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Research centre for
Vegetable and Ornamental Crops

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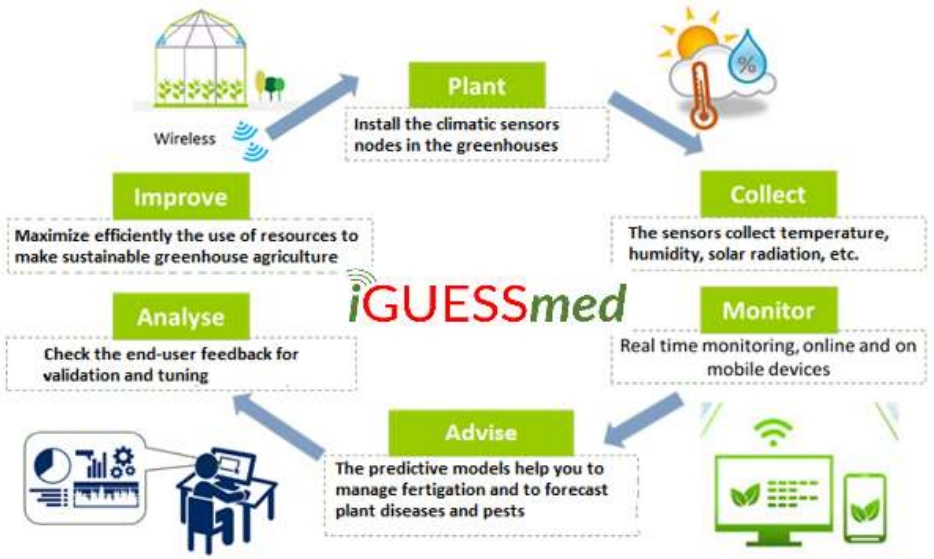
HIGH QUALITY TOMATOES WITH LOW ENVIRONMENTAL IMPACT

PRIMA
PARTNERSHIP FOR RESEARCH AND INNOVATION IN THE MEDITERRANEAN AREA

INNOVATIVE GREENHOUSE SUPPORT SYSTEM IN THE MEDITERRANEAN REGION: EFFICIENT FERTIGATION AND PEST MANAGEMENT THROUGH IOT BASED CLIMATE CONTROL



Dr. Alejandra NAVARRO GARCIA

The PRIMA Foundation?

Partnership for Research and Innovation in the Mediterranean Area

Mission

"To achieve, support and promote integration, alignment and joint implementation of national R&I programmes under a common research and innovation strategy to address the diverse challenges in water scarcity, agriculture, food security."

19 participating states countries from Europe, Africa and Asia

Section I. Projects are evaluated, selected and **funded** according to the Rules for Participation of **Horizon 2020** and are centrally managed by the PRIMA Foundation. Grant agreements (GA) are to be signed with the Foundation on the basis of the **H2020 Model GA.**

Section II. Projects are evaluated and selected based on rules which are analogous to the Rules for Participation of Horizon 2020. Such activities are **funded by the national funding bodies of Participating States**. **GA** will be signed between participants and by **relevant national funding bodies in accordance with national rules.**

4 thematic areas. Each year each **TA** is divided in 4 **topics (2 in Section I and 2 in Section II)**

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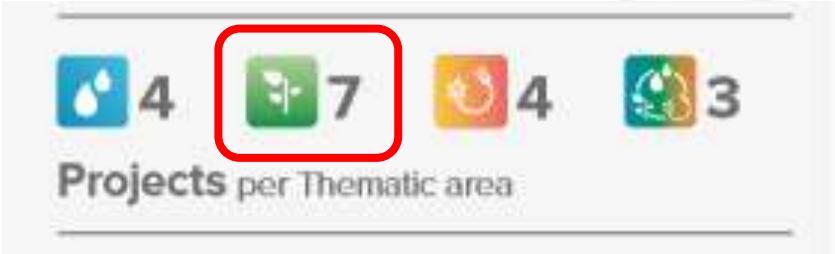

Funding by: *PRIMA. SECTION 1 – Farming Systems **2019**. Topic 1.2.2: "Sustainability and competitiveness of Mediterranean greenhouse and intensive horticulture"*

Type of action: *IA - Innovation action*

Duration: *4 years 1/04/2020 - 31/03/2024*

TOTAL BUDGET: *1,733,000€*

EU Contribution: *1,597,700€*

iGUESS-MED Consortium. About us?

