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# Effect of Single Superphosphate and Arbuscular Mycorrhizal Fungi on Growth and Bambara-bean (*Vigna subterranea* (L.) Verdc.) Yield in the Centre Region of Cameroon

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**P**hosphorus (P) is a limiting factor for crop yields on more than 30% of the world's arable land. In order to feed the growing world population, which will reach 10 billion by 2050, it is vital to boost food production with less input. Bambara-bean (*Vigna subterranea* (L.) Verdc.) can play an important role in this context, since one of its main attributes is its tolerance to poor soils and drought, as well as its ability to produce under conditions where other crops fail. However, the yields of Bambara-bean remain low due to many production constraints. The objective of this study was to reduce food insecurity by improving the yield of Bambara-bean with phosphorus fertilizer. The experiment was carried out in the experimental field of the Faculty of Science (The University of Yaounde I). The experimental design was a split plot with three factors; the landraces (V1 and V2), the Single Super Phosphate (SSP) doses (0, 50, 100, 150 and 200 kg P2O5.ha<sup>-1</sup>) and AMF

inoculum (M0: without AMF and M1: with AMF). P2O5 doses and AMF (composites *Gigaspora margarita*, *Acaulospora tuberculata* and *Glomus intraradices*) significantly boosted growth (number of branches, shoot height) and yield of Bambara-bean. The dose 150 kg P2O5.ha<sup>-1</sup> significantly increased the yield of Bambara-bean by 100% compared to the control (0 kg P2O5.ha<sup>-1</sup> + M0 (without AMF)) in the V1 landrace. AMFs significantly increased the yield of Bambara-bean by 87.5% compared to the control (0 kg P2O5.ha<sup>-1</sup> + M0 (without AMF)) in the V2 landrace. Phosphorus fertilizer (P2O5) and biological fertilizer (AMF) independently improved the grain yield of Bambara-bean. However, low doses of SSP (100 kg P2O5.ha<sup>-1</sup>) may be associated with AMF to maximize grain yield of Bambara-bean.

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