

Response of Giving Cattle Bokashi and Gibberellin Concentration on Growth and Yield of Bitter Gourd (Momordica Charantia L.) Plant

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Abstract

The study aims to investigate the effects of applying cattle manure bokashi and gibberellic acid (GA3) concentrations on the growth and yield of bitter gourd (Momordica charantia L.). The research was conducted from January to March 2024 at the Experimental Garden of the Faculty of Agriculture, UPN "Veteran" Yogyakarta, in Condongcatur Village, Depok Subdistrict, Sleman Regency, Special Region of Yogyakarta. A Completely Randomized Factorial Design (RCBD) was employed with two factors. The first factor consisted of three levels of cattle manure bokashi doses: 10 tons/ha, 20 tons/ha, and 30 tons/ha. The second factor involved three levels of GA3 gibberellic acid concentrations: 40 ppm, 60 ppm, and 80 ppm. The control plants received no cattle manure bokashi or gibberellic acid but were fertilized with the recommended doses of 15 tons/ha of cattle manure and 300 kg/ha of NPK fertilizer. The data collected were analyzed using Analysis of Variance (ANOVA) at a significance level of 5%. If significant effects were found, Duncan's Multiple Range Test (DMRT) at a significance level of 5% was conducted. Orthogonal contrast tests were used to distinguish between control and treatment groups. The results indicated that the combined treatments outperformed the control in terms of flowering age, harvest age, fruit length, fruit diameter, fruit weight per fruit, fruit weight per plant, fruit weight per plot, and fruit weight per hectare. The optimal dose of cattle manure bokashi was 30 tons/ha for fruit diameter, fruit weight per plant, fruit weight per plot, and fruit weight per hectare. The best concentration of gibberellic acid was 80 ppm for flowering age, harvest age, fruit diameter, fruit weight per plant, fruit weight per plot, and fruit weight per hectare.

Keywords: bitter gourd, bokashi cowshed, gibberellin GA3