

## Effects of Soil Organic Amendment Types and Rates on Growth and Yield of *Amaranthus cruentus*, Southern Guinea Savannah of Nigeria

**Authors :** S. Yussuf Abdulmalik

**Abstract :** Experiment was conducted for two years (2013 and 2014) at Ibrahim Badamasi Babangida University, Lapai, Teaching and Research Farm to study the effects of soil organic amendment types and rates on soil chemical fertility improvement, growth and yield of *Amaranthus cruentus* in the southern guinea savannah, lapai, Niger state, Nigeria. Soil and manure samples were collected and analysed for physical and chemical components. The experiments were laid out in 3 x 4 factorial in a randomized complete block design (RCBD). Consisting of three (3) levels of soil amendment types (Poultry manure, goat manure and cowdung) and four (4) levels of amendment rates (0, 6, 12 and 18 t ha<sup>-1</sup>). Data collected include plant height/plant (cm), number of leaves/plant, leaf area/ plant (cm<sup>2</sup>) at 2, 4, 6 and 8WAT, fresh vegetable yield/plant, fresh vegetable yield/plot and fresh vegetable yield in tons ha<sup>-1</sup>. The result obtained showed that, *Amaranthus cruentus* height, number of leaves and leaf area were not significantly affected by the type of organic amendment and rates at 2WAT in 2013 and 2014 cropping seasons. However, at 4, 6 and 8 WAT, significant differences were observed among the types of amendment and their rates. Application of poultry manure as soil amendment supported taller, large number of leaves and wider leaf area, and higher marketable vegetable yield in 2013 and 2014 cropping seasons ( $P\alpha 0.05$ ) which was closely followed by goat manure in the two (2) cropping seasons. In addition, the application of 18 t ha<sup>-1</sup> was superior to 12, 6 and the control by producing tallest amaranthus plants, higher number of leaves, wider leaf area and higher marketable vegetable yield in 2013 and 2014 cropping seasons ( $P\alpha 0.05$ ). In conclusion, the use of 18 t ha<sup>-1</sup> poultry manure is therefore recommended as soil amendment for *Amaranthus cruentus* in southern guinea savannah of Nigeria.

**Keywords :** *Amaranthus cruentus*, cowdung, goat manure, poultry manure, soil amendment

**Conference Title :** ICASVM 2016 : International Conference on Agronomic Sciences and Veterinary Medicine

**Conference Location :** Venice, Italy

**Conference Dates :** April 11-12, 2016