

ABSTRACT

Palm oil is a plantation commodity that plays a vital role in Indonesia's economy. This study aimed to determine the effects of cow urine application, NPK fertilizer application, and the interaction between the two on the growth of oil palm (*Elaeis guineensis* Jacq.) seedlings during the pre-nursery phase. The study employed a factorial Randomized Block Design (RBD) consisting of two factors. The first factor was cow urine concentration, comprising three levels: 0 ml/L of water, 90 ml/L of water, and 120 ml/L of water. The second factor was the NPK fertilizer dosage, comprising three levels: 0 g/polybag, 1.25 g/polybag, and 2.5 g/polybag. The parameters observed included plant height, stem diameter, number of leaves, leaf chlorophyll content, root length, fresh plant weight, and dry plant weight. The results showed that the cow urine treatment did not have a significant effect on any of the observed variables. The NPK fertilizer treatment had a significant to highly significant effect on plant height at 60–90 days after planting (DAP), stem diameter at 90 DAP, and leaf chlorophyll content at 60 and 75 DAP. There was no interaction between the cow urine and NPK fertilizer treatments regarding any of the observed variables. Based on the results, the treatment without NPK fertilizer (0 g/polybag) yielded the highest values for plant height and stem diameter, whereas the 1.25 g/polybag dosage resulted in the highest leaf chlorophyll content.

Keywords: biomass, chlorophyll, growth, nursery, nutrients,