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crea

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evja

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Andrea Sala

BIOPLANET

Italy

iGUESS-MED Participating countries

TURKEY

Maria Dolores Fernández

Alejandro Fernandez Moreno

SPAIN

Tunisia

Luisa Gallardo

Dursun Buyuktas

Asma Laarif

OVERARCHING GOAL

Support the transition toward innovative, sustainable and competitive Mediterranean horticultural greenhouses ⇒ Development and testing of a **Decision Support System (DSS)** for the MED greenhouses

- reduce the nutrient leakages into sub-surface and groundwaters, and freshwater use by **optimizing the fertigation management** under low quality water conditions
- **reduce** the **use of chemicals** by a sustainable and integrated pests and diseases control
- **increase** the productivity by an improved and cost-effective **efficiency of climatic control procedures**

Tomato as reference crop / **Low-tech greenhouses** typical of the MED region ⇒ application of participatory and integrated interdisciplinary toolkit of **sensor technology, IoT, advanced agronomic management, simulation models and mathematic algorithms.**

SPECIFIC OBJETIVES

Develop a DSS in MED tomato greenhouses for fertigation and irrigation management, pests and diseases control and smart improvement of climate conditions

Develop dedicated protocols to forecast the occurrence of plant pathogens and arthropod pests, boosting biological control in tomato greenhouses

Create a mutual learning space and to facilitate technology exchange between EU and non-EU MED countries, empowering a new generation of younger entrepreneurs

Introduce innovative management to facilitate the adoption of efficient fertigation strategies, particularly under conditions of low water quality to ensure limited nitrate and phosphate leaching

Assess the environmental and socio-economic impacts of innovative tomato cropping systems in commercial greenhouses

Spread project results to stakeholders, for promoting learning, improving market competitiveness and social acceptance of advanced and sustainable MED greenhouses

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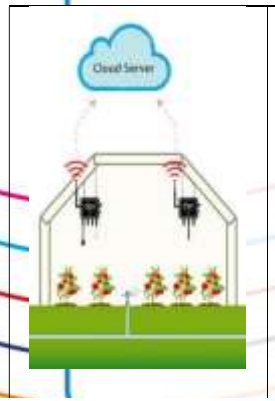
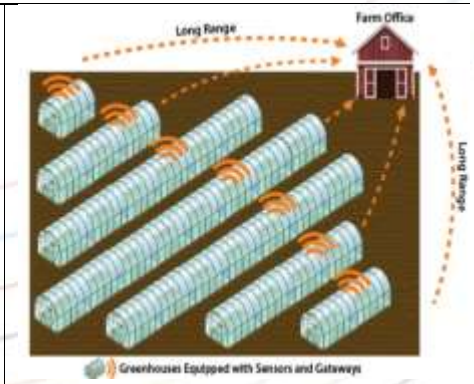
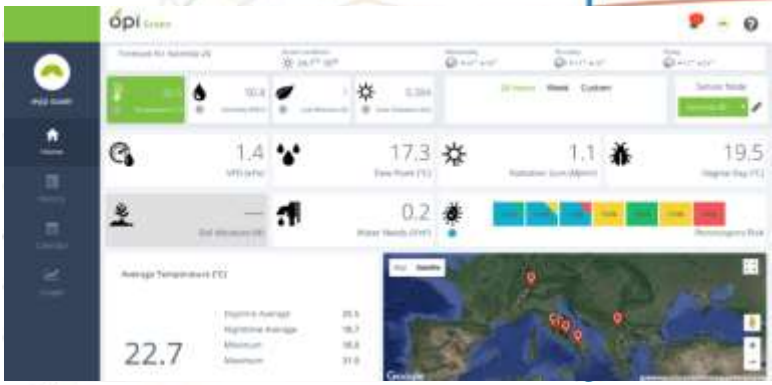
DSS??

