



## RECARE MSc / PhD Research Information

### Research Title

IRRIGATION OF GREENHOUSE CULTIVATION IN SOILS AFFECTED BY SALINIZATION

### Abstract

Salinization is the accumulation of salt in soil and comprises one of the major soil threats that occur in Europe. Salt affected soils pose a risk primarily to plant growth reduction of most plant species, soil biodiversity and soil environmental interactions. In the Timpaki basin there is growing agricultural development that is accompanied by lack of water pumping control, insufficient water resource management and high water losses due to evaporation. These facts are responsible for the accumulation of salt in the soil causing problems to the greenhouse and open air cultivations. Therefore, an integrated assessment of the effects of soil salinity and the applicable management option is required.

The SALTMED model, a created in the framework of Project MEDIS (2002-2006) is reliable and tested physical process model that has been applied in numerous cases of salinization in various Mediterranean countries. SALTMED can model evapotranspiration, plant water uptake, water and solute transport to estimate crop yield and biomass production under all irrigation systems. SALTMED will be used for the assessment of the long term impacts of salinization due to the use of low quality water on the soil and crops of Timpaki, and it will be subsequently validated with field experiments.

The objectives of this study are (i) the creation of guidelines for farmers on managing the use of saline water in salinity prone irrigated land and (ii) the observation of the salt tolerance of tomato. The latter will be investigated for a range of irrigation systems, salt concentrations in the irrigation water and alternative crops for the prevailing soil and climate conditions in the study area. Results are expected to highlight an optimal combination from a set of solutions against the salinization threat.

### Objectives of the research

- (i) Assessment of the soil salinization in selected greenhouses of Timpaki using SALTMED
- (ii) Evaluation of the impacts of soil salinity on crop productivity.

### RECARE study site

Timpaki basin, Crete

### Partners in this research

Technical University of Crete

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