MASTER THESIS

EFFECT OF SOURCE OF IRRIGATION WATER AND NITROGEN ON GROWTH OF MILLET *Panicum miliaceum* L. AND SOME SOIL PROPERTIES

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ABSTRACT

To study the effect of irrigation water source (Abu Ghraib and Dijla Dera'a rivers) and nitrogen fertilizer levels (80 , 160 and 240 Kg N. ha^{-1}) as urea . Pots experiment in screen wood at Soil Science Department , College of Agriculture was conducted . A complete randomized design (CRD) was used with four replicates. (10 kg) of silty loam soil was put at each pot. Soil samples were taken for analysis . (80 Kg P.ha^{-1}) as calcium super phosphate and (60 Kg K. ha^{-1}) as potassium sulfate were added before sowing. (15 seeds) of millet (*Panicum miliaceum* L.) were planted , thinned to (10 plants) per pot after germination.

At maturity plants were harvested , dried , total dry matter weight, seed yield weight , straw and root weight , 1000 seeds weight , plant heights and concentration of N , P and K in seeds and plants were determined . Soil samples were taken for analysis . The results can be summarized as follow :

1- Using of Dijla Dera'a water in irrigation had a significantly effect in decreasing total dry matter weight , seeds weight , straw and root weight , 1000 seeds weight , plants hight concentration of N in straw and roots , K in straw and root and grains were (13.88 , 14.72 , 9.98 , 22.64 , 10.35 , 8.66 , 11.49 , 13.22 and 11.11)% respectively.

2- A significant effect of nitrogen levels in increasing total dry matter weight , straw , root , grains weight , 1000 seeds weight , plants hight and concentration of N , P and K in straw and roots and grains . The interaction between quality of irrigation water and nitrogen levels showed a significant effect in increasing total dry matter weight , root , and plants hight , concentration of N and K in straw and root were (28.80 , 48.97 , 54.91 , 89.47 and 93.10)% respectively .

3- Using Dijla Dera'a water in irrigation has a significant effect in increasing in ECe , Na^{+} , $SO_4^{=}$, Cl^{-} , HCO_3^{-} , ESP , SAR , $CaCO_3$ and the availability of P , Ca , Mg and B , where as significantly effected in decreasing pH , NO_3^{-} and NH_4^{+} concentration in the soil .

4- Nitrogen levels have significant effect in decreasing ECe , pH , $SO_4^{=}$, Cl^{-} , $HCO_3^{=}$, the availability of P , K , Ca , Mg and B. Also it gave a significant increasing in Na^{+} , ESP , SAR , NO_3^{-} and NH_4^{+} concentration in the soil. Where as the interaction between quality of irrigation water and nitrogen levels showed a significant effect in concentration of Na^{+} , NO_3^{-} , P , Ca , Mg, B, ESP and SAR in the soil , also it significant effect in decreasing Cl^{-} and HCO_3^{-} in the soil , too .