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YIELD RESPONSE OF MAIZE TO ANIMAL MANURES AND BULKING AGENTS IN FORTIFIED COMPOSTS

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ABSTRACT

An experiment was carried out to examine the effectiveness of four different composts formulated from poultry (PM) and cowdung (CD) manures as primary constituents and two bulking agents namely sawdust (SD) and sorted refuse (SR) on some yield components of maize for two cropping seasons. All compost mixtures were fortified with rock phosphate and urea. The compost treatments (PM/SD, PM/SR, CD/SD and CD/SR at ratio 3:1) were applied at 2.5 tonnes/ha, replicated three times with NPK (15:15:15) fertilizer applied at 300 kg/ha as reference treatment and a control (no compost, no fertilizer), all arranged in a randomized complete design. The results showed that the composts significantly increased (P<0.05) all the maize yield components measured for the two cropping seasons. The PM/SD and PM/SR produced a higher grain yield of 3326 and 3218 kg/ha, respectively, for the first cropping season and 1603 and 2423 kg/ha, respectively, for the second season compared to the cowdung-based composts, i.e. CD/SD and CD/SR with a range of 3073 and 3044 kg/ha and 1440 and 2051 kg/ha grain yield for the first and second seasons respectively. The sawdust-bulking agent performed better in the first cropping season producing a mean grain yield of 3200 kg/ha compared to sorted refuse with 3131 kg/ha. The study showed that types of bulking agent and animal manure used determined plant refuse to fortified composts.

Keywords: sawdust, sorted refuse, bulking agent, manure, fortified compost, and maize yield.