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

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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. The treatments were allocated in randomized block design with three replications and four levels of sewage and tubewell irrigation water (T_0 = 300 liters of tubewell irrigation water), (T_1 = 150 liters sewage water + 150 liters of tubewell irrigation water), (T_2 = 200 liters sewage water + 100 liters tubewell irrigation water) and (T_3 = 300 liters of sewage irrigation water). The crop was irrigated 10-12 times at 10-12 days intervals @ 300 liters 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 (dS m^{-1}) and percent organic carbon (OC%) of post harvest soil of potato grown plot was found to be significant at different depth in both the experimental years, bulk density (g/cc) of post harvest soil of potato 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 decreases with increase in soil depths. The pH of post harvest soil of potato grown plot in treatment T_3 were significantly lower than the remaining treatments and it also decreases with increase in soil depth**,** EC and percent organic carbon of post harvest soil of potato 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 potato 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 potato 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.