EFFECT OF ORGANIC AND MINERAL FERTILIZERS ON YIELD AND YIELD PROPERTIES OF SWEET CORN

BY

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ABSTRACT

Impact of integrated use of organic and inorganic fertilizers on yield, yield quality and improving in some soil properties were evaluated in a field experiment at the experimental west farm of research station, faculty of agriculture, Cairo University, Giza Governorate, Egypt during two successive summer seasons 2013/2014. To achieve 100% of sweet corn fertilization rate of nitrogen (90kg N/fed), application rate of ammonium nitrate 33.5%-N was 270 kg/fed. and 6 ton/fed. of compost. The experiment was laid out in Randomized Complete Blok Design with three replicates and involved five treatments: (T_1) 100% mineral-N (control), (T_2) 100% organic (6 ton /fed), (**T_3**) (75% organic + 25% mineral), T_4 (50% organic + 50% mineral), T_5 (25% organic + 75 % mineral). The results showed that the integrated use of organic and mineral fertilization increased plant height, fresh and dry yield, protein and fiber fractions content and increased nutritional value compared with control. There were significant differences in organic matter digestibility (OMD), dry matter digestibility and Metabolic energy (ME), net energy lactation content (NEL) of sweet sorghum between treatments. The results showed that bulk density and pH values reduced by increasing organic fertilizer rate, while total porosity and organic matter increased by increasing organic fertilizer application. Available N, P and K in soil were increased significantly by different addition rates compared with control and available Fe, Mn and Zn were affected by application of organic only or combined with mineral fertilizer. In conclusion; the combined use of organic alon and inorganic fertilizers is the most suitable way for ensuring high quantity and quality of sweet sorghum forage yield, and at the same time reducing harmful environmental pollution. Fertilization rate (75% compost+25% mineral fertilizer) was the best combination rate followed by (50% compost+50% mineral fertilizer), which gave the highest net return.

Key words: Sweet sorghum- Nitrogen -Compost – yield quality - Soil Properties- Nutritional value