Effect of Liquid Organic Fertilizer from Shallot Skin Waste (Allium ascalonicum) and Reduced NPK Fertilizer on Rice Growth and Yield (Oryza sativa)

Supervised by: Andarula Galushasti, S.ST., M.Tr.P.

Dani Setiawan
Food Crop Production Technology Study Program
Department of Agricultural Production

ABSTRACT

Rice (*Oryza sativa* L.) *is a strategic food commodity and the main staple for a large proportion of the world's population, particularly in Asia and Indonesia. However, continuous application of inorganic fertilizers may cause soil structure degradation and nutrient imbalance. Therefore, this study aimed to evaluate the combination of shallot peel liquid organic fertilizer (LOF) and reduced doses of inorganic NPK fertilizer on the growth and yield of rice plants. The study was conducted in Mrawan Village, Mayang District, Jember Regency, using a factorial completely randomized design. The first factor was the concentration of shallot peel LOF at 518 mL, 438 mL, and 360 mL applied to each polybag, while the second factor was NPK fertilizer at doses of 3.22 g, 2.32 g, and 1.44 g applied to each polybag. Data were analyzed using analysis of variance followed by Duncan's Multiple Range Test. The results showed that the single treatment of shallot peel LOF at a concentration of 438 mL each polybag and NPK fertilizer at a dose equivalent to 435 kg/ha significantly increased grain weight each polybag (219.19 g and 195.22 g, respectively) and the number of tillers (50.30 and 40.75 tillers, respectively). Moreover, the interaction of 438 mL shallot peel liquid fertilizer each polybag combined with 270 kg/ha NPK fertilizer significantly produced the highest grain, grain weight polybag (302.44 g) and number of tillers (63.89 tillers). In contrast, plant height, 1000-grain weight, and panicle length were not significantly affected by the treatments.*

Keywords: *Rice, Shallot Skin Liquid Fertilizer*