EVALUATION OF HETEROSIS VALUE AND POTENTIAL RATIO ON FRUIT CHARACTERS OF MANGO HYBRIDS

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ABSTRACT

Crossing is one of the ways to improve mango cultivars. Identification of heterosis and heterobeltiosis values are needed because not all crosses show desired effects of heterosis and heterobeltiosis. Selection of mango hybrids is expected to produce better progenies characteristically than their parents. The research was conducted at Cukurgondang Experimental Station, Indonesian Tropical Fruits Research Institute (ITFRI) from 2011 to 2018 with the objectives to determine the degree of heterosis, heterobeltiosis, and potence ratio in mango hybrids. Twenty three mango hybrids were used and originated from crossing of 'Arumanis 143' × 'Haden', 'Haden' × 'Arumanis 143', 'Arumanis 143' × 'Irwin', 'Irwin' × 'Arumanis 143', 'Arumanis 143' × 'Li'ar', 'Arumanis 143' × 'Gedong Gincu', 'Arumanis 143' × 'Keitt', 'Delima' × 'Arumanis 143', and 'Arumanis 143' × 'Saigon'. The parameters observed were fruit weight, fruit length, fruit width, flesh thickness, stone weight, and edible portion for heterosis and potence ratio calculations. Results showed that high diversity were observed in fruit weight (34.42%) and stone weight (31.27%) of the mango hybrids. Positive heterosis and heterobeltiosis values were detected on F1-02, F1-18, and F1-51 at the fruit weight characteristic. Positive heterosis and heterobeltiosis values were observed in F1-27, F1-01, F1-02, F1-35, F1-87, F1-61, F1-18, and F1-33 hybrids on the flesh thickness and portion of edible fruit characteristics. Meanwhile, negative heterosis and heterobeltiosis were spotted on stone weight parameters. F1-02 and F1-18 hybrids can be used as candidates for new superior mango varieties with greater fruit weight, thicker fruit flesh, smaller stone weight, and higher portions of edible fruit.

Keywords: mango, hybrids, crossing, cultivar improvement