# Effect of Balanced Nutrition on Yield, Nutrient Uptake and Soil Fertility of Maize (*Zea mays*) in an Inceptisol of Tamil Nadu

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**ABSTRACT**

A field experiment was conducted during July – October of 2007-2008 and 2008-2009 to study the effect of balanced inorganic fertilizers on yield and nutrient uptake of maize (COHM 5) in Mayamankuruchi soil series of Tamil Nadu. The nutrient sorption study was conducted to evaluate optimum nutrient treatment (ONT). The optimum nutrient requirements were fixed as 200-64- 48 -4.8 kg N-P-K-Zn $ha^{-1}$ for this soil series belongs to the order of Inceptisol. The experiment was laid out in RBD replicated thrice with 13 treatments of different levels of inorganic fertilizers. The grain and stover yield of maize as influenced by various levels of fertilizers in this soil series was found to be significant and the highest grain and stover yield (8.00 and 14.39 t $ha^{-1}$) was recorded in treatment that received 250-64- 48 -4.8 kg N-P-K-Zn $ha^{-1}$, respectively. The highest total N and Zn uptake (260.8 and 1.60 kg $ha^{-1}$) was noted from the application of 250-64- 48 -4.8 kg N-P-K-Zn $ha^{-1}$. Similarly, the maximum total P and K uptake (74.8 and 216.2 kg $ha^{-1}$, respectively) was observed from the enhanced levels of P and K application (200-80-48-4.8 and 200-64-60-4.8 kg N-P-K-Zn $ha^{-1}$. The available N- P-K-Zn content of soil was found to be higher due to the enhanced levels of applied nutrients to the soil. The highest net returns (Rs 38,102 / ha) and net B:C ratios (1.72) were obtained in treatment applied with 250-64-48-4.8 kg N-P-K-Zn $ha^{-1}$.

**Key words :** Available nutrients, Grain yield, Inceptisol, Maize, Nutrient uptake, Optimum nutrient treatment.