ABSTRACT

Shadia Ahmed M. Ibrahim. UTILIZATION OF ORGANIC MANURE IN LIMITING POLLUTION OF SOIL AND CORN PLANT (*Zea mays* L.). Unpublished Master degree Thesis, Department of Environmental Agricultural Science, Institute of Environmental Studies and Research, Ain Shams University, 2007.

The effect of anhydrous ammonia injection at different rates (0, 30, 60, 90 and 120 kg N/fed) as well as five compost rates (0, 5, 10, 15 and 20 m^3/fed.) and their combination was studied on corn (*Zea mays* L. cv. single cross 10 hyreris) growth, yield and on available nitrogen forms in the soil. The investigation was carried out at Experimental Farm of the Agric. Res. Center at Sakha, Kafr El-Sheikh governorate, Egypt, during 2005 and 2006 seasons.

Results reveal the following findings:

Increasing anhydrous ammonia or compost levels has increased significantly the dry matter yield of both corn leaves and stems at 42 and 56 days (vegetative stage) after sowing in both seasons. The application of anhydrous ammonia or compost caused increases for nutrients content and concentration (nitrogen, nitrate, iron, manganese, zinc and copper) in corn plant at 42 and 56 days after sowing (vegetative stage) in both seasons.

The application of anhydrous ammonia as well as compost significantly increased the crude protein. However, the carbohydrate concentration was decreased in both seasons. The best grain yield and grain index was achieved at 60 kg N/fed as anhydrous ammonia with 20 m^3/fed compost in both seasons. Positive effects were obtained from anhydrous ammonia and compost treatments on increasing the Fe, Mn, Zn and Cu concentrations in corn grains in both seasons. The application of anhydrous ammonia and compost significantly increased NO_3-N and NH_4-N concentrations in soil in both seasons. Whereas, no significant effect were obtained on NO_2-N concentration in soil in both seasons.

Key words: Compost, anhydrous ammonia, corn, yield.

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