

# Effect of Nitrogen Fixing Bacteria in Combination with Organic Manures and Fertilizers on Growth and Yield of Pea (*Pisum sativum* L.)

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**Abstract:** An investigation on Effect of nitrogen fixing bacteria in combination with organic manures and fertilizers on growth and yield of pea (*Pisum sativum* L.) was carried out in 2010-2011 at experimental farm of Department of Vegetable Science, Dr Y S Parmar University of Horticulture and Forestry, Nauni –Solan, Himachal Pradesh. The experiment was laid out in a randomized complete block design with three replications comprising nine treatments viz. T<sub>1</sub> : Recommended dose of NPK (25:60:60 kg/ha); T<sub>2</sub> : Rhizobium isolate-1+75 % N+100 % P & K; T<sub>3</sub> : Rhizobium isolate-2+75 % N+100 % P & K; T<sub>4</sub> : Rhizobium isolate-1+50 % N+100 % P & K; T<sub>5</sub> : Rhizobium isolate-2+50 % N+100 % P & K; T<sub>6</sub> : Rhizobium isolate-1+PSB+75 % N & P+100 % K; T<sub>7</sub> : Rhizobium isolate-2+PSB+75 % N & P+100 % K; T<sub>8</sub> : Rhizobium isolate-1+PSB+50 % N & P+100 % K; T<sub>9</sub> : Rhizobium isolate-2+PSB+50 % N & P+100 % K. Seeds were sown in lines at a spacing of 60 × 7.5 cm in 3.0 m × 2.5 m plots. The results revealed that treatment T<sub>9</sub> : Rhizobium isolate-2+PSB+50 % N & P+100 % K was rated as the best treatment for majority of characters like plant height (cm), days taken to first flowering (days), days taken to first picking (days), harvest duration (days), Pod length (cm), pod girth (mm), number of pods per plant, number of seeds per pod, pod yield (kg/plot and q/ha), shelling percentage (%), shelf life (days), minimum disease incidence and severity (*Fusarium wilt* and powdery mildew, respectively). However, this treatment was found statistically at par with treatment T<sub>7</sub> (Rhizobium isolate -2+PSB+75 % N & P+100 % K), which was the next best treatment for most of the characters under study. Gross income (Rs. 2, 42, 670/ha), net income (Rs. 1, 79, 095 /ha) and B: C ratio (2.81:1) was also maximum in T<sub>9</sub>. Therefore, it is concluded that application of biofertilizers (Rhizobium and PSB) in combination with inorganic fertilizers at reduced doses (25-50 %) can be suggested as cost effective combination for getting higher yields and quality produce.

**Keywords:** Pea, organic manures, Rhizobium, biofertilizers