***The Effect of Bamboo Root PGPR and Phosphate Fertilizer on Gowth and Yield of Peanut* (*Arachis hypogaea* L.)**

Advidored by Andarula Galushasti S.ST., M.Tr.P.

Ahmad Rijal Firdaus
Study Program of Food Crops Production Technology
Department of Agiculture Production

ABSTRACT

Low peanut production and productivity in Indonesia are partly attributed to the limited availability of phosphorus in the soil. The application of PGPR and phosphate fertilizer offers a potential alternative for enhancing phosphorus availability and plant growth. This study aimed to optimize peanut growth, production, and productivity through the application of PGPR and phosphate fertilizer. The research was conducted from September to December 2025 in Wonojati Village. A Factorial Randomized Block Design with three replications was employed. The treatments involved two factors: PGPR concentrations (0,20,30, and 40 ml/L) and phosphate fertilizer dosages (0, 1.2, and 1.8 g/plant). Observed parameters included plant height, number of productive branches, total number of pods, number of empty pods number of filled pods, fresh pod weight, dry pod weight, and dry seed weight. The results indicated an interaction between PGPR concentration and phosphate fertilizer dosage. The combination of 0 g/plant phosphate and 20 ml/L PGPR significantly influenced the number of branches at 3 weeks after planting (WAP), resulting in 5.33 branches. The combination of 1.2 g/plant phosphate and 20 ml/L PGPR optimized the number of branches at 6 WAP (9.17 branches), total pods per plant (46.33 pods), filled pods (42.33 pods), and fresh pod weight per plant (87.08 g). The combination of 1.2 g/plant phosphate and 30 ml/L PGPR resulted in the lowest number of empty pods (3.42 pods). Meanwhile, the combination of 1.2 g/plant phosphate and 40 ml/L PGPR increased dry pod weight per plant to 67.08 g and dry seed weight per plant to 46.76 g. Meanwhile, the application of 1.8 g/plant of phosphate and 30 ml/L of PGPR resulted in the greatest plant height at 3, 6, and 9 weeks after planting (WAP), as well as the highest number of branches at 9 WAP.

***Keywords**: Arachis hypogaea L., PGPR, Phosphorus, Production, Productivity.*