



The experience of Irriframe and Acqua Campus[®] innovations in irrigation systems across Italy

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It is generally agreed that the efficient and effective use of water in irrigation systems is of critical importance for sustainable agricultural development, food security and overall economic growth. This is particularly true in light of global population growth, climate change and the competing demand for water from other economic sectors. To this end, precise irrigation is a relevant opportunity to improve irrigation systems for the purpose of maximizing crop production while ensuring an efficient and optimal use of water. While it is unanimously recognized that precise irrigation is a key requirement for sustainable agriculture there is still limited knowledge and limited technical guidelines to get to target. Irriframe and Acqua Campus[®] are relevant innovations for water resources management, drought management and agriculture. Irriframe and Acqua Campus[®] are services to water managers and farmers to maximize the efficiency of irrigation networks. They process information from a specific irrigation system to suggest innovative solutions to save water. Irriframe and Acqua Campus[®] address the challenge of introducing smart and precise irrigation in areas where typical and controlled-origin-denomination products are produced. The problem is the improvement of irrigation efficiency, through the use of advanced techniques, while preserving the quantity and behaviors of agricultural production. Irriframe and Acqua Campus[®] also address the problem of transferring knowledge to farmers and stakeholders in general.

In detail, Irriframe and Acqua Campus are composed as follows:

- The Irriframe service (see <https://www.irriframe.it/Irriframe>): a web-based system to estimate the amount of water that should be delivered to a specific crop depending on soil type, geographic location, irrigation features, meteorological data, groundwater data and data from satellite images and drones – the latter is used for precise irrigation systems. Irriframe is also available through a smart-phone application.
- Acqua Campus[®] (see <http://www.consorziocer.it/it/p/acquacampus/>): an experimental site to test the efficiency of several testing facilities for precise irrigation techniques in order to provide technical advice to farmers.

The impact of Irriframe and Acquacampus is significant. Being used by several land reclamation Bureaus across Italy, Irriframe and Acqua Campus[®] changed the irrigation practices towards a more efficient and sustainable water resources management, thus placing itself as a key innovation across Europe.