

PRACTICE ABSTRACT n° 13

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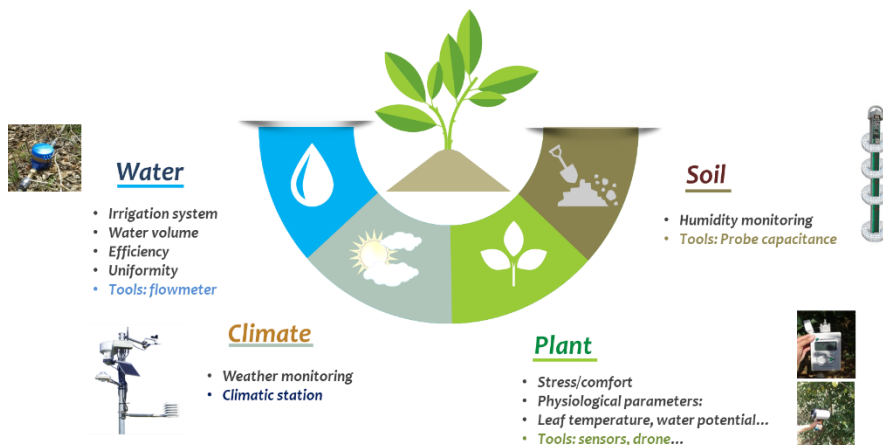
Precision Irrigation / Fertigation system

Smart farming solutions would enable users to **monitor and control their irrigation equipment, manage farms more efficiently** in terms of usage of resources like fertilizers, seeds, pests, and water, and **monitor farm conditions in real time**. This will help the small farmers to detect inconsistencies, reduce operational challenges and to be more cost effective.

With agricultural IoT **sensors installed at field monitoring stations**, small farmers can have a powerful dashboard with analytical capabilities and integrated drip irrigation monitoring functions. This tool can be used both for agricultural advice in general and for specific crop monitoring and inputs reasoning. It is an **open and scalable solution that can be extended to the entire agricultural production system** in relation to farmers' needs and **resource saving opportunities**.

The objective of this **precision technology is to save water consumption of crops** without reducing production quantity and quality specially for small farmers. (IoT sensors, LoRaWAN tech. and mobile App.)

General indications for crops water requirements



1. **Conduct agronomic experimentation** on deficit irrigation and on the development of **irrigation scheduling parameters** for specific crops;

2. Development and implementation of a solution **for parcel-based irrigation consulting using precision farming tools in a mobile application**;

3. **Support, training and demonstrations** of farmers on the **installation, maintenance of sensors** and use of the **mobile application** designed for **irrigation reasoning**.

Results after testing the system with 400 farmers and 120 students

1. **Reduction of crop irrigation water consumption by 20-25%** in relation to the results obtained from the deficit irrigation trials and considering the possibilities of reducing the doses based on the real needs of the crops (farmers tend to bring much higher irrigation doses than the real needs of crops).
2. **Cost reduction of the production and more sustainability** of regional agriculture considering water scarcity and climate changes effects.
3. **Increase in farmer's incomes** for more than 10%.