

ABSTRACT

Maize (*Zea mays* L.) is the second food commodities after rice in East Java. Madura has a planting area for crops corn is quite extensive (360,000 ha). However, the productivity of the farmer still low, around 1.4 tons per hectare One way to improve this crop, one of them with the breeding program. Terakitnya some varieties that have high production and tolerance to biotic and abiotic environmental stress is the right solution to increase the productivity of the corn crop This study aimed to obtain information about the activity of genes, gene inheritance, heritability and correlation between the nature of some of the important properties of the corn crop. The results are useful for obtaining the proper selection methods in dealing with offspring in the next generation, which is likely to be fixed properties, cost efficiency and power. This research was conducted in this study will be conducted in the village of Nyalabu Power. District. Pamekasan. Kab. Pamekasan at an altitude of $\pm$ 120 m above sea level. The research was conducted from November to February 2016. The design of the field in this study was a randomized block design (RAK) with genotype as treatment, which consisted of six genotypes with three replications. Treatment genotypes are as follows: G1 = Tambin, G2 = Elos, G5 = F1 crosses (x Tambin ♂ ♀ Elos), G6 = F1 resiprok (Tambin x ♂ ♀ Elos). The results showed that, the coefficient of the diversity of both crosses (reciprocal) varies widely. No controlled by a dominant gene in part, through a dominant gene. The highest heterosis effect found in F1 reciprocal crosses results G6 = (x ♂ ♀ Tambin Elos) for properties of plant height, leaf width and height position of cob (19.07%, 0.88% and 5.12%). Heritability of both the result of crossbreeding Resiprok has a value of high, medium, and low. On S0 elders have offspring S1 Tambin relatively stable at the age of female flowers, the diameter of the cob, corncob diameter and the number of seed rows Further decrease of 6 characters in Elos elders. This means the population has accumulated Elos dominant alleles, so the genotype that appears on the descent selfingnya likely that most homozygous dominant. Effect occurs on both the maternal or the result of crossing reciprocally F1.

Keywords : Maize, reciprocally, genetic diversity, the role of genes, heterosis, heritability, inbreeding depression, Maternal Effect.