

Impact of Compost Application with Different Rates of Chemical Fertilizers on Corn Growth and Production

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Abstract : Agricultural activities in Egypt generate annually around 35 million tons of waste. Composting is one of the most promising technologies to turnover waste in a more economical way, for many centuries. Composting has been used as a mean of recycling organic matter back into the soil to improve soil structure and fertility. Field experiments were conducted in two governorates, Giza and Al-Monofia, to find out the effect of compost with different rates of chemical fertilizers on growth and yield of corn (*Zea mays* L.) during two constitutive seasons of 2012 and 2013. The experiment, laid out in a randomized complete block design (RCBD), was carried out on five farmers' fields in each governorate. The treatments were: unfertilized control, full dose of NPK (120, 30, and 50 kg/acre, respectively), compost at rate of 20 ton/acre, compost at rate of 10 ton/acre + 25% of chemical fertilizer, compost at rate of 10 ton/acre + 50% of chemical fertilizer and compost at rate of 10 ton/acre + 75% of chemical fertilizer. Results revealed a superiority of the treatment of compost at rate of 10 ton/acre + 50% of NPK that caused significant improvement in growth, yield and nutrient uptakes of corn in the two governorates during the two constitutive seasons. Results showed that agricultural waste could be composted into value added soil amendment to enhance efficiency of chemical fertilizer. Composting of agricultural waste could also reduce the chemical fertilizers potential hazard to the environment.

Keywords : agricultural waste, compost, chemical fertilizers, corn production, environment

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