

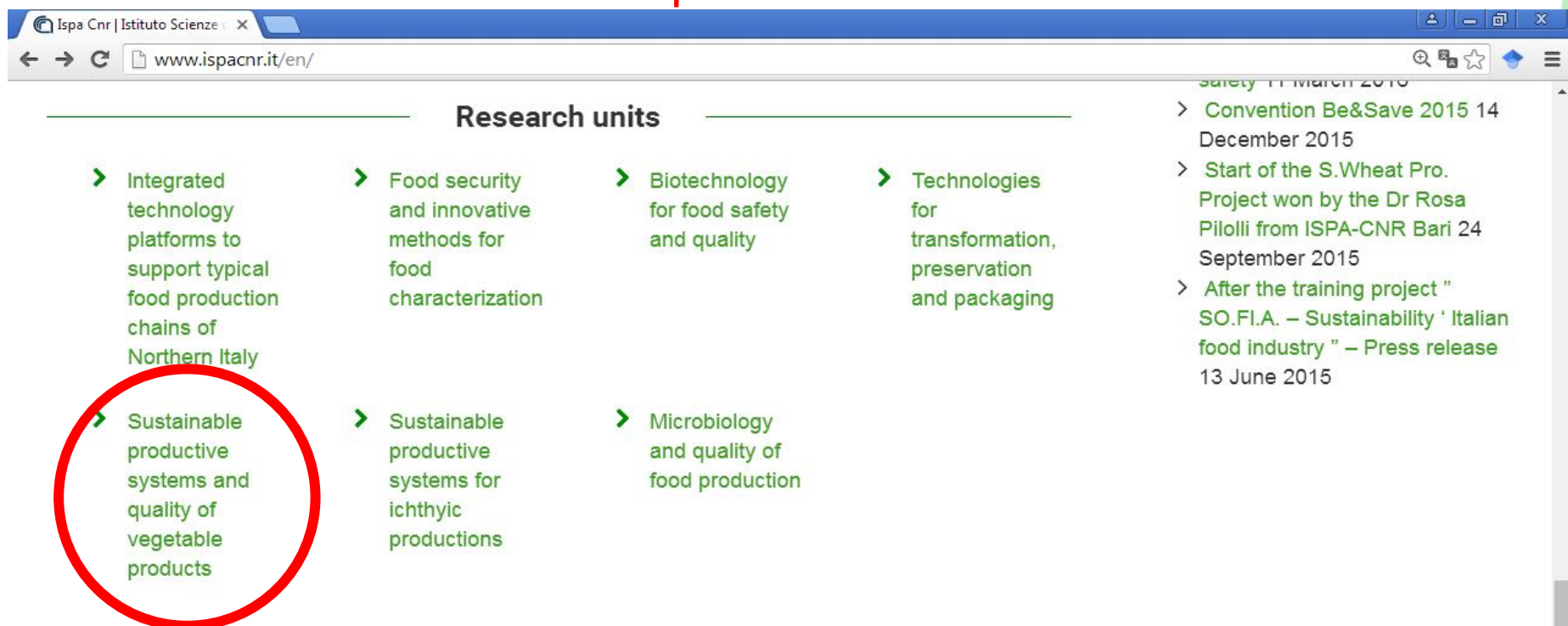
# IR2MA kickoff meeting

**Dr. Francesco F. Montesano – Dr. Angelo Parente**

ISPA acts in the fields of **scientific research**, **innovation** and **technology transfer** aimed to **improve safety and quality of agro-food products**



# Sustainable productive systems and quality of vegetable products



The screenshot shows the website of the Institute of Sciences of Food Production (ISPA-CNR). The browser address bar displays "www.ispacnr.it/en/". The main content area is titled "Research units" and lists several research areas. The unit "Sustainable productive systems and quality of vegetable products" is highlighted with a red circle. To the right, there is a "News" section with several articles.

