

An Overview on Contamination in Unsaturated/Saturated Zones due to Rising Trend in Chemical Fertilizers Application

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India is a vast agricultural country, having different agroclimatic regions, which helps India to become self reliance in food production to feed more than one billion population. Indogangetic plains are one of the most fertile plains in the world. District Muzaffarnagar is important part of these plains having 4008 sq. km of area and 1027 villages with 326000 hectare net sown area and 92 percent land area is irrigated, where farmers mostly grow sugarcane that is why it is called the sugar bowl of Uttar Pradesh. To grow more and more produce of this crop farmers compete with each other and apply inputs indiscriminately, in form of agrochemicals and flood irrigation to the soil surface. As the mode of irrigation in this region is surface water and groundwater but since the last decade the supply of surface water is decreasing resulting in pressure to the groundwater resource. Moreover in the last decade the monsoon is not punctual in this area and showing the irregularities in rainfall amount and distribution. The average rainfall in this region is 753mm. The chemical fertilizer application trend in this region is on the rise exponentially and can be justified by the data on consumption of chemical fertilizers was 34194 tonnes in 1979-80 which rose to 81157 tonnes, 237% increase in 1995-96 and in 1999-2000 it rose to 119962 tonnes i.e. 350% increase from 1979-80 data. The indiscriminate application of agrochemicals (chemical fertilizers, pesticides and insecticides) have a tendency to accumulate the soil matrix then contaminate the soil system and further accumulation of the agrochemicals lead to groundwater contamination. As the groundwater recharge rate in the indogangetic plains is quite good, hence the possibilities of the movement of these contaminants is quite high. In the whole district area almost cent percent population depends upon groundwater for drinking purpose. Under these circumstances, intake of contaminated drinking water may lead to different types of health problems to the population of the region. In support of the above facts, a detailed case study may be initiated to provide a guideline to the farmers to adopt better agronomical practices for safe and sustainable environment.

Keyword: Agrochemicals; Chemical Fertilizers, Contamination, Irrigation.

Reference

 Fertilizer Statistics, 1979-80, 1995-96, 1999-2000, The Fertilizer Association of India, New Delhi.