

Impact of phosphorus levels and bio-fertilizers on yield attributes and yield of chickpea (*Cicer arietinum* L.) Haryana-1

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ABSTRACT : To know the impact of bio fertilizers and phosphorus levels on the yield attributes and yield of chickpea Haryana-1 trial was conducted at the Agriculture research farm R.B.S. College, Bichpuri, Agra. The treatment comprised of four levels of phosphorus (0, 30, 60 and 90 kg /ha) and five biofertilizers, (control B0), no seed inoculation (B1) inoculation with Rhizobium, (B2) vesicular arbuscular Mycorrhiza, (B3) phosphate solubilizing bacteria PSB (*Pseudomonas striata*, *Bacillus polymyxa*) and (B4) co-inoculation with Rhizobium+VAM+PSB with phosphorus, In the view of present investigation the most effective combined application of Rhizobium+VAM+PSB and crop fertilized with 60kg P₂O₅/ha best in plant population per running meter, plant height cm, no. of branches per plant, dry weight of plant and all the other parameters, like grain yield (28.91 q/ha in 2005-2006 followed by 28.50 q/ha during 2006-2007), straw yield (47.30 q/ha 2005-2006 followed by 47.44 q/ha during 2006-2007), biological yield (76.21 q/ha in 2005-2006 followed by 75.94 q/ha in 2006-2007), and harvest index (37.92% in 2005-2006 followed by 37.52% during 2006-2007), of chickpea compared to control and other treatments. Whereas control plot where no phosphorus or biofertilizer were applied showed significantly lower plant population per running meter, plant height in cm, primary branches/plant, dry weight of plant, grain yield (23.67 q/ha in 2005-2006 followed by 23.83 q/ha during 2006-2007), straw yield (44.09 q/ha in 2005-2006 followed by 45.13 q/ha during 2006-2007), biological yield (67.76 q/ha in 2005-2006 followed by 68.96 q/ha during 2006-2007) and harvest index (34.93% in 2005-2006 followed by 34.55% during 2006-2007) as compared to all other treatment combinations except P₀B₁ during second year. Thus treatment combination 60kg P₂O₅ along with Rhizobium+PSB+VAM showed better for cultivation of chickpea.

Key Words : Chickpea (*Cicer aritenum* L.), phosphorus, rhizobium, phosphate solubilizing bacteria (PSB), *Pseudomonas striata*, *Bacillus polymyxa*, vesicular arbuscular mycorrhiza (VAM).