

RESEARCH ARTICLE

Effect of saline and sodic irrigation water on soil properties after harvest of *Bajra* crop

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SUMMARY

A pot experiment was conducted during summer-2020 at Net House, Department of Agricultural Chemistry and Soil Science Junagadh Agricultural University, Junagadh to assess four levels for each of salinity (2, 4, 6 and 8 dS m⁻¹) and sodicity (5.0, 10.0, 15.0 and 20.0 SAR) of irrigation water on bajra by adopting factorial CRD with three replications. The results indicated that application of different levels of saline and sodic irrigation water produced significant effect on soil properties after harvest of bajra crop. The highest organic carbon and available macronutrients (N, P₂O₅ and K₂O kg ha⁻¹) of soil were observed with with EC 2 dS m⁻¹ and SAR 5.0 and the lowest with EC 8 dS m⁻¹ and SAR 20.0 of irrigation water. The water soluble and exchangeable Ca, Mg and Na were found maximum with EC-8 dS m⁻¹, whereas water soluble and exchangeable K found maximum with EC-2 dS m⁻¹ and soil properties like EC_{2.5}, EC_e, CEC found maximum with EC-8 dS m⁻¹ whereas pH_{2.5}, pH_s and ESP found maximum with EC-2 dS m⁻¹ level of saline irrigation water. The water soluble and exchangeable Na was found maximum with SAR- 20.0, whereas water soluble and exchangeable Ca, Mg and K were found maximum with SAR- 5.0. The soil properties like EC_{2.5}, EC_e, pH_{2.5}, pH_s and ESP of the soil was found minimum with SAR- 5.0 and found maximum with SAR- 20.0, but CEC was found maximum with SAR- 5.0 level of sodic irrigation water. The effect of saline and sodic irrigation water was found significant on available N and water-soluble cations Ca⁺⁺, Mg⁺⁺, Na⁺, K⁺, exchangeable cations Ca⁺⁺, Mg⁺⁺, Na⁺, CEC, ESP, EC_{2.5} and EC_e of soil after harvest of *Bajra*.

Key Words : *Bajra*, Salinity, Sodicity, Available macronutrient, Water soluble, Exchangeable cations, Soil properties

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