

## Effect of bio-fertilizers on growth, yield and economics of field pea (*Pisum sativum* L.)

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### ABSTRACT

A field experiment was conducted at Research Farm of A.S. (P.G.) College, Lakhoati, Bulandshahr (U.P.) to find the out the effect of bio-fertilizers {*Rhizobium*, *Azotobacter* and phosphate solubilising bacteria (PSB)} application on growth, yield and economics of field pea (*Pisum sativum* L.). The Co-inoculation of all the three bio-fertilizers i.e. *Rhizobium*, *Azotobacter* and PSB produced significantly higher growth characters as compared to absolute control and when inoculated them individually. The treatment T<sub>8</sub> comprising *Rhizobium* + *Azotobacter* + PSB gave highest growth in terms of plant height (45.26 cm), number of leaves/ plant (13.33), number of branches/ plant (4.20), number of nodules/ plant (38.46), fresh weight and dry weight of nodules (562.34 and 122.62 mg, respectively). The yield attributes like pod length, number of pods/ plant, number of seeds/ pod and 1000 grain weight (g) and yield of grain and straw of pea increased by co-inoculation of bio-fertilizers and were highest for the treatment in which *Rhizobium*, *Azotobacter* and PSB were co-inoculated. More over the co-inoculation of *Rhizobium* and PSB also gave beneficial results in respect to other treatments. However, single inoculation of *Rhizobium*, *Azotobacter* and PSB produced promising results compared to control. In economic consideration, it was found that co-inoculation of *Rhizobium*, *Azotobacter* and PSB gave highest net income (Rs. 17363.6/ha) and Benefit: cost ratio (1.90) as compared to other treatments.

**Key words :** Pea, *Rhizobium*, *Azotobacter*, PSB, Growth, Yield, Economics