



This project is part of the PRIMA Programme supported by the European Union

INTEL-IRRIS
Intelligent Irrigation Systems for Low-Cost Autonomous Water Control in Small-Scale Agriculture

FINAL EVENT
SAVE YOUR DATE!

ALGERIA May 9th, 2024



Intel-Irris

INTEL-IRRIS

Intelligent Irrigation System for Low-cost Autonomous Water Control in Small-scale Agriculture

A PROJECT FOR IRRIGATION OPTIMIZATION TARGETING SMALLHOLDERS

C. Pham, University of Pau, France



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<https://prima-med.org/>

- ⦿ Partnership for Research and Innovation in the Mediterranean Area
- ⦿ Focus on optimal usage of natural resources in agriculture/farming
- ⦿ **Call: Section 2 Multitopic 2020**
- ⦿ Thematic Area 1-Water management



⦿ Low cost, lean solutions for enhancing irrigation efficiency of small-scale farms management

- ⦿ Implementation: June 1st, 2021 → May 31st, 2024 (3 years)

<p>AUA: Agricultural University of Athens</p>   <p>Greece</p>	<p>ENSA-Safi: National School of Applied Sciences – Safi</p>   <p>Morocco</p>	<p>INRA: National Institute of Agronomic Research</p>   <p>Morocco</p>	<p>IRD: Institute for Research & Development</p>   <p>France</p>	<p>UMAB: University A. Benbadis</p>   <p>Algeria</p>	<p>UORAN1: University of Oran 1</p>   <p>Algeria</p>	<p>UPPA: University of Pau & Adour Country</p>   <p>France</p>	<p>WAZIUP eV: WAZIUP association</p>   <p>Germany</p>
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Optimizing irrigation in agriculture

- ⦿ About 70% of water is used for agriculture activities
- ⦿ **Digital technologies** can help reducing and optimizing usage of water, **but...**

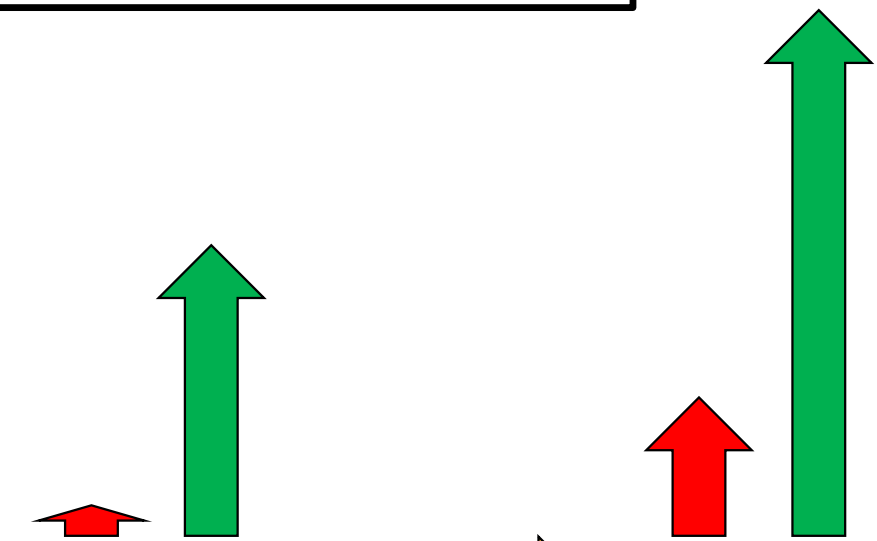
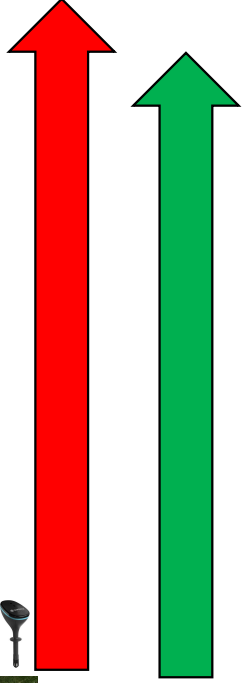
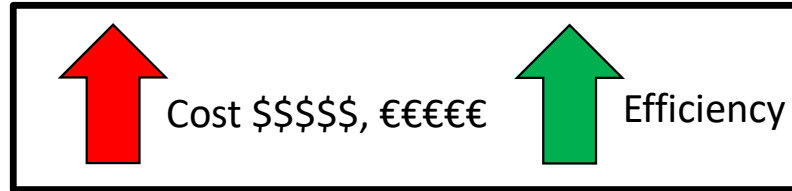


Possible for large farms



Out of reach for smallholders!

It is always a tradeoff...



Big Farms



**Small-scale farms,
 Smallholder Farmers**

**What can
 research &
 innovation
 bring to smart
 agriculture?**

Not as simple as it seems ☹️

Sense

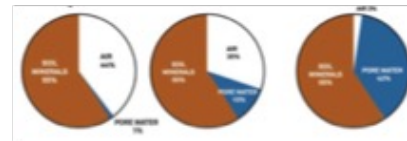


Volumetric Water Content,
 Water Potential, Water
 Tension,...

