



Vol. 43, No.1, pp 58-62, 2015

Indian Journal of Soil Conservation

Online URL: <http://indianjournals.com/ijor.aspx?target=ijor:ijsc&type=home>



Impact of underground irrigation water on soil properties and sodic soil reclamation technologies on pearl millet-wheat crop sequence

Y.P. Singh and S.K. Dubey¹

Rajmata Vijayaraje Scindia Krishi Viswa Vidyalyaya, Zonal Agricultural Research Station-Krishi Vigyan Kendra, Morena-476001, Madhya Pradesh; ¹ICAR-Indian Institute of Soil and Water Conservation, Research Centre, Chhalesar, Agra-282006, Uttar Pradesh.

¹E-mail: skdubeyagra@gmail.com

ARTICLE INFO

Article history:

Received : September, 2013

Revised : April, 2014

Accepted : June, 2014

Key words :

Pearlmillet,
Reclamation,
Sodic soil,
Soil properties,
Water quality,
Wheat

ABSTRACT

An on-farm study was undertaken to determine the quality of underground water, its effect on soil properties in the canal command areas, and impact of sodic soil technologies *i.e.* gypsum levels, green manuring, farm yard manure (FYM) and deep tillage on yield of pearl millet-wheat crop sequence. Eighty six water samples collected from canal command area of Tonk district of Rajasthan revealed that 22.1, 10.9, 5.8, 21.5, 29.8 and 9.9% water samples were under good, marginally saline, saline, marginally alkali, alkali and highly alkali categories, respectively. Most of these waters had dominance of sodium followed by calcium in cations and chloride as major anion followed by bicarbonate and carbonates. After interventions of sodic soil reclamation, wheat crop in *rabi* and pearl millet in next *kharif* season was grown. Maximum mean yields of 2.53 t ha⁻¹ grain and 11.0 t ha⁻¹ straw of pearl millet and 3.95 t ha⁻¹ grain and 4.74 t ha⁻¹ straw of wheat were obtained with deep tillage in summer along with gypsum application @ 50% GR, green manuring and FYM @ 10 t ha⁻¹ followed by GR-50% along with green manuring and FYM @ 10 t ha⁻¹. Treatment of deep tillage in summer along with GR-50%, green manuring and FYM @ 10 t ha⁻¹ resulted in significant reduction of EC, pH, ESP and bulk density, improvement in infiltration rate and availability of N, P, K and micronutrients.