

## RESPONSES OF EXOTIC OPEN POLLINATED MAIZE VARIETIES TO CROWDING AND NITROGEN

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Despite the popularity of hybrid maize varieties, high priced seeds and limitation to own seed production are considered as main drawbacks. This study was aimed to introduce high yielding exotic open pollinated varieties (OPV) reckoning possibilities of substituting the hybrid varieties. Experiment was laid out using a split-plot design with three replicates during *Maha* season in 2012/2013. Two nitrogen regimes (150

and 200 kg N/ha) and two plant densities (5.55 and 8.88 plants/m<sup>2</sup>) were main plot factors and six maize varieties were used as the subplot factor. Maize varieties tested were Ruwan, a local OPV, Sampath, a local hybrid, Pacific, an exotic hybrid and three exotic OPVs namely Srikandikuning, Gumarang and Sukumaraga. Seed yield was not influenced significantly either by nitrogen, density or the two-way interaction between density and nitrogen. Seed yield was significantly different ( $p < 0.05$ ) between six maize varieties. Two-way interactions between variety and nitrogen and variety and density was masked by the semi-optimal climate mainly by rainfall and temperature. Variety Pacific showed the highest yield of 4.81 t/ha. Variety Sukumaraga recorded a yield of 4.23 t/ha and it performed better than the local hybrid Sampath. The yield difference between variety Sukumaraga and variety Pacific was approximately 500 kg/ha. Rest of the exotic OPVs showed a yield approximately less than 1.5 t/ha when compared to variety Pacific. Suitability of these three exotic OPVs should be tested further for their usability in different cropping systems. Variety Sukumaraga may be a better option for substituting variety Pacific.

**Key words :** Density , Hybrid, Nitrogen, Open pollinated variety , Seed yield