**Research units**

- Integrated technology platforms to support typical food production chains of Northern Italy
- Sustainable productive systems and quality of vegetable products
- Food security and innovative methods for food characterization
- Sustainable productive systems for ichthyic productions
- Biotechnology for food safety and quality
- Microbiology and quality of food production
- Technologies for transformation, preservation and packaging

**News**

- Convention Be&Save 2015 14 December 2015
- Start of the S.Wheat Pro. Project won by the Dr Rosa Pilolli from ISPA-CNR Bari 24 September 2015
- After the training project "SO.F.I.A. – Sustainability ' Italian food industry " – Press release 13 June 2015

The ISPA – CNR is supported by 5 territorial units, throughout Italy, working in close synergy with each other to improve the



Bari



Milano



Lecce



Torino

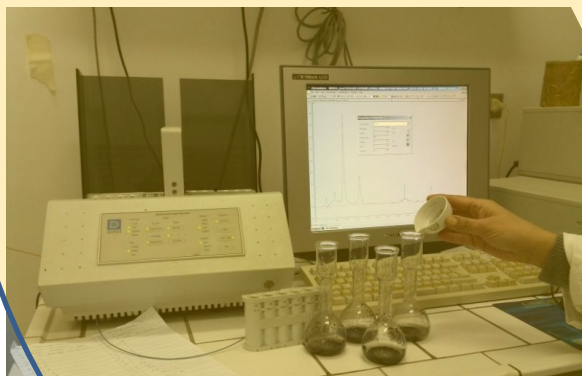


Sassari

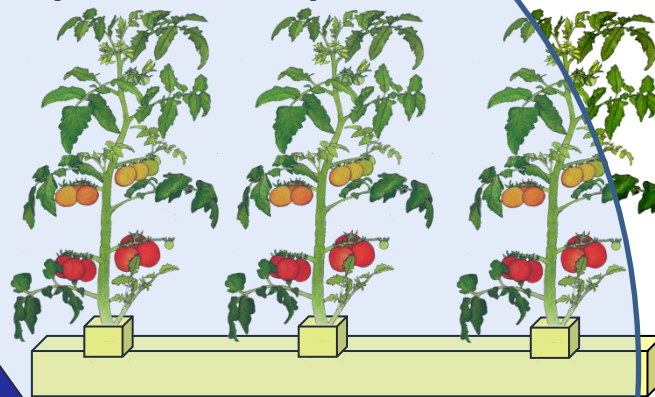


Our aim.....

High-quality, healthy products



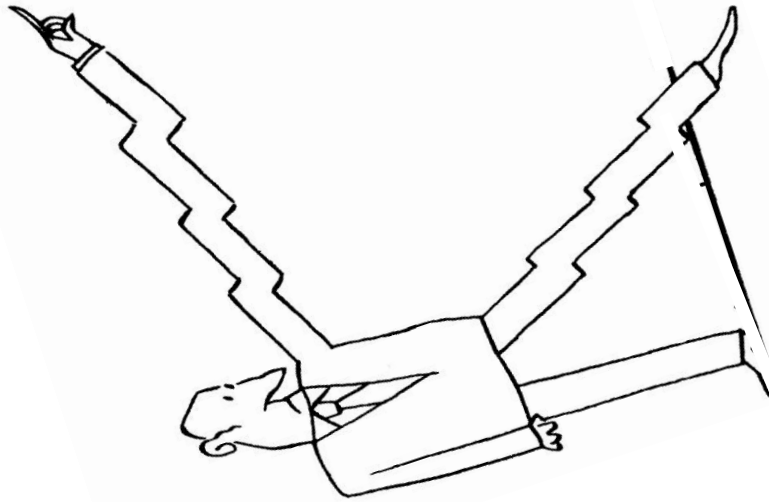
Reduced environmental impact of  
production processes



GLOBAL QUALITY

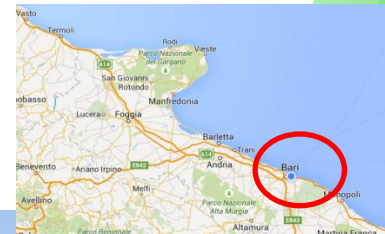
Improvement of  
product quality

Improvement of  
sustainability



## Experimental Station “La Noria”

- Greenhouses (2000 m<sup>2</sup>)
- Laboratory for the study of physical properties of growing substrates
- Laboratory for chemical analysis (nutrient solutions composition, plant tissue analysis, quality properties of vegetables products)
- Equipment for biometric and physiological measurements on plants (plant growth, gas exchange, CHL fluorescence, ...)