DSS = DECISION SUPPORT SYSTEM

HELPS THE FARMER
DOES NOT REPLACE THE FARMER
ONLY GETS BETTER WITH THE HELP OF THE FARMER







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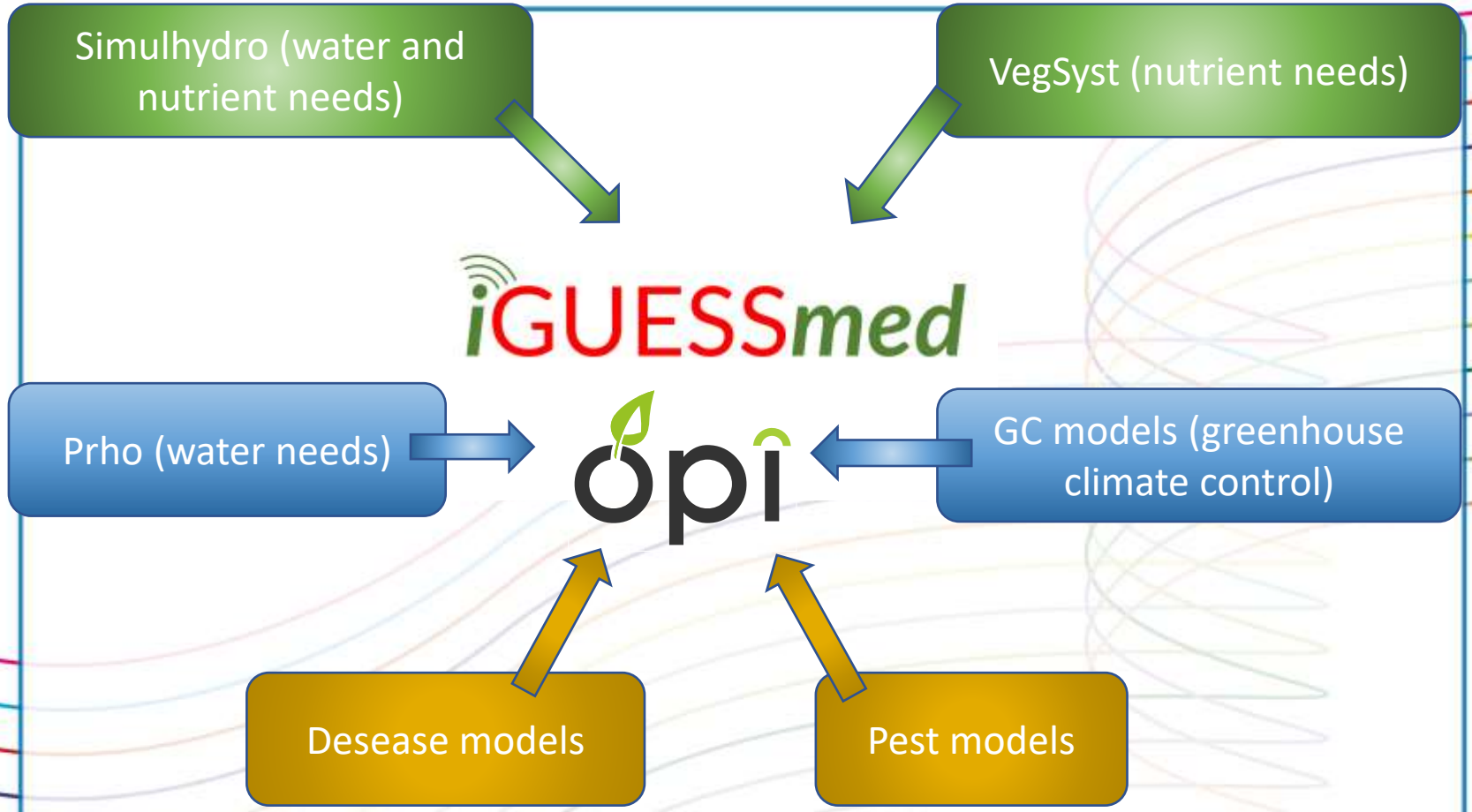
SALINE WATERS (EC is considered for calculation of water and nutrient needs)

WHICH CHALLENGES?



