



ARIMNet2 Young Researchers Seminar

“How to better involve end-users throughout the research process to foster innovation-driven research for a sustainable Mediterranean agriculture at the farm and local scales.”

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Modeling crops grown under salinity and climate change in marginal lands

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CONTEXT & CHALLENGES

(Based on literature review)

Salinity

- Marginal lands suffer from salinity in water and soil.
- Tolerant crops against salinity.
- Lack of water for leaching.

Climate change

- Prediction of growth and yield under salinity.
- Double impact of salinity and climate change.
- Challenges to adapt these crops under climate change.



OBJECTIVE & HYPOTHESES

Objective(s) / Research question(s)

- How to model the impact of salinity on tolerant crops in marginal lands?
- Which are the best adaptation options under future climate change?

Hypotheses

- Conducting experiments to study the effect of salinity on growth and productivity of the tolerant crops.
- Developing a model to predict growth and productivity of the tolerant crops under different conditions of salinity and climate change.

Conceptual framework



METHODOLOGY

Collecting

- Phenological data during the crop growing season.
- Vegetative data during the crop growing season.
- Vegetative data at harvest of the crop.

Developing

- New crop model to predict the effect of salinity on the crop.
- Current model to simulate the targeted crop.

Calibrating and validating

- Crop model through sensitivity analysis for the outputs.

INVOLVEMENT OF STAKEHOLDERS

- Farmers investing in marginal lands.
- Traders of the targeted crop yield.
- Decision makers in agricultural sector.



EXPECTED RESULTS / IMPACT (INNOVATION)

Salinity

- Find a regression of correlation between salinity and crop growth and productivity.
- Establish a new tool in crop models to predict effect of salinity on crops.

Crop model

- Develop and evaluate a new crop model for the targeted tolerant crop.
- Predict future production of the targeted crop under future salinity and climate change conditions.

Stakeholders

- Farmers: Get income from the marginal saline lands
- Traders: Gain a new tool to predict their future trade
- Decision makers: Form better decision at national level



PROPOSED PARTNERSHIP

Partner 1: Agricultural Research Centre (ARC), Egypt

- Central Laboratory for Agricultural Climate (CLAC)

Partner 2: Desert Research Centre (DRC), Egypt

- Division of ecology and dry lands agriculture

Partner 3: International Centre for Advanced Mediterranean Agronomic Studies (CHIEAM)

- Mediterranean Agronomic Institute of Montpellier (IAMM)

Partner 4: Institut National de la Recherche Agronomique (INRA), France





Thank you for your attention!