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***EVALUATION OF THE PERFORMANCE OF THE DRIP
IRRIGATION SYSTEM FOR SOIL TREATED
BY SOIL CONDITIONERS***

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**EVALUATION OF THE PERFORMANCE OF THE DRIP
IRRIGATION SYSTEM FOR SOIL TREATED BY SOIL
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ABSTRACT

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The investigation aims to evaluate the performance of the drip irrigation system in sandy soil, which used under different concentration levels from soil conditioners and different location from dripper in relation to the plant.

For that purpose the contour lines of the moisture content had been studied on a different irrigation periods, moreover the crop water consumption (ET) and crop production at irrigation rates also had been studied.

The results concluded that,

1. The using double lateral line with in increasing the level of polymer concentration the moisture distribution improved greatly specially the horizontal direction and highest value of moisture content were around the depth of 30 cm for all times.
 2. The results show that, using double laterals increased water use efficiency with increase polymer concentration.
 3. The decrease in evapotranspiration for using double lateral instead of single lateral was 3, 8, &12.5% for zero, 12.5 and 25 kg /fed. Of polymer concentration respectively.
 4. Average yield increased for zero concentration was 56% by turning from single to double lateral treatment. For 12.5& 25 kg/fed. Of polymer rate, the average yield increase 69%and 64% respectively.
 5. The highest net income excluding fixed cost 1843 LE/fed. Was obtained by double lateral with 25kg /fed. Of polymer while the lowest value 365LE/fed. Was obtained by single lateral without polymer application.
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INTERODUCTION

1. INTERODUCTION

Drip irrigation system as a modern system of irrigation can supply water economically. The major influence on the reclamation of sandy soils was not so much the amount of water applied, but it was the water distribution in the root and the prevention of water movement in soil profile by seepage or evaporation. The draw way of the drip irrigation system in sandy soils is a narrow water column under the emitter, conducting water to great depth in soil profile. To prevent this, a horizontal treatment should be applied to the top soil, so that the water will move horizontally due to the peel of capillary.

Adding soil conditioner to the sandy soils proved a great improvement on soil moisture characteristics and both of its chemical and hydrophysical properties and its relation to water conservation.

The main objective of this work was to evaluate the performance of the drip irrigation system in sandy soils treated by soil conditioner and compare it with its performance in untreated soil. The evaluation of the performance was form the point of view of the following parameters:

- 1) Soil moisture distribution in soil profile for the treated sandy soil
- 2) The actual water consumption for the plant grown in the treated soil and value of crop coefficient throughout the agriculture season.

- 3) The quantity of the obtained yield from the treated soil and its relation to water applied
 - 4) The quality of the final product obtained
 - 5) Anions and cations concentration in soil profile for the treated soil and the variation, which was, be accured due to adding soil conditioner.
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- 6) The values of water savings percent, which may be, exist as a result of improving the soil properties.

Finally, the evaluation of the drip irrigation performance in this case must be concern with a simple economic evaluation in order to drive the net income obtained from the product grown in soil treated by soil conditioner.