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DSS Design and development

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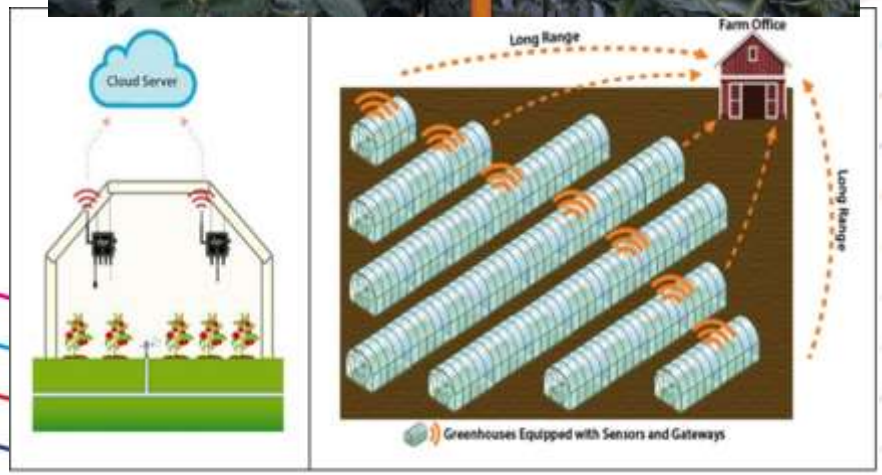
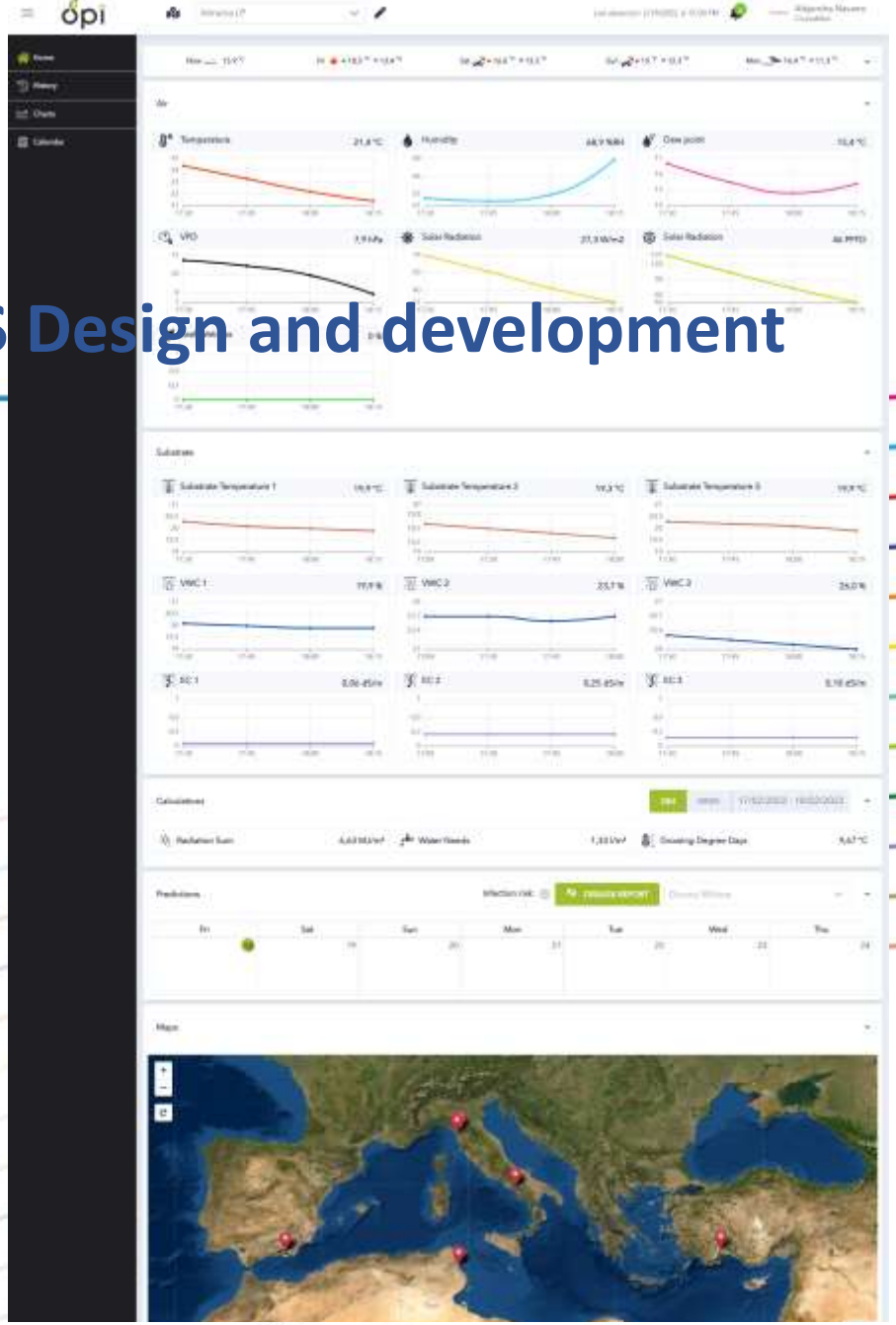
DSS Design and development





