Summary

5- SUMMARY

The current investigation aimed at throwing some lights on the effect of some organic conditioners namely maize and broad bean composts beside of the chicken manure either with or without combination of the mineral fertilizers N, P and K on tomato plant growth and its different organs content of some nutritive elements. To fulfill the Ismailia Agriculture Research Station where soil is a sandy texture. The area of the soil used for conducted the experiments was 625 m^2 having the dimensions 25 X 25m. this area was divided into 18 names each of which extended 25m. the distance between each two successive bands was 1.20 cm. Tomato plants 4.4.8 oates were transplanted at distances 35cm apart. Consequently, each band contained 71 tomato seedlings. Drip irrigation system was used where plants were watered daily at the rate of 2 L $plant^{-1}$. The maize and broad bean composts as well as the chicken manure were applied to the studied plants at a rate of 0, 10 or 20 kg $band^{-1}$ either solely or in contaminations with the mineral fertilizers at rates of 260, 80 and 60 kg N, P_2O_5 and K_2O /fed^{-1} in the forms of ammonium nitrate (NH_4 NO_3), phosphoric acid (H_3 PO_4) and potassium sulfate (K_2SO_4).

Three replicates for each treatment in a randomized complete block design were used.

The most important obtained results could be summarized in the following:

All the studied fertilization treatments could result in increases in dry matter weights of roots, stems and fruits as compared with the control treatment.

Application of the maize compost at its lower rate was of less obvious effect on roots, stems and fruits yields than the applied mineral fertilizers, However, the combined applications of the same rate of the compost together with the mineral fertilizers caused dry matter yields of tomato organs to be higher than the corresponding values attained due to application of either the compost or the mineral fertilizers solely. Increasing rate of the applied compost was associated with corresponding increases in the dry yield whether of the, roots, stems or fruits. The increases become more obvious when the organic compost was applied combined with the mineral fertilizers.

Substituting application of the maize compost with broad bean compost caused dry matter yields of the roots, stems and fruits of the grown tomato plant to increase. This occurred upon application of the compost at any of its used rates whether in combination of the compost at any of its used rates whether in combination with the organic fertilizers or not. However. the effective fertilization treatments seemed to be higher with increasing rate of the applied compost especially when this increase was associated with application of the mineral fertilizers.

Chicken manure have the most pronounced effect on the dry matter yield components of the tomato plant. This was true at all rates of the applied manure in presence as well as in absence of the mineral fertilization.

Regarding the effect of the studied fertilization treatments on contents of nutritive elements whether the macro nutrients i.e. N, P and K or the micro ones i.e. Fe, Mn and Zn, it was found

that values of these nutrients content responsed positively to the studied fertilization treatments, however, the extent of response seemed to be higher upon increasing rate of the applied compost or manure seemed to be combination between the organic materials and the mineral fertilizers exeter more obvious effect on the content values of such nutrients content than when the organic materials were added without the mineral fertilizers. Moreover, the investigated organic materials could be arranged discendingly according to their positive effect on the values of the studied elements content in the following order:

Chicken manure > broad bean compost > maize compost. Such findings were observed generally on content values of roots, stems and fruits, yet a very few exceptions were detected between the first and second stage of growth of tomato plants.

It was deduced from the aforementioned results that plant dry matter yield as well as the plant content of the different elements achieved their highest values upon application of the chicken manure at is highest rate of application especially when this application was associated with the application of the mineral fertilizers. Also, it is worthy to indicate that due to the low fertility of the sandy soils, plants grown thereon might respond to higher rates of the applied organic materials. Application of the mineral fertilizers is excepted to a helpful factor for increasing the soil productivity of the concerned crop.