

# EFFECTS OF COMPOSTED OIL PALM BUNCH WASTES AND CHEMICAL FERTILIZER ON GROWTH OF OIL PALM SEEDLING UNDER WATER STRESS CONDITION

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## ABSTRACT

*A greenhouse study was conducted at the University of Nigeria, Nsukka to evaluate the compare the effects of sole and integrated use of composted oil palm bunch waste and chemical fertilizer for improving the growth of oil palm seedlings under water stress condition. The experiment was a 3x3x4 factorial in a completely randomized design with three replications, comprising 3 factors thus irrigation intervals, NPKMg compound fertilizer and composted oil palm bunch waste. Water stress was imposed by observing irrigation intervals of 7days, 14days and 21days after irrigating the soil to field capacity. NPKMg (12:12:17:2) fertilizer was applied at 0g, 28g and 42g per seedling/polybag (based on field application rates of 0 Kg/ha, 1400 Kg/ha and 2100 Kg/ha), while the composted bunch waste was applied at 0g, 100g, 200g and 300g per seedling/polybag. Result showed that 14 days irrigation intervals gave the highest ( $P<0.05$ ) effect on oil palm seedlings growth parameters compared to the 7 and 21 days intervals of irrigation. Similarly, application of 42g NPKMg fertilizer showed the highest ( $P>0.05$ ) effects on growth parameters of oil palm seedlings relative to other rates of mineral fertilizers. Results also indicated that application 300gcompost/seedlings gave highest ( $P<0.05$ ) effect on all growth parameters compared to other compost application rates. Interaction between the composted bunch waste, chemical fertilizer and irrigation intervals had no significant effect on all the growth parameters studied. However, combined application of 42g NPKMg compound fertilizer and 300g compost/seedlings was most effective in improving the growth of oil palm seedlings under 14 day intervals of irrigation and is therefore recommended.*

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