pole bean breeding programs. The present research was undertaken to assess heterosis among 20 pole bean F1 hybrids for yield, yield-associated traits, and short age. Twenty F1 hybrids and their five parents were planted during Maha season in 2016/2017. Yield and its components, architectural and phenological traits were considered in the study. Statistically significant differences were observed between the 25 genotypes for most of the traits studied. Analysis of better parent and standard heterosis showed significant heterosis for yield per plant and some were positive. The extent of better parent heterosis for yield ranged from -45.31% (Black Capri x CNC) to 63.64% (Black Capri x Bandarawela Green). The maximum economic heterosis (68.75 %) was observed from the cross Black Capri x Bandarawela Green. Significant better parent heterosis was also observed for yield-associated traits. Expression of significant better parent heterosis for yield and other important traits was frequent in combinations of parents from different growth habits suggesting that these crosses could be further considered in the breeding program aiming for high yield and short age.

Keywords: Better parent, Heterosis, Pole bean, Yield