

ABSTRACT

Shallot (*Allium cepa* L.) is a horticultural commodity of high economic value. This study aimed to determine the effect of applying spent coffee ground compost, mycorrhizae, and the effect combination of applying spent coffee ground compost and mycorrhizae. The research was conducted at the Experimental Garden of the Faculty of Agriculture, Malikussaleh University, from January to March 2026, using a Randomized Block Design (RBD) with a factorial pattern involving two factors and three replications. The first factor was spent coffee ground compost at three levels: 0 g/polybag (K0), 25 g/polybag (K1), and 35 g/polybag (K2). The second factor was mycorrhizae at three levels: 0 g/polybag (M0), 7.5 g/polybag (M1), and 12.5 g/polybag (M2). The results showed that the application of spent coffee ground compost influenced plant height, number of leaves, number of tillers, number of bulbs, fresh bulb weight, dry bulb weight, root length, root weight, and root volume. The best result was obtained with the application of 35 g/polybag of spent coffee ground compost (K2). Mycorrhizal application influenced plant height, number of leaves, number of tillers, number of bulbs, root length, root weight, and root volume. The best result was obtained with the application of 7.5 g/polybag of mycorrhizae (M1). An combination was observed between spent coffee ground compost and mycorrhizae regarding plant height, number of leaves, number of tillers, and root length. The K2M1 treatment combination (35 g/polybag of spent coffee ground compost and 7.5 g/polybag of mycorrhiza) was the best combination. Future research is recommended to utilize spent coffee ground fertilizer at a dosage of 35 g/polybag, mycorrhizal fertilizer at 7.5 g/polybag, and the combination of 35 g/polybag spent coffee ground fertilizer plus 7.5 g/polybag mycorrhiza.

keyword: cultivation, nutrient uptake, organic fertilizer, productivity, Randomized Block Design.