Supplementary Materials: Risk Assessment of Soil Salinization Due to Tomato Cultivation in Mediterranean Climate Conditions

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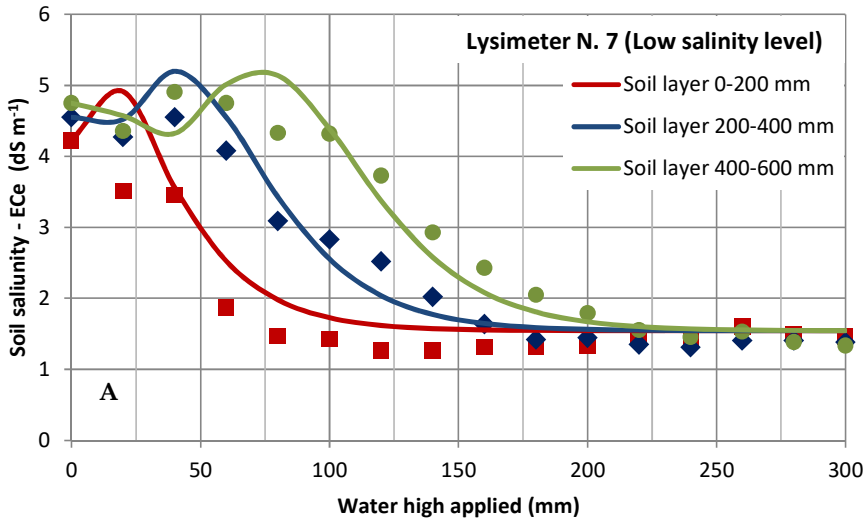

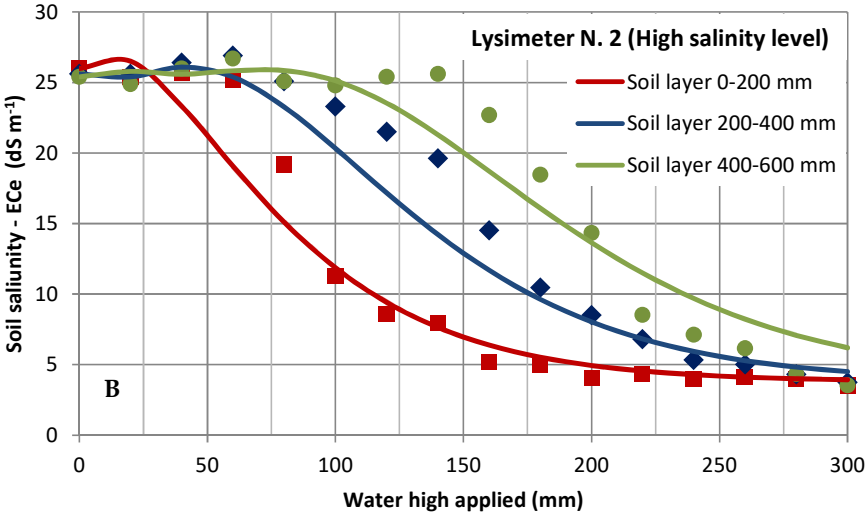

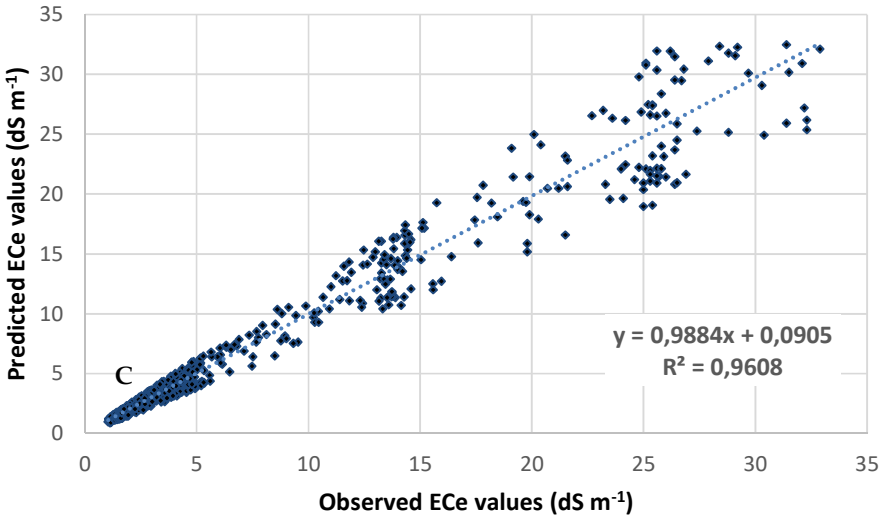

Figure S1. Graphical representation of the simulation performance of the model prepared and used in this work. The model was applied to an experimental lysimetric data set reproducing a leaching process carried out through the daily application of 20 mm of water during 15 consecutive days (300 mm of water in totale were applied). (**A**) Soil salinity in the course of the leaching process considering a low-salinized soil. (**B**) Soil salinity in the course of the leaching process considering a high-salinized soil. (**C**) Predicted vs observed ECe values to judge the performance of the simulation model.

The arranged simulation model was firstly calibrated to optimize the value of the leaching efficiency coefficient (γ). This procedure was followed by testing the model behavior on an independent dataset. As already reported, data for calibration and validation were obtained from a previous experimental trial conducted with 24 soil columns inside a cylindrical container (each lysimeter were of equal size: 1.20 m in high and 0.40 in diameter). Free drainage conditions were allowed at the bottom and pore-water extraction at soil saturation was operated at three specific soil layers, corresponding to 0–200, 200–400 and 400–600 mm of depth. Fresh water (1 dS m^{-1}) was used in simulating rainfall on a bare soil surface and to promote salt leaching from the soil columns previously salinized at low (~5.5 dS m^{-1}), medium (~11.2 dS m^{-1}) and high (~20.2 dS m^{-1}) electrical conductivity. The leaching operation was carried out over 15 consecutive days. A total water application of 300 mm was reached. Therefore, the daily-applied water was 20 mm, delivered from a single dripper per container at a rate of 1 liter per hour. Soil salinity (pore water at soils saturation) was measured each day at the three considered soil layers.

Soil salinity data along the leaching process are reported in Figure S1 (A and B), only considering two opposite experimental conditions: a low and a high level of electrical conductivity. Fig S1 C shows the good agreement between the model predicted values and the observed experimental values. The line regressing predicted and observed values is not statistically different from the 1:1 bisector line, thus signifying the absence of model distortions. Moreover, a high statistical significance (R^2 = 0.96) testifies the good general performance of the model. The total number of data points was 540, resulting from the following calculation (3 sets of lysimeters at high, medium and low salinity, four repetitions, three soil depths, 15 daily consecutive irrigations). The calibration process gave the best result by considering the value of γ equal to 0.80.