

Yield, quality and economic of chickpea (*Cicer arietinum* L.) Haryana-1 as influenced by different bio-fertilizers and phosphorus levels

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ABSTRACT : A field experiment was conducted during rabi season on sandy soil to study the effect of three bio-fertilizers viz. Rhizobium, VAM and PSB, and were tested in four doses of phosphorus viz. 0,30,60,&90 kg/ha on the yield, qualitative studies and net return of chickpea (*Cicer arietinum* L.) var. Haryana-1. The experiment was laid out with factorial randomized block design (RBD). There were twenty treatments including control replicated four times with variable proportion of bio-fertilizers (no seed inoculation, inoculation with Rhizobium, Vesicular Arbuscular Mycorrhiza and phosphate solubilizing bacteria PSB (*Pseudomonas striata*, *Bacillus polymyxa*) and co-inoculation with Rhizobium+VAM+PSB with phosphorus levels). Most effective combined application of Rhizobium+VAM+PSB and crop fertilized with 60 kg P_2O_5 /ha proved best in respect of grain yield (Rs 28.70 q/ha), nitrogen content (3.39%), protein content (21.46%) in grains and gross return (Rs.72625), net return (57320), of chickpea compared to control, while benefit cost ratio was obtained with the treatment P_0B_4 combinations followed by P_1B_4 (30kg P_2O_5 /ha with Rhizobium + VAM + PSB) with respect to net returns over P_0B_0 (no phosphorus and no bio-fertilizers) combinations.

Key Words: Chickpea, phosphorus, rhizobium, vesicular arbuscular mycorrhiza (VAM), phosphate solubilizing bacteria (PSB).