- Organization of / participation in dissemination events
- Scientific / technical publications
- Scientific support for data analysis
- Sustainability performance analysis

USE OF **RECYCLED WATER**  
RESOURCES IN HORTICULTURE

**SMART IRRIGATION** MANAGEMENT  
FOR VEGETABLE CROPS

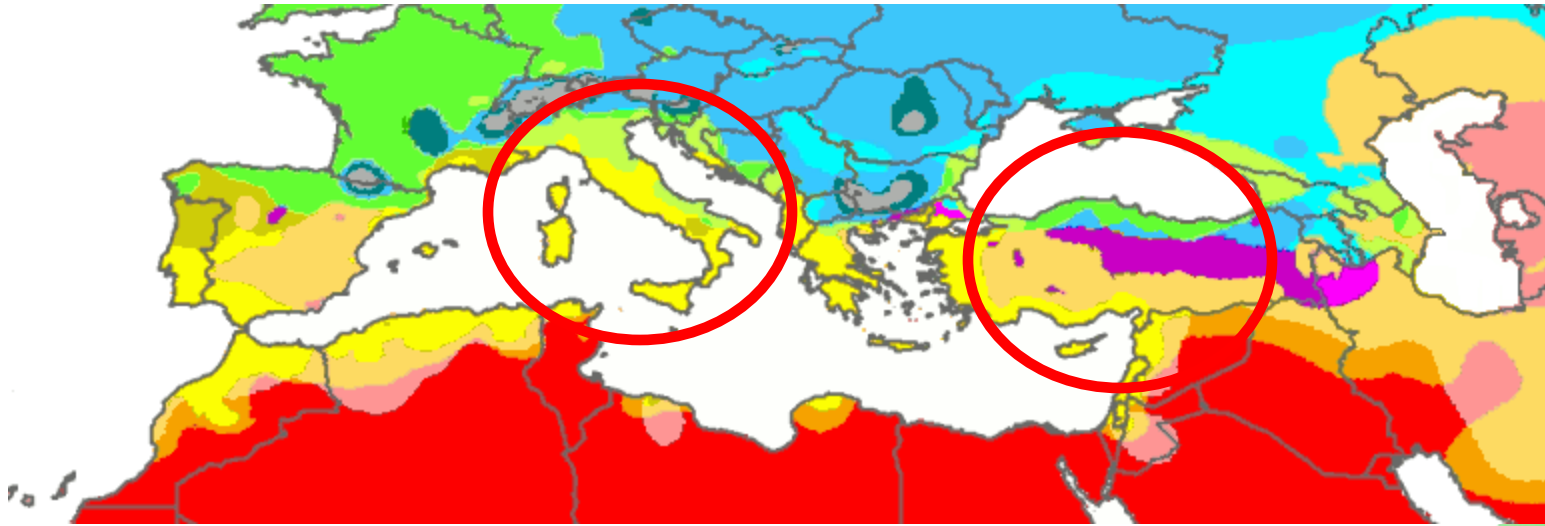
**APPLIED RESEARCH  
DEMONSTRATION**



- RESEARCH ENVIRONMENT and APPLICATION in REAL ENVIRONMENT → CBC collaboration, ...
- CAPITALIZATION of IRMA outputs (**sensor-based** irrigation of **greenhouse crops**)

Greenhouse industry is an expanding sector in Mediterranean area

≈ 400.000 ha (**Italy**, Spain, **Turkey**, Egypt,...)



