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EFFECT OF SUPPLEMENTARY IRRIGATION WATER QUALITY ON SOME SOIL CHEMICAL PROPERTIES

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The aim of this study was to evaluate the incidence of different combinations of irrigation water (demineralized and artificially salinized on the laboratory) on the electrical conductivity (EC), sodium adsorption ratio (SAR), pH, exchangeable sodium percentage (ESP), and percent base saturation of two petrocalcic paleudols of Argentina. An experiment was conducted in a greenhouse, using soil columns of 30 cm long, which were seeded with perennial ryegrass (Lolium perenne). Five water treatments were established: W2 (50% water of low SAR and 50 % distilled water), W0 (100 % distilled water), W1 (30% water with low RAS and 70 % distilled water), W3 (30% water of high RAS and 70 % distilled water), and W4 (50% water with high RAS and 50 % distilled water). As artificially salinized water proportion was greater than the demineralized water, the EC and ESP values increased principally at surface level (10cm). The artificial water SAR=12.5 produced a significant increase in ESP=19.8 compared with the control treatment. Considering the dilution effect of rain,it was possible to establish an equation to estimate the value of soil ESP for a given quality of irrigation water value.