



# **Relative Performance of Blended and Compound Fertilizers on Maize Yield**

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## Abstract

Multi-nutrient fertilizers in their various forms are becoming increasingly popular all over the world, though differences and relative crop response between these forms are not well understood. This study was carried out to investigate the relative performance of a fertilizer compound, a blend formulated with coated micronutrients (zinc and boron), and a blend formulated with granular micronutrients. YaraMila™ Power™ compound fertilizer was used as the compound fertilizer, and the two blends were formulated so as to apply the same amounts of nutrients per hectare. Both a full rate and a half rate of each fertilizer was applied. A randomized complete block design (RCBD) with four replications was employed at two sites in Bungoma county, Kenya using maize as a test crop. At early silking, plant ear leaves were analyzed for macro- and micronutrients, and grain yield was determined at harvest. Both were then statistically tested for variations between treatments. Plant leaf analyses demonstrated non-significant differences with most nutrients in most treatments within sites. Ear leaf N, K, S, B and Zn were deficient at both sites regardless the formulation and rate of application. At Site 1, the micronutrient coated blend formulations showed the highest concentrations of leaf N, P and K, while the blend with granular micronutrients had the highest concentrations of leaf Ca. Site 2 (pH=4.52) showed substantially lower ear leaf nutrient concentrations compared with Site 1 (pH=5.14), particularly for Mg and Ca, which were also deficient in soil analysis at both sites. At Site 1, grain yield was greatest from the micronutrient-coated blend, significantly out-performing the granular micronutrient blend and the compound. The full dose of blend with granular micronutrients produced lower yield by 53% and 24% than the full doses of the micronutrient coated blend and the compound, respectively.

Keywords: Compound fertilizers, coated blend, granular blend, acid soil, tropical soil, maize yield.