MEPROWARE

NOVEL METHODOLOGY FOR THE PROMOTION OF TREATED WASTEWATER REUSE FOR MEDITERRANEAN CROPS IMPROVEMENT

With the decreasing availability of fresh water resources, particularly for the agricultural sector, the use of treated wastewater has gained popularity over the last decades. Wastewater treatment and reuse have reached extremely high levels of technological advancement and flexibility, providing multipurpose uses of treated water ranging from safe restoration of natural water bodies up to drinking standards. However, reuse still encounters resistance as users at different levels are not well informed about the potential of such waters, the benefits when it comes to nutrient recovery for agriculture, and most importantly the range of suitable methodologies for treated wastewater applications. To address this issue and in order to promote the reuse of treated wastewater, an integrated innovative methodology will be developed and applied in three demo sites cultivated with olives and grapevines. The core of the proposed methodology is the evaluation of the yield and quality of crops under variable levels of water and nutrient supply, by adapting the nutrient quantities to the phenological needs and coupling it with crops water requirements under three different local climate conditions. Activities will include monitoring wastewater quality, modeling water use and needs as well as economic feasibility/benefits. The participation of different stakeholders in the activities and all phases of the project will be promoted by their direct involvement, starting by their support to the experimental activities with a focus on the transfer of know-how, to the dissemination and building of technical and social acceptance towards treated wastewater reuse and finally dissemination and communication of results. The present proposal introduces an innovative methodological approach to treated wastewater reuse specifically addressing well-defined types of crops, agronomic practices, and water constraints that are typical of Mediterranean countries. The underlying idea is to provide evidence of the positive relationships between treated wastewater reuse and plants growth and crops productivity with specific reference to the Mediterranean.
To obtain this, in a framework of water and nutrient use efficiency, reuse practices will be made more easily acceptable by stakeholders through their direct participation to the implementation of the proposed methodology.