

# **EFFECTS OF SILIC AND PHOSPHORUS ON SOIL CHEMICAL PROPERTIES AND MAIZE (*Zea mays* L.) GROWN ON RHODIC FERRALSOLS**

**Pham My Lien, Nguyen Quang Chon, Nguyen Duc Hoang**

## **Summary**

Study on the effects of silicon (Si) and phosphorus (P) on soil chemical properties and maize grown on a red basaltic soil derived from basalt rock (Rhodic Ferralsols) in the Eastern region of South Vietnam are consist of three experiments. Experiment 1 (soil incubation), experiment 2 (pot planting) and experiment 3 (trial in the field), all three experiments include 5 treatments with 3 replications and were laid out in a completely randomized design (CRD), one factor (for experiments 1 and 2) and in a randomized complete block design (RCBD), one factor (for experiment 3). The treatments included: no silicon or phosphorus fertilizer (control), fused magnesium phosphate, super phosphate, super phosphate + silicate fertilizer and silicate fertilizer with the same dosage of 50 kg P/ha and 88.5 kg Si/ha, and the equilibrium of neutralizing value between the treatments by the application of dolomite. Results showed that Si has a positive effect on chemical properties of basaltic red soil, that were contributed to an increase of pH, a decrease of exchangeable  $Al^{3+}$  and phosphorus buffering index (PBI), an increase of P availability and CEC of the soil. It also increased the growth, development and yield of maize. Especially, when combined application of Si and P fertilizer, it would clearly improve the soil fertility and significantly increase maize yield as compared to P fertilizer application alone. In particular, the synergic effect of Si and P in the composition of fused magnesium phosphate fertilizer was superior to that of super phosphate fertilizer combined with silicate fertilizer.

**Keywords:** *Growth, rhodic ferralsols, maize, phosphate, silicate, yield.*