

Growth and Production Response of Peanut (*Arachis hypogaea* L.) To The Application of Peanut Shell Compost Fertilizer and Reduction of Inorganic Fertilizer N

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ABSTRACT

Peanut production in Jember Regency has continued to experience a significant decline. One of the main causes of this decrease is low soil fertility resulting from the excessive use of inorganic fertilizers. Therefore, it is necessary to implement environmentally friendly cultivation practices through the application of peanut shell compost. This research was conducted from July - November 2025. The experimental design used was a Randomized Complete Block Design (RCBD). The first factor was the dosage of peanut shell compost (control; 10 tons/ha; 20 tons/ha; and 30 tons/ha), while the second factor was the dosage of inorganic nitrogen fertilizer (50 kg/ha; 37,5 kg/ha; and 25 kg/ha). The observed parameters included plant height, number of leaf stalks, number of branches, number of fresh pods per sample, fresh pod weight per sample, fresh pod weight per plot, dry seed weight per sample, and 100-seed weight per plot. The results showed that a peanut shell compost dosage of 30 tons/ha produced the best results for plant height (10.39 cm), number of branches (7.26 branches), fresh pod weight per sample (105.33 g), and dry seed weight per sample (56.30 g). Meanwhile, a compost dosage of 20 tons/ha resulted in the highest values for number of leaf stalks (17.30 stalks), number of fresh pods per sample (42.22 pods), and 100-seed weight per plot (57.44 g). An inorganic nitrogen fertilizer dosage of 50 kg/ha produced the best results for plant height (10.07 cm) and 100-seed weight per plot (54.75 g). More over interaction effects were also observed on fresh pod weight per sample and 100-seed weight per plot. It can be concluded that the application of peanut shell compost can improve the efficiency of inorganic nitrogen fertilizer use.

Keywords: *chemical fertilizer, legumes, organic fertilizer*