"Koppen World Map (Mediterranean Sea area only)" by user:Br-Sc-94, user:MPF, user:Maphobbyist - File:Koppen World Map.png. Licensed under CC BY-SA 3.0 via Commons - [https://commons.wikimedia.org/wiki/File:Koppen\\_World\\_Map\\_\(Mediterranean\\_Sea\\_area\\_only\).png#/media/File:Koppen\\_World\\_Map\\_\(Mediterranean\\_Sea\\_area\\_only\).png](https://commons.wikimedia.org/wiki/File:Koppen_World_Map_(Mediterranean_Sea_area_only).png#/media/File:Koppen_World_Map_(Mediterranean_Sea_area_only).png)



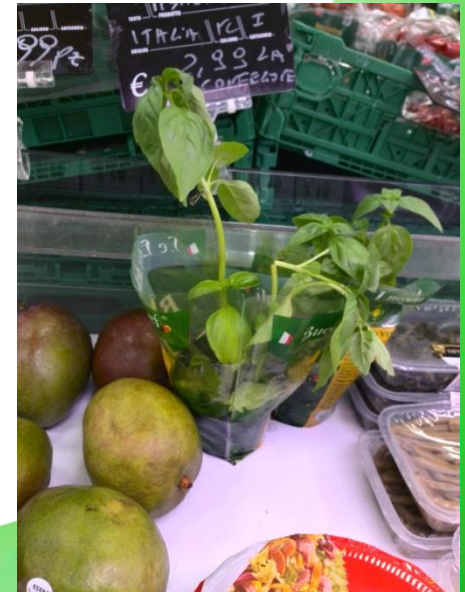


## Research on hydroponic cultivation in Mediterranean environment





## SOILLESS CULTIVATION: an increasing trend





# Efficient use of resources

## Sensor-based systems for efficient irrigation management of soilless crops

### Irrigation **MUST** be **EFFICIENT!**

- Efficient irrigation = Improvement of crop performance and product quality
- Water scarcity
- Increasing regulations pressure on environmental impact and sustainable use of resources



**EUROPEAN TERRITORIAL COOPERATION PROGRAMMES  
(ETCP), GREECE-ITALY 2007-2013**  
***IRMA – Efficient Irrigation Management Tools for  
Agricultural Cultivations and Urban Landscapes***



