

Efficiency of integrated incorporation of manure and mineral fertilizers on maize yield in acidic soils of Beira Corridor, Mozambique

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ABSTRACT

Objective: Currently, Mozambique lags behind all other Southern and Eastern African countries in maize productivity. Soil nutrient depletion resulting in high soil acidity has been identified as a main cause of the declining crop yields. Maize yield in small scale farming systems in Beira Corridor can be increased by optimum utilization of mineral fertilizers and locally available organic resources through combined incorporation of mineral fertilizers and cattle manure. This study will assess the efficiency of manure and mineral fertilizers on maize yield in acidic soils of Nhamatanda and Barue districts, central region of Mozambique. The objectives are to (1) determine the effect of combined cattle manure and mineral fertilizers (CAN, TSP and DAP) on soil structure and maize yield; (2) to determine optimum rate of manure-inorganic fertilizer interactions for increased fertilizer use efficiency; and



(3) to assess the profitability of combined application of cattle manure and mineral fertilizers for small scale farmers.

Methodology: The experiment consists of combination of four types of inorganic fertilizers and three levels of cattle manure. The total treatments to be tested are twelve and will be arranged in RCBD with four replications. Analysis of Variance (ANOVA) will be used for biophysical data analysis. Treatment means will be compared at probability $p=0.05$ using Fischer's LSD and regression will be used to estimate the interaction between manure and inorganic fertilizers.

Application of expected results: The study will: (i) contribute to identifying and recommending the sustainable fertilizer combination options that suit the study areas; (ii), assist in the progress of the governmental Action Plan for Food Production specifically in the process of cattle allocation to the small-scale farmers in the central region, and (iii) assist extension services providers to design effective and efficient programs and projects.

