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EFFECT OF ORGANIC AND INORGANIC FERTILIZER ON YIELD AND CHLOROPHYLL CONTENT OF MAIZE (Zea mays *(L.) AND SORGHUM* Sorghum bicolour (L) Moench)

B.J. AMUJOYEGBE[1], J.T. OPABODE[1] AND A. OLAYINKA[2]

[1]Department of Plant Science, [1]Department of Soil Science,
Obafemi Awolowo University, Ile-Ife, Nigeria
E-mail: bamujo@oauife.edu.ng

ABSTRACT

The effects of amending soil with organic (poultry manure) and inorganic fertilizer on yield and chlorophyll content of maize (*Zea mays L*.) and sorghum (Sorghum bicolour (L) Moench) was carried out at the Teaching and Research (T&R) Farm of the Obafemi Awolowo University, (OAU) Ile-Ife, Nigeria. The experimental design was in a randomized complete block design (RCBD), laid out in a split-plot arrangement in the second cropping season of year 2001 and 2002 respectively. There were four sources of fertilizer for soil amendment: inorganic fertilizer (IF), mixture of inorganic fertilizer and poultry manure (IFPM), poultry manure (PM) and control © (no fertilizer or manure treatment). Each fertilizer source supplied 54 kg N plus 25 kg P_2O_5 and 25 kg K_2O_5/ha. There were significant variability and diversity observed on the two crops due to treatments. Grain yield was highest in sorghum (3.55 kg/ha) and maize (2.89 kg/ha) under IFPM followed by IF treatment of maize (2.33 kg/ha) and PM treatment for sorghum (3.37kg/ha). Sorghum and maize had the highesr dry matter of 72.3 g/plant and 71.0 g/plant under IFPM at harvest. The effects of PM on the dry matter of sorghum (68.1g/plant), maize (61.7 g/plant) were not significantly different (p=0.05) from that of IF (sorghum 66.1 g/plant, maize 58.7 g/plant. Sorghm also had the highest leaf area (LA) (27752.9 cm2/plant) and total chlorophyll content of 3.28mg/g under PM while maize on the other hand had the highest LA (1969.5 cm2/ plant) and total chlorophyll content of 2.63 mg/g under IFPM. In both maize and sorghum, the lowest chlorophyll content occurred in control plot. Drought tolerance measured as percentage chlorophyll stability index (CSI%); was highest under control plots in both crops. The implication of CSI% on drought tolerance of maize and sorghum was discussed.

Keywords: Maize, sorgum, cultivars, nutrient souce, poultry manure, chlorophyll, yield.