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Impact of different levels of sewage and tubewell irrigation water on physico-chemical properties of soil on onion grown field at district Allahabad

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ABSTRACT : The experiments were conducted at the crop growing farm, during Rabi season 2006-07 and 2007-08 at Tignota village of Chaka block, Dandi, Allahabad to study the "Impact of different levels of sewage and tube-well irrigation water on physico-chemical properties of soil on onion grown field at Allahabad district". The treatments allocated in randomized block design with three replications and four levels of sewage and tubewell irrigation water for onion crop (T_0 = 200 litres of tubewell irrigation water), (T_1 = 100 litres of sewage water + 100 litres of tubewell irrigation water), (T_2 = 150 litres sewage water + 50 litres tubewell irrigation water) and (T_3 = 200 litres of sewage irrigation water). Crop was irrigated 10-12 times at 10-12 days intervals @ 200 litres water per irrigation for $4m^2$. The physical and chemical analysis of soil were done before starting the experiments to ascertain the initial fertility of the soil and after crop harvesting at 0-15, 15-30, 30-45, 45-60cm depth, statistical analysis of the data on bulk density (g/cc), particle density (g/cc), percentage pore space, pH, EC (dSm^{-1}) and per cent organic carbon (OC%) of post harvest soil of onion grown plot was found to be significant at different depth in both the experimental years, bulk density (g/cc) of post harvest soil of onion grown plot in treatment T_3 were found to be significantly lower than the remaining treatments and it increases with increase in soil depths, but particle density (g/cc) and percentage pore space of post harvest soil in treatment T_3 tended to be significantly greater than the remaining treatments, and it is decreases with increase in soil depths. The pH of post harvest soil of onion grown plot in treatment T_3 were significantly lower than the remaining treatments and it also decreases with increase in soil depth**,** EC and per cent organic carbon of post harvest soil of onion grown plot in treatment T_3 tended to be significantly greater than the remaining treatments and it decrease abruptly down the soil depths. Statistical analysis of the data on available N, P and K kg/ha of post harvest soil of onion grown plot was found to be significant at different depth in both the experimental years, available N, P and K kg/ha of post harvest soil of onion grown plot in treatment T_3 were also significantly greater than the remaining treatments and it decreased with increase in the soil depths.

Key Words: Sewage water, physico-chemical properties, onion, N, P, K in soil and plant.