



# Operationalizing the increase of water use efficiency and resilience in irrigation (**OPERA**)

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# MOTIVATION

- Adequate, timely and spatially differentiated info become more important for decisions in irrigation
- Recent decades provided large developments for irrigation management. However there is a gap in applying the necessary combination of techniques
- OPERA will focus on best possible combinations of ICT technologies and identifies innovative service models to realize a practical transition towards an increased use of precision irrigation

*OPERA addresses Challenge 1) Increasing the efficiency and resilience of water uses*

# OBJECTIVES

OPERA applies a transdisciplinary approach to identify:

- User demands to react more flexible to predicted water variability
- Adequate combinations of sensors, remote sensing, weather forecast and models for irrigation scheduling
- Integrate experience from various climatic zones to identify best applicable service models



# CONSORTIUM DESCRIPTION

|   |   |
|---|---|
| Wageningen Environmental Research (Alterra),<br>The Netherlands                         | Coordinator, Case study Netherlands,<br>weather forecasting                       |
| Stellenbosch University (SU), South Africa  | Case study South Africa, crop growth<br>monitoring                                |
| Evenor Tech (Evenor), Spain   | Case study Spain, soil water prediction<br>combining weather forecast and sensors |
| Instituto de Recursos Naturales y Agrobiologia<br>de Sevilla (IRNAS – CSIC), Spain      | Case study Spain, water stress adaptation,<br>commercial farms, market demands    |
| French National Institute for Agricultural<br>Research (INRA – EMMAH), France           | Case study France, operational RS tools<br>for ET mapping                         |
| University of Florence (UNIFI – DISPAA), Italy  | Case study Italy, optimum water<br>management under climate variability           |
| Council for Agricultural Research & Analysis of<br>Agricultural Economics (CREA), Italy | Case study Italy, crop water demand<br>forecasting, experimental trials           |
| Institute of Technology and Life Sciences<br>(ITP), Poland                              | Case study Poland, soil water content<br>using sensors                            |



# WORK PACKAGES

WP1 Identifying sector needs to increase resource use efficiency  
lead Evenor Tech, Spain

WP2 Forecasting water availability and critical water demand  
lead INRA – EMMAH, France

WP3 Guidance for optimal irrigation water strategies (case studies)  
lead ITP, Poland

WP4 Conceptualization of practical service models for irrigation  
lead CREA, Italy

WP5 Project management and dissemination  
lead ALTERRA, The Netherlands

# WPI. Identifying sector needs to increase resource use efficiency

- WPI is dedicated to the involvement of stakeholders, both in the case studies and at national/ European level. Stakeholder involvement will play a key role to identify market driven needs and to increase water use efficiency.
- Lead: Evenor Tech, Spain

## WP2. Forecasting water availability and critical water demand

- WP2 develops innovative methods to assess water availability, irrigation needs and the impact of water stress on production. Innovation will take profit of technical progresses as by e.g. Sentinel, progress in low cost sensors, weather forecast and data assimilation in crop models.
- Lead: INRA, France

## WP3. Guidance for optimal irrigation water strategies (case studies)

- WP3 will synthesize results and test practical guidance in the field as proof-of-principle. Testing will be carried out during two growing seasons in several case studies in France, Spain, Italy, Poland, The Netherlands and S-Africa
- Lead: ITP, Poland



# WP4. Conceptualization of practical service models

- WP4 aims to investigating the roles, institutions and potential markets for operationalizing services to the irrigation sector capable of providing benefits to the user community.
- Lead: CREA, Italy

# WP5. Project management and dissemination

- WP5 involves project management, the organization of transdisciplinary approach, co-learning and evaluation during the project period. The WP takes care of dissemination of project results to a wider audience.
- Lead: Wageningen Environmental Research

# Expected Impact of the Project

- OPERA contributes to optimal watering strategies and an increase of farm competitiveness
- Short term: Possibility to pick up elaborated combinations of ICT products to forecast water needs
- Mid term and long term benefits result from realizing a better advisory service in the agricultural sector under anticipation of climate variability and critical moments of water scarcity

# OPERA targets aims of the call (I)

## To promote multi-disciplinary work

OPERA involves a variety of technical and agronomic expertise that address the diversity of the cases

OPERA will involve the farming community from beginning to include their expertise and demands for the practical applicability

## To encourage proposals with fundamental and/or applied approaches

OPERA focus on applied approaches to deliver insight in strengthen the use of advanced IT in precision farming

# OPERA targets aims of the call (II)

To stimulate mobility of researchers within the Consortium

OPERA will proactively encourage working visits and longer stays at different partner institutes and case studies

To enhance collaborative research and innovation during the project life and beyond

- OPERA will deliver strategies and prototypes to develop concrete business cases for ensuring a continuous application after the life time of the project
- Links to WSSTP Working Group Water and Agrifood and EIP WIRE

THANK YOU