TDR, FDR, capacitance,
 resistance,



? Analyse



Soil characteristics: bulk
 density, soil salinity, soil
 texture & soil type

Evapotranspiration, soil-
 plant-atmosphere
 continuum,...



? Decide



Irrigation type: drip,
 furrow, sprinkler,...

Plant/Crop varieties

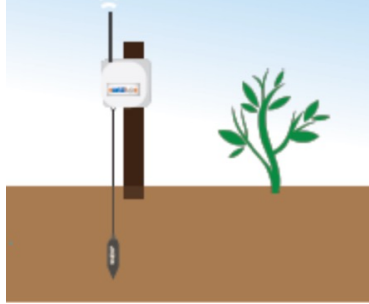
Relationship with other
 agriculture inputs

INTEL-IRRIS's main objectives

Low-cost

1

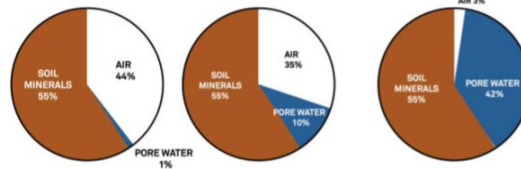
Propose low cost but highly efficient water control systems for irrigation optimization



Advanced technologies

2

Use cutting-edge technologies to propose highly innovative systems yet simple to deploy and adapted to smallholders



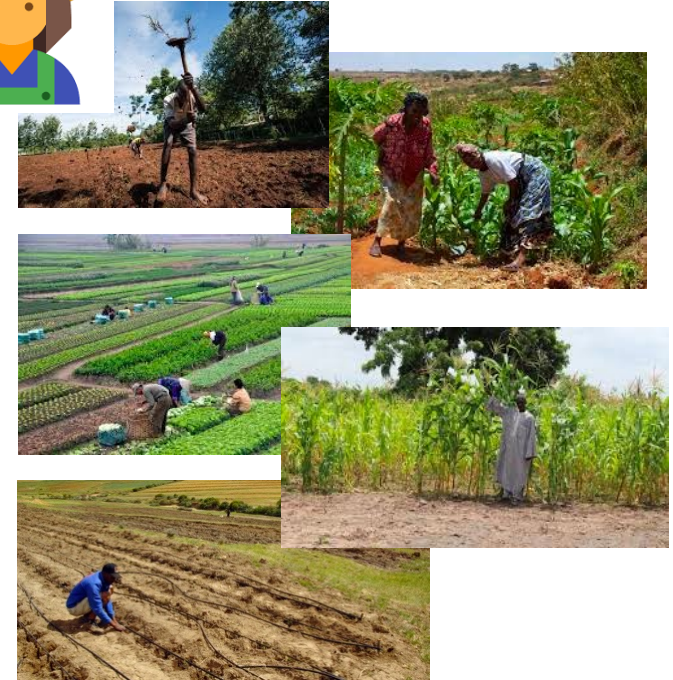
Autonomous Plug-&-Sense

3

Seamless integration into existing irrigation system and/or local customs and practices



Not only the cost barrier...



High acceptability
of technologies,
even complex ones

Very low acceptability
of technologies
because too complex!

Make technology simpler! Increase adoption!



4

Improve farmer's knowledge on water-related issues, foster local adaptation of technologies, increase local innovation capacity and facilitate technology appropriation

