

GRAND CHALLENGES GREAT SOLUTIONS

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American Society of Agronomy | Crop Science Society of America | Soil Science Society of America

446-12 Agronomic Effectiveness of Rock Phosphates for Corrective Fertilization of an Oxisol from Brazilian Savanna Cultivated with Maize and Common Beans.

Poster Number 1354

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Wednesday, November 5, 2014

Long Beach Convention Center, Exhibit Hall ABC

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Due to the inherently low content and high degree of phosphorus (P) fixation in the most part of Brazilian Savanna soils, P fertilization is essential to attend crop demands. The fully acidulated phosphates are the main sources of P used in Brazil, which more than half are imported. The study of the feasibility of using rock phosphates available regionally in Brazil could be an important strategy for reducing the amount of applied soluble phosphates. A field study was carried out in an acidic clayey Rhodic Ferralsol, in 2010/11, 2011/12, and 2012/13 growing seasons, aiming to evaluate the agronomic effectiveness of Bayóvar reactive rock phosphate and Itafós sedimentary rock phosphate applied for correction of available soil P (corrective fertilization) cultivated in rotation with the crops maize (*Zea mays*) in summer and common beans (*Phaseolus vulgaris*) in winter. The experiment was carried out in a complete randomized block design with four replications and twelve treatments arranged in a split-plot scheme. In the main plots we applied the sources for corrective fertilization: Bayóvar rock phosphate, Itafós rock phosphate, triple superphosphate (TSP), and a control (without P application), which were broadcasted at a rate of 200 kg ha⁻¹ of P₂O₅ and incorporated by disk plowing. In the subplots were applied three levels of maintenance fertilization with P as TSP, in the sowing furrow: 0, 30, and 60 kg ha⁻¹ of P₂O₅ for maize; and 0, 40, and 80 kg ha⁻¹ of P₂O₅ for common beans. The corrective fertilization improved the agronomic efficiency of maintenance fertilization, increasing productivity by up to 19% for maize and 73% for common beans, considering the average of three growing seasons. Compared with STP, the agronomic effectiveness of the rock phosphates Bayóvar and Itafós was 96% and 36%, respectively, considering the average of yields of the two crops in the three growing seasons evaluated.

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