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102058 **Corrective Fertilization Using Rock Phosphates As a Strategy for Improving the Efficiency of Maintenance Fertilization in Common Bean.**

Poster Number **468-431**

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Phoenix Convention Center North, Exhibit Hall CDE

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Abstract:

Due to the low content and high degree of phosphorus (P) fixation in the most part of Brazilian soils, P fertilization is essential to attend common bean (*Phaseolus vulgaris* L.) requirement. 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 Oxisol, during five growing seasons, aiming to evaluate the agronomic effectiveness of Bayóvar reactive rock phosphate (BRF) and Arraias sedimentary rock phosphate (ARF) for correction of available soil P (corrective fertilization) in combination with maintenance fertilization for common bean. We used a complete randomized block design with four replications and 20 treatments arranged in a split-plot scheme. In the main plots we applied, in the first year, the sources for corrective fertilization: BRF, ARF, 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, annually, three levels of maintenance fertilization with P as TSP, in the sowing furrow: 0, 40, and 80 kg ha⁻¹ of P₂O₅. The residual effect of corrective fertilization was affected by the rate of maintenance fertilization, decreasing after each growing season. The corrective fertilization with TSP, ARF and BRF, without maintenance fertilization, increased grain yield in 53%, 40% and 68%, respectively, in average of five growing seasons. The agronomic efficiency of maintenance fertilization was increased up to 100% (BRF, in 1st growing season) by corrective fertilization. Compared with STP, the agronomic effectiveness of ARF and BRF were 44% and 118%, respectively, considering the average of five growing seasons.

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