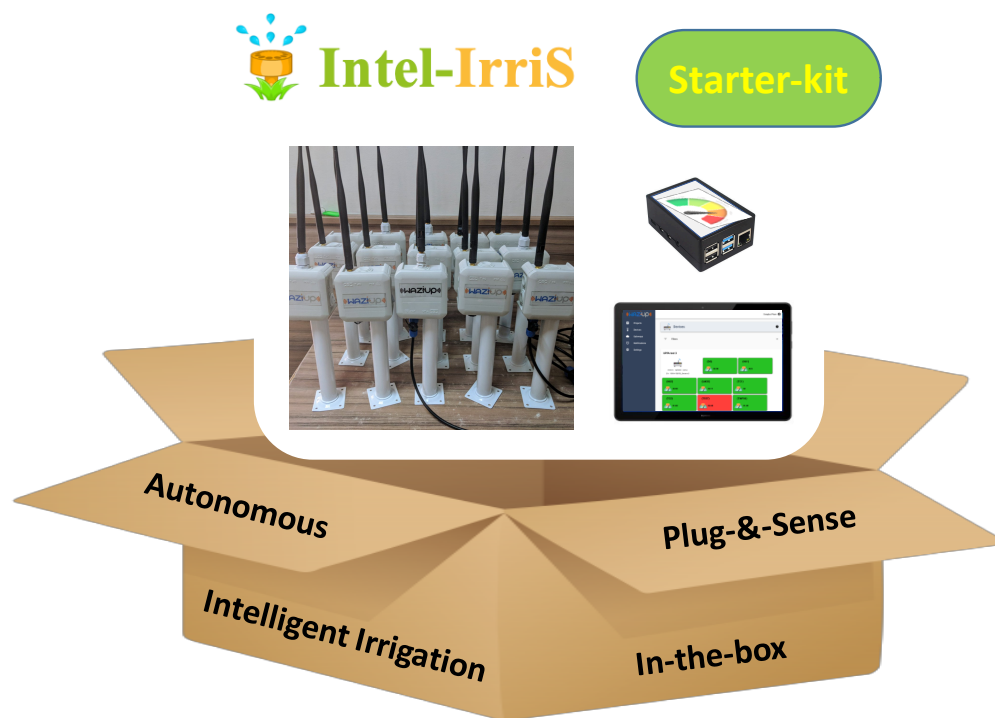


5

Large-scale adoption of low cost smart irrigation system by smallholders, stimulating synergies between various local actors

INTEL-IRRIS's starter-kit

- ⦿ At the beginning: **an idea...**
- ⦿ Very simple, "Intelligent Irrigation in-the-box", "plug-&-sense"



**Small-scale farms,
Smallholder Farmers**



NO INTERNET ☹

IT IS A TEAM WORK!



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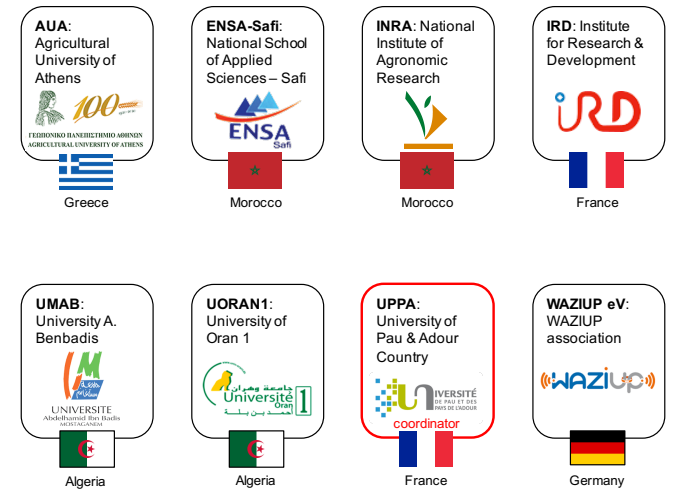
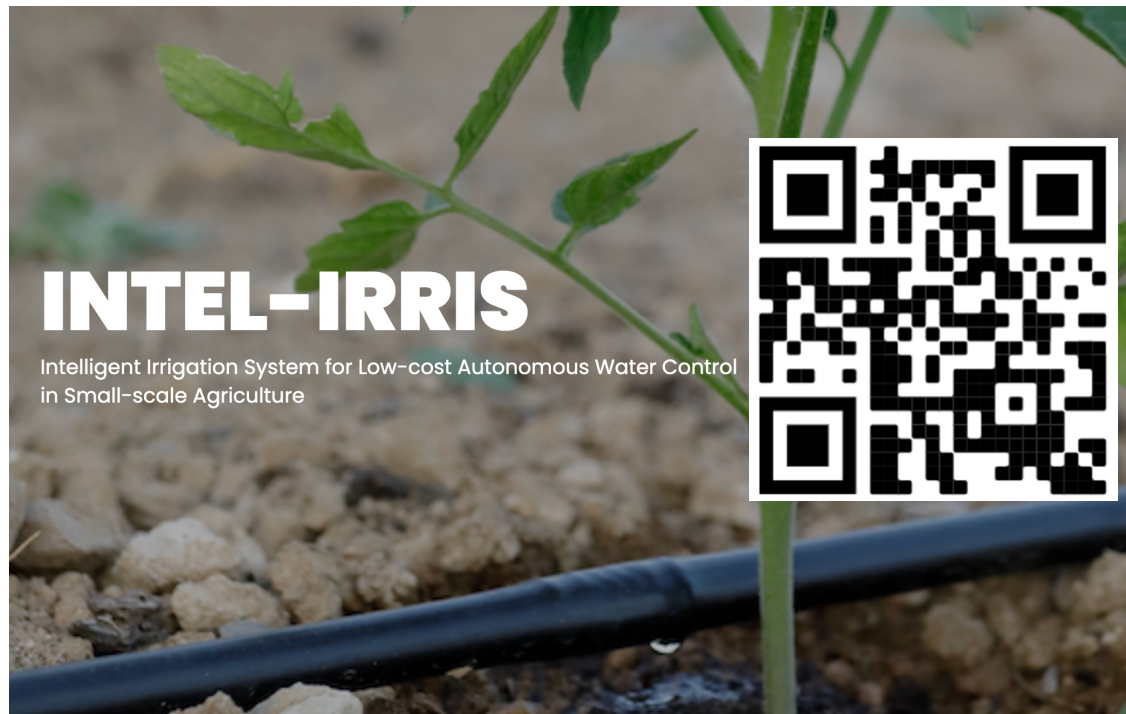
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