

## EFFECTS OF ZINC AND BORON FERTILIZATION ON THE ALLEVIATION OF POOR CROP GROWTH IN HEAVILY LIMED TWO ACIDIC SOILS

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### ABSTRACT

*Screenhouse experiments were conducted to determine the effect of Zn and B fertilization on the alleviation of poor crop growth of corn in heavily limed Antipolo sandy clay and Luisiana sandy clay soils.*

*The Antipolo and Luisiana sandy clay soils are highly weathered aluminous ultisols. They are highly acidic (pH 4.6 and 4.9 respectively) with high exchangeable Al and very low available P.*

*Gradual increments of lime rate up to 5.0 tons/ha for Antipolo and 3.0 tons/ha for Luisiana soils significantly increased the growth of corn. Beyond these rates, growth gradually declined. However, with the addition of Zn at the rate of 8 kg/ha to the 7 and 9 tons lime rates in Antipolo sandy clay and to the 4 and 5 tons lime rate in Luisiana sandy clay, the growth reduction problem disappeared. In contrast, boron fertilization had little or no effect on the growth of corn at high lime rates in both soils.*

*With increasing lime rates, exchangeable Zn and soluble B decreased. The same trends were observed on the concentration of Zn and B in corn tissues.*

*The optimum levels for 94% relative dry matter yield of corn on the Antipolo sandy clay were pH 5.35, 4.0 ppm exchangeable Zn and a tissue concentration of 18.5 ppm Zn. On a Luisiana sandy clay, 94% relative dry matter yield of corn was produced at pH 5.32, 3.0 ppm exchangeable Zn and a tissue concentration of 17.5 ppm Zn.*

*It can be concluded that growth depressions at high lime rates on Luisiana and Antipolo sandy clay soils were due to Zn deficiency and it can be corrected by applying approximately 7 to 9 kg Zn/ha.*