

Characterisation of selected tropical maize inbred lines developed in Malaysia

ABSTRACT

Many studies have been conducted to identify and select superior maize (*Zea mays* L.) inbred lines based on their performance and general combining ability (GCA). In this study, a series of near-homozygous inbred lines obtained after five generations of selfing from various source populations, were evaluated for performance. These inbred lines were from five different groups, all of tropical origin. Evaluations were conducted at Field 2, Universiti Putra Malaysia, using RCB design, in 3 replications under standard cultural practices. Samples of 13 inbred lines from each group were studied. A number of inbred lines have comparatively high potential for breeding work. Among the best performing lines were UPM-TW-5, giving 43.5 g of grain weight/plant, 49.9 g of ear weight/plant and 24.6 kernels/ row, UPM-SM5-4 (44.9 g, 57.7 g and 27.1), UPM-SM7-6 (82.6 g, 104.7 g and 31.7), UPM-MT-5 (54.8 g, 68.4 g and 21.4), and UPM-SW-6 (40.6 g, 55.0 g and 21.9), respectively. Correlations among characters measured, showed some variations when different groups were compared, although in general they were quite consistent. Grain weight/plant was positively correlated with all other characters measured in all groups, except days to tasseling and days to silking with which it was negatively correlated. The superior inbred lines identified in this study could be advanced further for use in diallel crosses to produce high yielding hybrid varieties of grain maize suitable for Malaysian conditions.

Keyword: Grain maize; Inbred lines; Characterisation