

# **Effect of phosphorus fertilization and spraying of phosphorus stabilizing bacteria on blubber beans**

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**In order to study the effect of different amounts of phosphorus fertilizer and foliar application of growth stimulating bacteria on cowpea yield and growth in climatic conditions of Guilan province, a split plot experiment was conducted in a completely randomized design with three replications. Shaft city, was done in 2018. In this study, phosphorus fertilizer factor was studied at three levels (0, 50 and 100 kg/ha) and the use of growth promoting bacteria at three levels (foliar application, *Pseudomonas* and *Azospirillum*). Analysis of variance showed that P fertilizer had significant effect on plant height, pod length, number of pods per pod, pod number per plant, 100 seed weight and biological yield at 1% probability level. Foliar application of growth stimulating bacteria had significant effect on plant height, pod length, number of pods per pod, pod number per plant, 100 seed weight, biological yield and seed yield at 1% probability level. Interaction of phosphorus-fertilizer with growth stimulating bacteria on plant height and number of pods per pod at 1% probability level and on pod number per plant, 100 seed weight and seed yield at 5% level were significant. Overall, the results of this study showed that application of 100 kg / ha phosphorus fertilizer and foliar application with growth promoting bacteria was more successful in terms of yield and growth characteristics of cowpea. Also yield components in cowpea, which included number of seeds per pod, number of pods per plant, grain yield and grain yield, showed the highest values when using 100 kg phosphorus fertilizer and foliar application with growth promoting bacteria. Phosphorus fertilizer significantly increased grain yield and there was no significant difference between experimental treatments (50 kg ha<sup>-1</sup> and 100 kg ha<sup>-1</sup> phosphorus fertilizer) in both groups. Statistically, so it is better to consume phosphate fertilizer with 50 kg ha<sup>-1</sup> in order to reduce fertilizer use and reduce production costs as well as to prevent excessive contamination of agricultural soils. Foliar application with growth**

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**promoting bacteria also increased grain yield. Therefore, there was a significant difference between foliar application with non-foliar application and non-foliar application.**

**Keywords : Phosphorus fertilizer, foliar application, Pseudomonas, Azospirillum, Yield, Cowpea**

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