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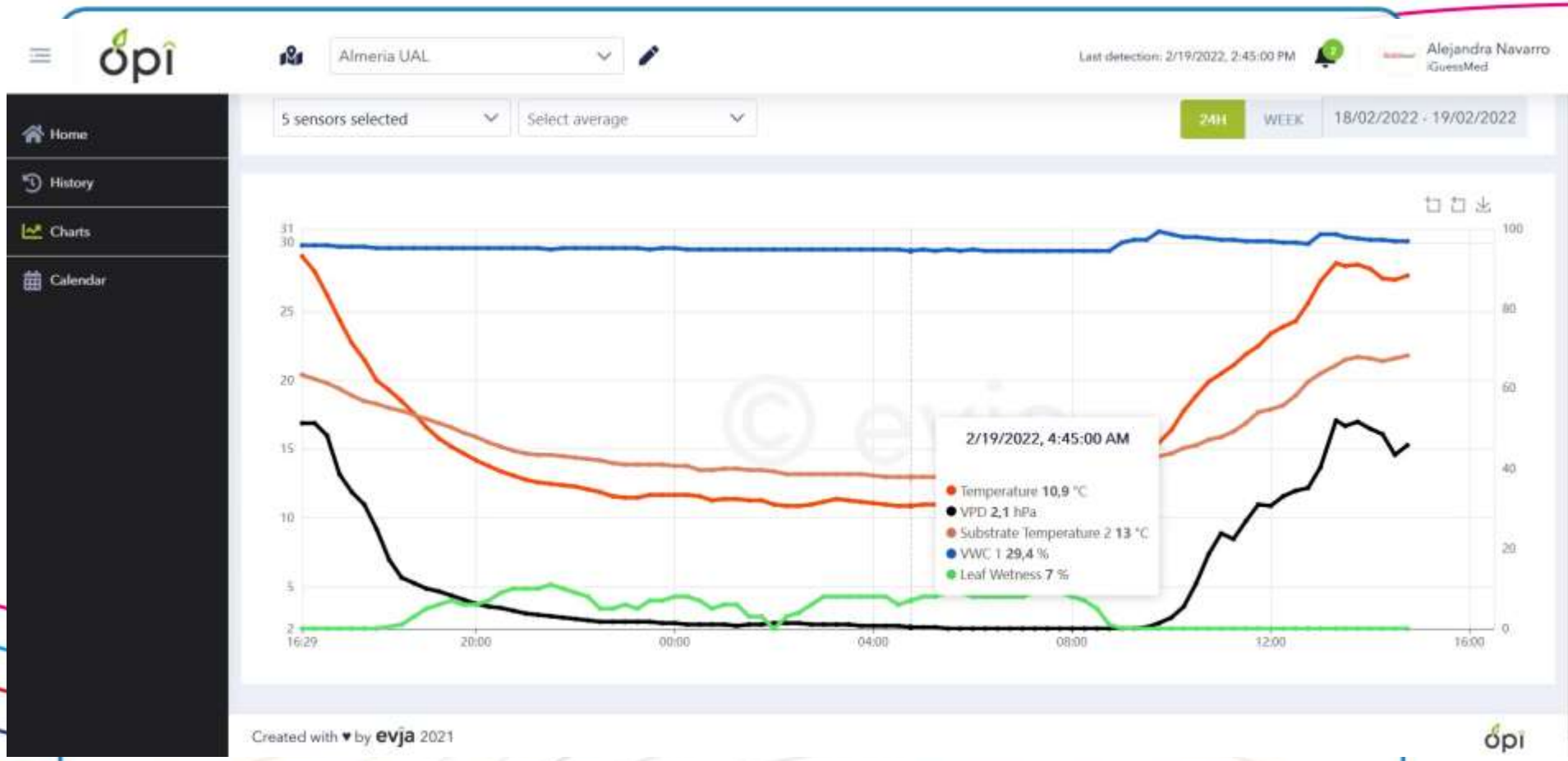

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DSS Validation and Demo

Prototype validation by end-users in their commercial greenhouses

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OUTCOMES

- *Improving the productivity of Mediterranean greenhouses through a new DSS*
- *Reduction of chemicals use :*
  - *Fungicides : 60/70%;*
  - *Insecticides: 60/70%*
  - *Biocontrol Increase: 60%*
- *Climate improvements in existing greenhouses:*
  - *Smart and low-cost improvements of climate conditions >5*
  - *Automation improvement: >20%*
- *Incorporation and improvement of soilless crops*
- *New models of Crop Evapotranspiration (ETc): 4*
- *N, P, and K leaching reduction: 60 – 20 – 50 %*
- *Dissemination of project results and activities to stakeholders*
- *Creating an area of mutual learning and technology exchange*

INFO & CONTACTS

PRIMA Info-Day - Roma, 29/01/2020.

https://www.iguessmed.com/

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company/iguessmed

EXPO DUBAI 2020, Dubai, EAU 22 February 2022. Italian Pavilion, MIPAAF and CREA. https://www.youtube.com/watch?v=bMYFAmkdueo

FRUIT ATTRACTION 2021

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THANKS!!

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