

## **ASSESSMENT OF ROLE OF SOME COMPOST AND THEIR RESIDUAL EFFECTS ON PLANTS GROWN IN SANDY AND/OR CALCAREOUS SOIL**

**Abd El-Latif. K. M.; M. M. E. A. Poraas and T.A. About El-Defan**  
Soils, Water and Environ. Res. Inst. (SWERI) - Agric. Res. C. (ARC),  
Giza- Egypt

### **ABSTRACT**

This work aims to study the role of two composts made of plant residues and added to calcareous soil from Noubaria to clay soil from Kom Osheem; on wheat yields and nutrient status of grains and straw as well as to study their residual effects on the growth of maize, which was grown after wheat.

A pot experiment was carried out in earthenware pots filled with 7 kg of the tested soils; at Soils, Water and Environment Research Inst. (SWERI) - Agric. Res. Center (ARC). It was included two soil types; two sources of composted plant residues (C) of wheat straw or banana residues (zero, 5 and 10 ton/fed) as well as NPK mineral fertilizers (M) (zero, 75% and 100% RD). Some treatments of solo, mixed of (C) with (M) as well as no-fertilization (control) were suggested to achieve this study. Wheat (*Triticum aestivum*) was planted in winter season, till maturity. In the following summer season maize (*Zea mays* L) was sown, without any new additions, for 70 days only.

**The obtained results indicated that:**

- Weights of grains and straw of wheat as well as dry weight of whole maize plants were positively responded to manure applications with no-significant differences between the effects of the two used composts in case of wheat and very slight differences in case of maize plants. These responses, to manure applications, were higher in clay soil than that in calcareous one, viz calcareous soil needed to more compost application than clay soil. Application of 10 ton compost /fed associated with 75% RD of NPK mineral fertilizers (10C+75%M) gave the highest weights.
- N, P, K, Fe, Mn and Zn uptake by wheat components and whole maize plants revealed the same trends mentioned above.

### **INTRODUCTION**

Continuous maintenance of soil fertility is very essential in achieving high crop yield all over the time. There is a need to apply fertilizers to maintain soil fertility. The use of mineral fertilizers has been found to be more convenient than the use of organic fertilizers. It however often leads to a decrease in soil organic matter content; an increase in soil acidity level and soil nutrient imbalance and it also results in soil physical degradation. Therefore, a reduced dependence on chemical fertilizer has been advocated to avoid the problems arise from continuous and gushing applications of it.

There are many benefits for addition of organic manures to soil. Whereas, nutrients contained in organic manures are released more slowly and are stored for a longer time in the soil, thereby ensuring a long residual effect and supporting better root development, leading to higher crop yields. They improve the soil fertility status by activating the soil microbial biomass. Application of organic manures sustains cropping system through better