## New sensors available: **low-cost** and **reliable**



## IRRIGATION + FERTILIZATION = FERTIGATION



Efficient irrigation is also the keypoint for  
efficient use of fertilizers



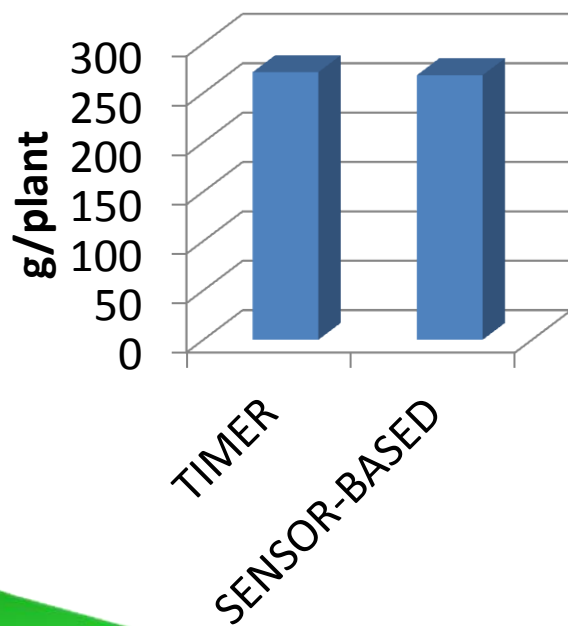




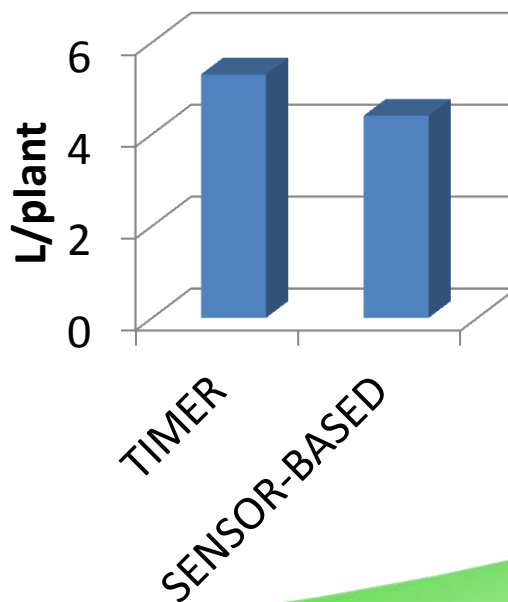
-20%

-40%

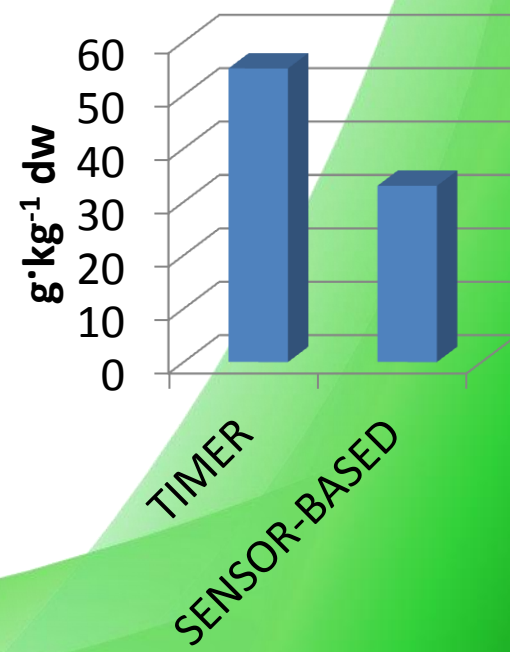
**Yield**



**Water Consumption**



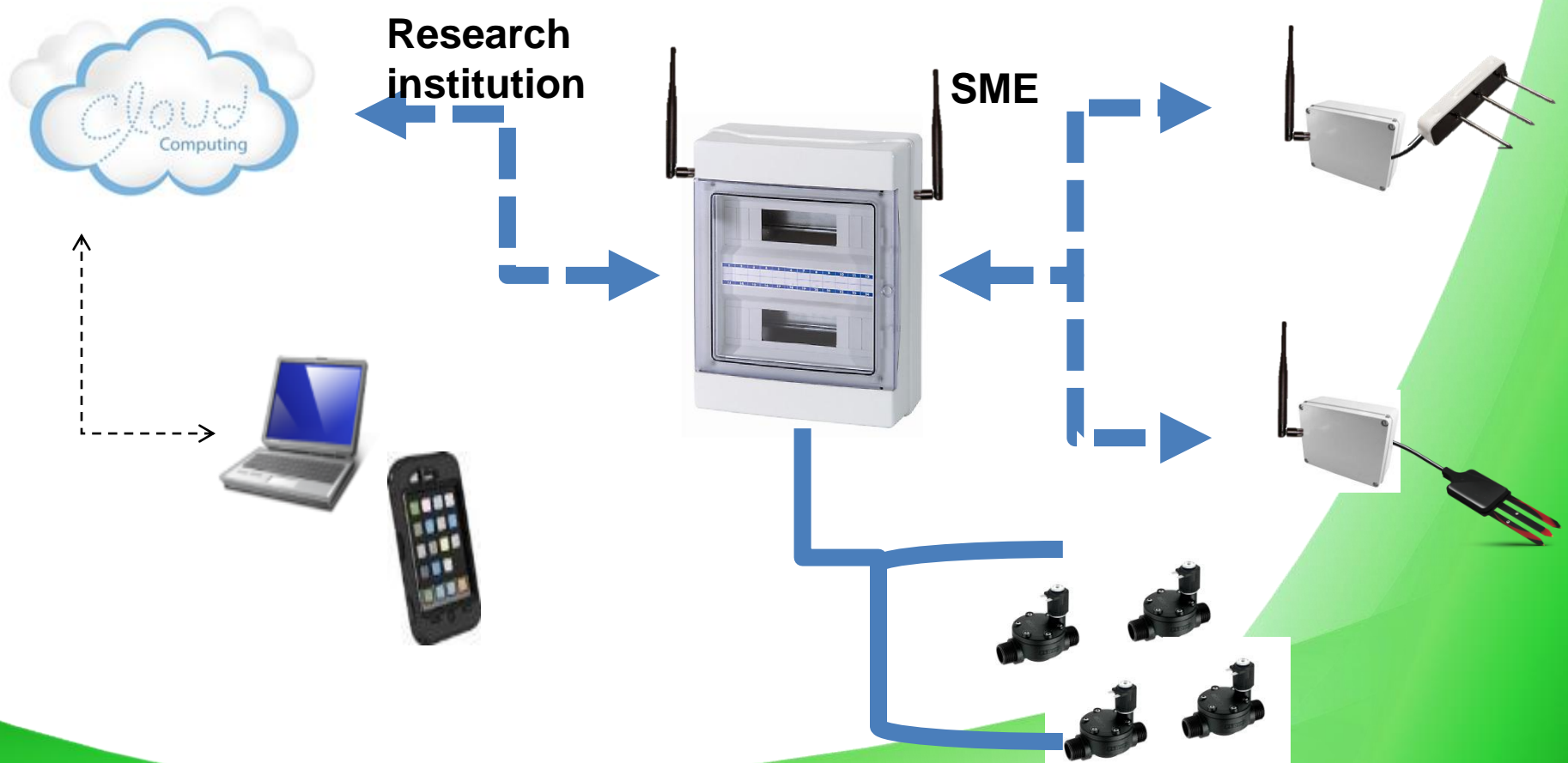
