

## RESPONSE OF *OPV-RUWAN* AND *MI MAIZE HYBRID 05* TO THE TYPE AND APPLICATION RATE OF FERTILIZERS IN THE DRY ZONE OF SRI LANKA

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Mineral fertilizers become a severe bottleneck due to the current crisis. However, they are essential for the growth and yield of maize (*Zea mays*). Research focusing on organic-based and integrated nutrient management approaches is timely and important. This study was designed to evaluate the synergistic effect of organic and mineral fertilizers in combination on the growth and yield of open-pollinated (var. *Ruwan*) and hybrid (*MI maize hybrid 05*) maize at the Field Crop Research and Development Institute, *Mahailuppallama*, Sri Lanka during *Yala* season 2022. *MI Maize hybrid 05* is the widely cultivated variety by the farmers at present and the *Ruwan* is an open-pollinated variety showing a good response to organic fertilizers. The experiment was laid out on a RCBD with five fertilizer combinations and three replicates. Fertilizer combinations were derived using foliar, organic, and mineral nutrient sources at different rates. Apart from shoot dry biomass, the treatment effect was significant ( $p < 0.05$ ) on roots dry biomass, leaf area index, and plant height at the 50% tasselling stage in both varieties. Excluding 100-seed weight, grain yield was significantly different among treatments ( $p < 0.05$ ) in both varieties. These values were high in treatments of mineral fertilizer alone and in compost and mineral fertilizers in a 50%:50% combination. The yield was shown to be high in the treatments of mineral fertilizers alone (3.6 t ha<sup>-1</sup>-*MI maize 05* and 2.3 t ha<sup>-1</sup>-*Ruwan*) and in applying compost and mineral fertilizers in a 50%:50% combination (2.5 t ha<sup>-1</sup>- *MI maize 05* and 2.2 t ha<sup>-1</sup>-*Ruwan*). Therefore, it can be concluded that the application of an integrated nutrient management approach by combining half the rate of recommended quantities of mineral fertilizers and compost could be recommended rather than applying mineral fertilizers alone for tested maize varieties grown under the dry zone conditions of Sri Lanka.

**Keywords:** Compost, Foliar fertilizers, Mineral fertilizers, Organic fertilizers