

## ABSTRACT

This study aims to examine the effect of the application of PGPR, phosphate fertilizer and the interaction between PGPR and phosphate fertilizer on the growth and yield of peanut plants. This research was conducted at the Malikussaleh University Experimental Garden, Reuleut Village, Muara Batu District, North Aceh Regency and Agroecotechnology Laboratory, Faculty of Agriculture, Malikussaleh University from March to June 2024. Using a randomized block design (RBD) with 3 replicates. The treatment tested consisted of two factors. The first factor is the concentration of PGPR, namely: P0 (control), P1 (PGPR 12,5 ml/l), P2 (PGPR 15 ml/l). The second factor is the dose of phosphate fertilizer, namely: F0 (control), F1 (150 kg/ha (28,8 grams/plot) and F2 (200 kg/ha (38,4 grams/plot)). The results showed that there was an interaction between the application of PGPR and phosphate fertilizer on the variables of flowering age and the volume of roots. The application of PGPR has a very real effect on the variables of flowering age, number of pods, weight of dry seeds of plants and volume of roots. The application of phosphate fertilizer had a real to very real effect on the height of plants, the diameter of the stem, flowering age, the number of planting pods, the weight of dry seeds of the plant, the number of plant seeds, the perplot of dry seed weight, the weight of dry seeds 100 seeds, the volume of roots, the number of root nodules and ton/ha products. For optimal growth and yield of peanut plants, it is recommended to use a dose of 150 kg/ha as the best dose.

**Keywords:** Bacteria, Concentration, Cow manure, Root nodules, SP-36