



## **Field measurements of water and Nitrogen losses under fertirrigated Melon crop in a shallow calcareous soil in Spain**

M.T. Castellanos(1), **A.M. Tarquis**(2), Fco. Ribas(1), M.J. Cabello(1), N. Figueiró(1), A. Arce(3) and M.C. Cartagena(3)

(1)Centro Mejora Agraria El Chaparrillo - Delegación Provincial de Agricultura, c. Alarcos 21, Ciudad Real, 13071, Spain. (2)Dpto. Matemática Aplicada - E.T.S. Ing. Agrónomos - Polytechnic Univ.of Madrid, Ciudad Universitaria sn, Madrid, 28040, Spain. (3)Dpto. Química y Análisis Agrícola - E.T.S. I.A.- Polytechnic Univ.of Madrid, Ciudad Universitaria sn, Madrid, 28040, Spain.

Best management practices are needed in many cropped, irrigated and fertirrigated landscapes in Spain to avoid contamination of fresh water and ground water aquifers. The melon crop area at Ciudad Real adds the 29% of the national production in Spain. The common agronomic management are representative of semiarid cropped zones of Spain where environmental degradation of water supplies with high N loads are observed. The site of this work is located near on Mancha Occidental aquifer (U.H.04.04, 6.953 km<sup>2</sup>) and Campo de Montiel aquifer (U.H. 04.06, 3.192 km<sup>2</sup> with high contamination problems. This requires calibration of fertirrigation scheduling with N fertilizer application rates to optimise melon crop yields but minimize threats of N pollution to water supplies

The objectives of this study were to quantify nitrate leaching for fertirrigated soils and to evaluate the effects of the dose of N fertilizer and fertirrigation management strategies on nitrate leaching in a melon crop and to demonstrate the interactions between irrigation scheduling, N application rates, and yield potentials on shallow, carbonate-rich soils with a restrictive subsurface “caliche” pan layer (petrocalcic horizon).