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Saline water usage through drip in brinjal

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SUMMARY

For studying the effect of saline water usage through drip in brinjal, one field experiment was conducted on Vertic Halaquepts of Coastal Soil Salinity Research Station, NAU, Danti during 2002-03, 2003-04 and 2004-05. The treatments consisted of 4 water salinity levels (2, 4 6 and 8 dS/m) and 3 moisture regimes (0.4, 0.6 and 0.8 PEF). The experimental soil was non saline-sodic ($EC_{2.5}$ 0.28 to 0.43 dS/m and pH 8.89 to 9.58). The differences in yield of brinjal due to salinity levels and moisture regimes were not conspicuous during individual years and in pooled data also except that of salinity effect in pooled analysis. The interaction effect of water salinity levels was not significant. Among the salinity levels, application of water having EC 8 dS/m gave significantly lower yield than 2, 4 and 6 dS/m waters. Effect of different treatments applied to brinjal was not significant on the grain yield of subsequent paddy. Though, the soil salinity tended to increase due to irrigation with saline water in brinjal, it decreased considerably after harvest of paddy crop due to heavy monsoonic conditions of this area.

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Though the total net irrigation area to total cultivable area is 25.7 per cent in India, it plays crucial role in boosting a gross agricultural production and ultimately the Indian economy. Of the 25.7 per cent of the total cultivated area is net irrigated area. While surface water is a major source of irrigation in south and middle Gujarat, it is ground water which contributes predominantly in north Gujarat and Saurastra regions. From quality of ground water point of view, considerable variations are being encountered throughout the state. However, ground water quality is invariably poor all along the coastline of the state. Even, in inland areas of arids and semiarid regions of north Gujarat and Saurastra, the poor quality ground water are encountered (Ahlawat and Raman, 1999). Through, the coastal area of south and middle Gujarat are enjoying canal irrigation facilities, assured water supply is not available due to their location at the tail end of the command. Under the circumstances farmers are forced to use poor quality of ground water for irrigation purpose. In view of the above, present study was taken up for developing an appropriate technology for usage of poor quality waters in Rabi crops.

EXPERIMENTAL METHODS

The field experiment was conducted during the Rabi season of 2002-03, 2003-04 and 2004-05 at the Coastal Soil Salinity Research Station, Navsari Agricultural University, Danti/ Umbharat (South Gujarat) on a fixed site. The experimental soil was heavy in texture, alkali in reaction (pH 8.81), non saline (EC $_{25}$ 0.37 dS/m), medium in organic C (0.55 %) as well as available P (28 kg/ha) and high in available K (1342 kg/ha). The treatments combinations comprised of 4 levels of water salinity (EC 2, 4, 6 and 8 dS/m) and three moisture regimes (0.4, 0.6)and 0.8 PEF) along with one surface control (IW/CPE= 0.6 and IW=60 mm). In Control, 6 dS/m EC water was applied. The treatments were laid out in FRBD using gravity drippers and replicated thrice. Brinjal, var. Surati Ravaiya was planted and all the recommended practices were adopted for raising brinjal. After harvest of brinjal, Kharif paddy was taken for assessing the effect of saline water usage in preceding Rabi crop on the yield of

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