

## Abstract

This study was initiated to determine the response of wheat to phosphate-fortified wheat straw compost. Phosphate-fortified compost was produced by adding diammonium phosphate (OAP) and organic soil to wheat straw during decomposition. Normal compost was produced by adding a nitrogen source ammonium sulphate nitrate (ASN) to wheat straw during decomposition. Water was applied to each compost in the absence of rain upto saturation. The composts were turned regularly to facilitate decomposition. The two composts were each analyzed for total nutrient composition before being applied to the experimental plots. The composts were each applied at 2.5, 5, 10 and 20 t ha<sup>-1</sup> and a non-fertilized control. Wheat was grown as per the recommended cultural practices using these nutrient sources. The results obtained indicate that, at the experimental rates of both normal and phosphate fortified composts, there was no significant increase in grain yield, plant height, tiller numbers, straw weight, grains per spike, grain moisture content and a thousand grain weight compared to the control. The recommended DAP rate of 40 kg P<sub>2</sub>O<sub>5</sub> ha<sup>-1</sup>, used as a comparison, showed a significant higher yield response compared to the other treatments including the control. No definite soil physical and chemical changes were realized due to fortified compost within the experimental period of five months. On the basis of chemical analysis results of the composts, phosphate fortified compost was different from the normal compost. It is therefore recommended that further studies be done on the use of phosphate fortified compost as a source of wheat plant nutrients. The studies should involve sufficient level of compost decomposition, nitrogen loss during decomposition, compost placement methods and application of compost rates higher than the 20 t ha<sup>-1</sup> used in this study.