Effects of Di-Ammonium Phosphate on Yield and Yield Components of Maize under smallholder Farmers in Mbita, Homabay County.

by

Peter Odhiambo Owoko

A thesis submitted to the Department of Agriculture and Natural Resources, Faculty of Science and Technology in partial fulfillment of the requirement for the degree of

Masters of Science in Agricultural and Rural Development

of the

KENYA METHODIST UNIVERSITY

Abstract

Phosphorus and plant densities are some of the important factors that influence maize (*Zea mays* L.) growth worldwide. The objectives of this study were to establish yield under different di-ammonium phosphate (P) fertilizer levels and varied plant densities under smallholder famer condition. Effects of four levels of P (0, 12.56, 25.13 and 39.23 kg P per ha) and four plant densities (22,220; 44,440; 66,660 and 88,880 per ha) were evaluated on maize variety DH04 at two locations in Mbita district, Kenya in RCBD 4x4 factorial arrangement. At the rates of 12.56 and 39.23 kg per ha P, mean yield of grain per ha were 2.88 and 2.90 tons per ha (respectively). At 12.56 kg per ha of P (62.5 Kg DAP per ha) the100 grain weight, shelling percentage and harvest index showed highest means (10.5 gm, 73.75 % and 28.5 % respectively). Plant density 66,660 per ha produces correspondingly good results with yield means of 3.25 ton per ha and the highest harvest index of 27.5 %. The two experimental sites were significantly different with highest mean yield (2.86 ton per ha) observed at the Lambwe site. At 12.56 kg P per ha (equivalent to 62.5 kg DAP per ha) and 66,660 plants per ha smallholder farmers from Mbita district are likely to get the best yields.