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

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Water JPI
WaterWorks2015 Cofunded Call
6 April 2017, Stockholm

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

WP1. Identifying sector needs to increase resource use efficiency

- WP1 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)

<u>To stimulate mobility of researchers within the Consortium</u>

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

<u>To enhance collaborative research and innovation during the project life and beyond</u>

- OPERA will deliver strategies and prototypes to develop concrete business cases for ensuring a continous application after the life time of the project

- Links to WSSTP Working Group Water and Agrifood and EIP WIRE

THANK YOU