**Nitrate content**

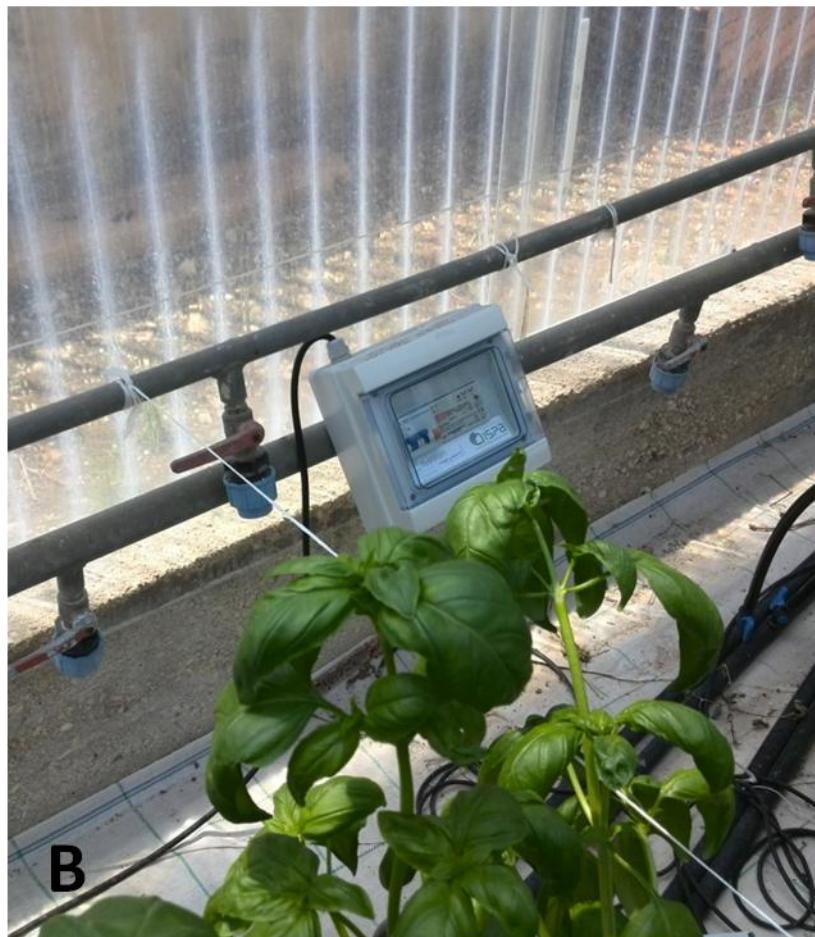




Current perspective: **COMMERCIAL APPLICATION**  
**PRECISION + DECISION**  
AUTOMATIC IRRIGATION SYSTEMS

IRMA product: Integrating wireless sensor networks in irrigation systems





# Thanks for your attention

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